



Iris  
Biotech



# RESIN GUIDELINE



Version: IB10\_3



# Empowering Peptide Innovation

With this guiding theme in mind, Iris Biotech's mission is to support researchers by supplying

- innovative technologies,
- rare compounds,
- as well as a broad portfolio on standard consumables,

available in flexible quantities from small scale to bulk quantities. To fulfill our dedication "Empowering Peptide Innovation", we are attending various conferences, symposia, and exhibitions each year. This allows us to remain in direct contact with scientists all over the world, both from academia and industry, to exchange knowledge, and to gather new ideas to tackle your current challenges.

Guided by our dedication to provide

- competent service,
- as well as novel substances and
- latest technologies,

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**Amino Acids**



**Building Blocks**



**Life Sciences**



**Drug Delivery**



**Reagents**



**Resins**



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- upscaling towards larger scale production,
- as well as synthesis optimization for increased efficiency.

Examples are the synthesis of rare chiral building blocks, unnatural amino acid derivatives, sophisticated orthogonal protecting groups, heterocycles, building blocks for nucleotides, PEGs and PEG-analogues as well as specific linkers for controlled drug delivery and release.

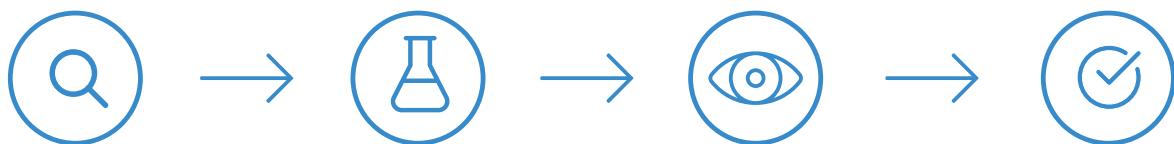
# Portfolio Overview

Peptide Synthesis and Modification	Linkerology® and Drug Delivery	Life Sciences
<b>(Protected) Amino Acids</b> Standards such as Fmoc-D/L-AAA and Boc-D/L-AAA, Smoc amino acids for peptide synthesis in water, variety of protecting groups (e.g. Pbf, Trt, <sup>t</sup> Bu, Bzl, Acm, Mob, SIT, Phacm, Allocam, Mmt), unusual amino acids, fluorinated derivatives, substituted prolines, arginine analogues	<b>Linkers for Solid Phase Peptide Synthesis</b> <b>Cleavable Linkers</b> Val-Ala based, Val-Cit based, disulfide-based, Dde-helping hands	<b>Biotinylation Reagents</b> <b>Carbohydrates</b> Galactose, Glucose, Maltose, Mannose, Xylose and others
<b>Building Blocks</b> Amino alcohols, amino aldehydes, diamines and hydrazines, (pseudoproline) dipeptides, polyamines and spermines, fatty acid derivatives	<b>Photo-Activatable Linkers</b> <b>Functionalized Linkers</b> Clickable linkers, trifunctional linkers, linkers with maleimide function, cross-linkers, selective N-term acylation and biotinylation	<b>Peptides</b> <b>Substrates &amp; Inhibitors</b> E.g. protein kinase inhibitors, substrates for fusion (Halo/Snap/Clip)-tagged proteins
<b>Reagents</b> Coupling reagents, solvents and scavengers, protecting groups	<b>PROTACs</b> Ligands, linkers & modules	<b>Natural Products</b> <b>Dyes and Fluorescent Labels</b> E.g. ICG, AMC, DAPI
<b>Resins</b> Preloaded resins (e.g. based on Trityl, TCP, TentaGel, Methoxybenzhydryl, Merrifield, PAM, Rink, Wang), scavenger resins, hydrazone resins	<b>Fullerenes, Poly(2-oxazolines) &amp; Dextrans</b> <b>Poly-Amino Acids</b> Poly-Arg, Poly-Glu, Poly-Lys, Poly-Orn, Poly-Sar	<b>Maillard &amp; Amadori Reaction Products</b> Large portfolio of derivatives useful as standards for food, pharma and cosmetics industry
	<b>PEGylation</b> Branched PEGylating reagents, (amino-)PEG-acids, PEG-amines & hydrazides & guanidines, reagents for Click-conjugation, Biotin-PEG-reagents, PEG-thiols, PEG-maleimides, other PEGylating reagents	<b>Vitamins</b>

## Custom Synthesis

Your project requires a compound not listed in our portfolio?  
Get in contact and inquire about our custom synthesis capabilities.

**Our experienced scientists are excited to accept your synthetic challenge!**  
In such cases, your request undergoes the following stages:



### Step-by-Step Analysis

- Customer's demands

### Process Evaluation

- Detailed literature review
- Synthetic possibilities

### Strategy Development

- Protocol development
- Method development and validation
- Customized synthesis

### Quality Consistency

- Identity confirmation
- Purity verification

## Our Service Promise

All our services are based on high standards, transparency & documentation, trust, honesty & confidentiality, as well as the required know-how.

### High Standards

- Values: sustainability & responsibility
- State-of-the-art equipment & latest technologies
- High quality standards
- Qualified suppliers & regular audits

### Transparency & Documentation

- Talk to our specialists – customer care
- Certificates of analysis & impurity profiling
- Analytical and process reports

### Trust, Honesty & Confidentiality

- Intergenerational business valuing partnerships
- Meeting the customer's expectations
- Integrity towards our customers

### Our Know-How

- One-step reactions & complex multi-step synthesis
- Scalability from mg to kg quantities
- Route scouting





## Table of contents

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# Resin Guideline

<b>1. Introduction: The Origins and Background of SP(P)S</b>	<b>1</b>
1.1. How Solid Phase Chemical Synthesis Started	3
1.2. Modern Synthetic and Strategic Developments of SPPS	3
<b>2. Physical Properties of Resins</b>	<b>5</b>
2.1. Shape and Bead Size	5
2.2. Cross-linkage and Swelling	6
2.3. Resin Substitution	8
<b>3. Base Resins</b>	<b>9</b>
3.1. Merrifield Resin	9
3.2. Hydroxymethyl Resin	10
3.3. Amino Core Resins	12
3.4. TentaGel® Resins	14
<b>4. Resins and Linkers for the Synthesis of Peptide Acids</b>	<b>16</b>
4.1. Trityl Resins	16
4.2. Wang Resins	18
4.3. AC Resin	19
4.4. PAM Resin	19
4.5. HMBA Resin	20
4.6. Benzhydryl Resins	20
<b>5. Resins and Linkers for the Synthesis of Peptide Amides</b>	<b>24</b>
5.1. Rink Amide and Knorr Resins	24
5.2. Sieber Resin	26
5.3. Peptide Amides Synthesis by Side Chain Immobilization	26

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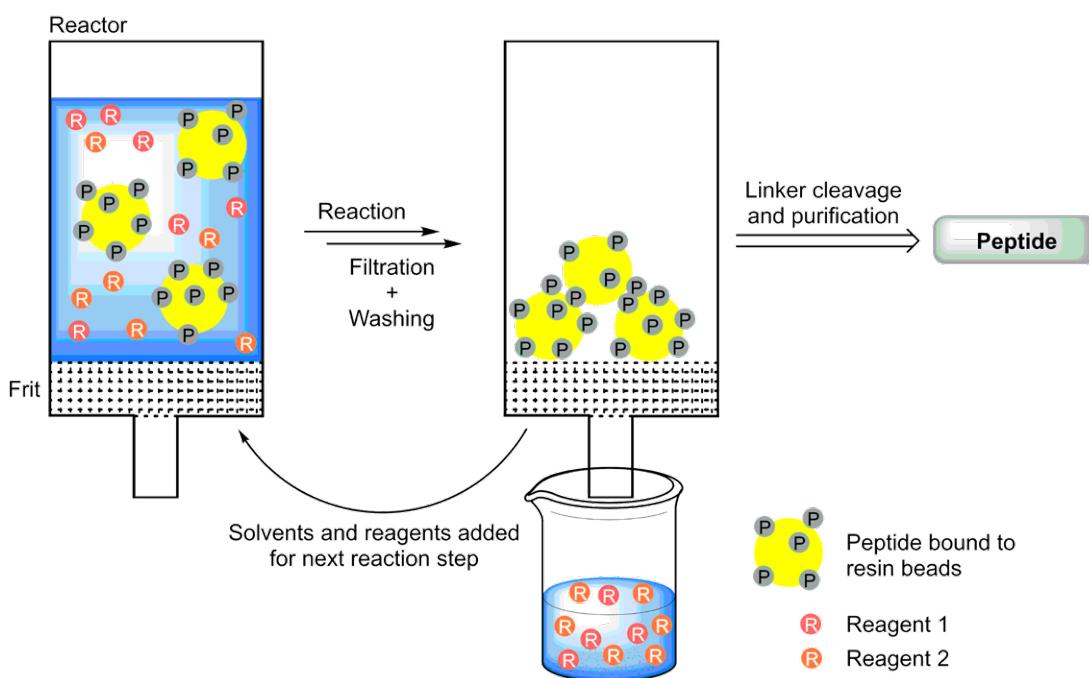
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<b>6. Hydrazone Resins</b>	<b>28</b>
<b>7. Scavenger Resins</b>	<b>31</b>
<b>8. Standard Protocols for Peptide Synthesis</b>	<b>32</b>
<b>9. Product Catalogue</b>	<b>35</b>
9.1. Base Resins	35
9.2. Preloaded Resins	79
9.3. Scavenger Resins	170
<b>Code of Conduct</b>	<b>181</b>
<b>Terms and Conditions of Sales</b>	<b>183</b>
<b>Index</b>	<b>187</b>

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# 1. Introduction: The Origins and Background of SP(P)S

The main advantage of solid phase synthesis (SPS) in comparison to classical solution phase synthesis is the fast and easy separation of the desired product and excess reagents by filtration. In the most common form of solid phase synthesis, the molecule being synthesized (e.g. a growing peptide chain) is attached to an insoluble solid support that is swollen in a certain solvent, while reagents are added to the suspension in a dissolved state. By removing excess reagents and dissolved byproducts by filtration and washing, an excess of reagents can usually be employed in SPS, allowing to shorten reaction times and ideally to realize quantitative turnover of the substrate, which in turn leads to higher yields.



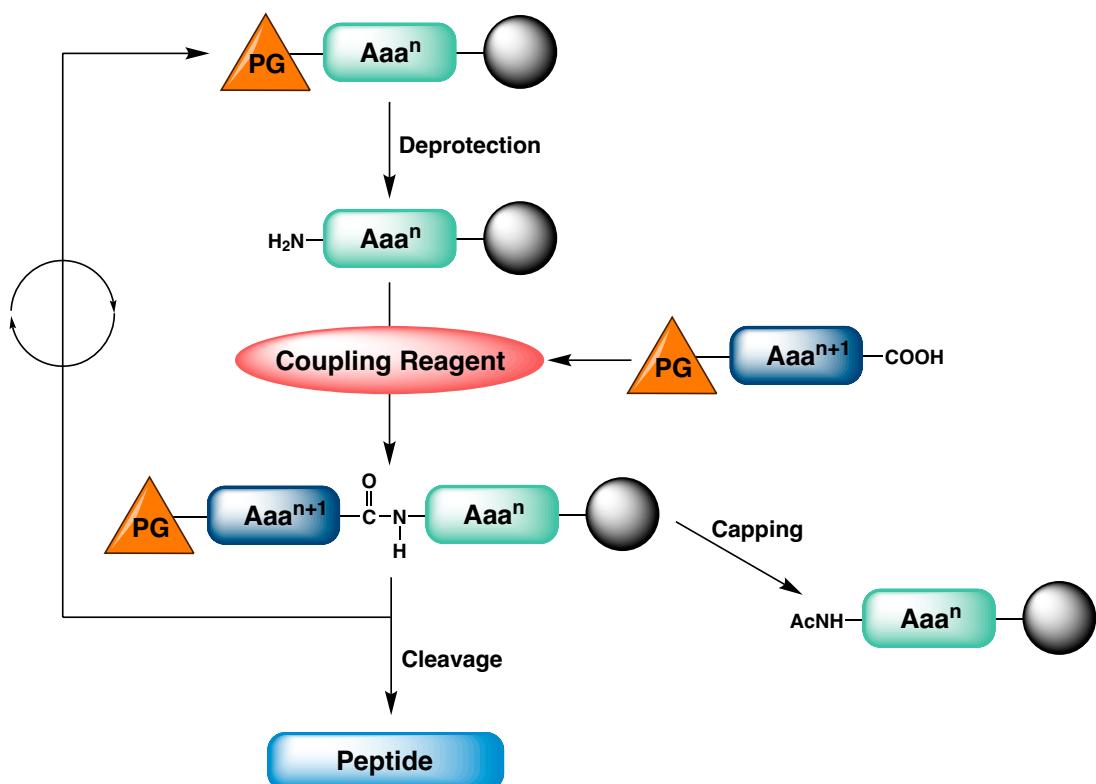
*Fig. 1: Solid-supported synthesis enables fast and easy separation of excess reactants from the product, as the latter is bound to insoluble resin beads.*

The main advantages of SPS are:

1. Fast work-up through easy separation of the solid support-bound peptide from dissolved reactants and byproducts by filtration, and multiple, rapid washing steps.
2. Improved reaction times, turnover, and yield by use of excess amounts of reagents.
3. The syntheses can easily be automatized.
4. Minimal physical product loss.
5. Pseudo-dilution phenomena on individual beads can enable cyclization and avoid the formation of dimers.

Originally, SPS was developed to overcome the tedious and repetitive way of solution phase synthesis of peptides. Since that time, it has been adapted and optimized for the synthesis and production of other biopolymers such as DNA and RNA, as well as small organic molecules.

A typical solid phase synthesis consists of a series of alternating reaction and washing steps, the repetitiveness of which lends itself well to the (automated) synthesis of oligomeric structures such as oligonucleic acids, or peptides. The first reaction step in any solid phase peptide synthesis is the attachment of a bi- or more-functional amino acid to the solid support. Only one of the building block's functional groups is free to react, while all others are protected to avoid unwanted side-reactions. Next, the second functionality is deprotected, so that a further amino acid can be coupled to the first resin-bound building block. The peptide chain is then elongated by reiterating this sequence of coupling and deprotection cycles. In the final steps, the molecule is cleaved from the resin, and all remaining protecting groups are removed. This general reaction scheme is exemplified in *Fig. 2*.



*Fig. 2: General reaction sequence of SPS. After attachment of the first building block to the resin, additional building blocks are attached in reaction cycles of deprotection and coupling and the final product is cleaved from the resin.*

The downsides of SPS are the high solvent consumption as well as the difficult analysis and process control in between reaction steps. As starting material, intermediates and target molecules are bound to the resin, their ratio cannot be directly determined by the usual methods (e.g. TLC), which makes it difficult to monitor the progress of the reaction.

**back to content ↑**

## 1.1. How Solid Phase Chemical Synthesis Started

In the late 1950s and early 1960s, Robert Bruce Merrifield developed solid phase peptide synthesis (SPPS) and demonstrated its usefulness by synthesizing a tetrapeptide. For this pioneering work and his ensuing research on SPPS, he was awarded the Nobel prize in 1984. The original resin named after him is a chloromethylated copolymer of styrene and divinylbenzene, which he chose over cellulose, polyvinyl alcohol, polymethacrylate and sulfonated polystyrene.

This original discovery has survived until today, as most resins are still based on a polystyrene core. Depending on the exact polymerization conditions, the physical properties and morphology of the resin may vary. Especially for large scale syntheses, batch to batch variations of resins have to be monitored closely to ensure a consistent quality.

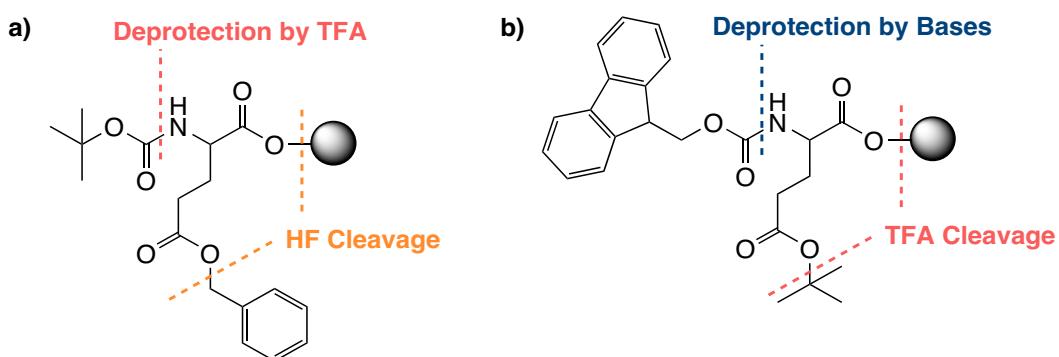
In parallel to the polystyrene solid support, Merrifield developed the Boc protection strategy for synthesizing peptides. In this strategy, the growing peptide chain is attached to the solid support via its C-terminus, while the N-terminus is protected with a Boc group.

### References:

- *Solid Phase Peptide Synthesis. I. The Synthesis of a Tetrapeptide; R. B. Merrifield; J. Am. Chem. Soc. 1963; 85: 2149-2154. <https://doi.org/10.1021/ja00897a025>*
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## 1.2. Modern Synthetic and Strategic Developments of SPPS

Today, modern SPPS is performed using the Fmoc strategy due to the milder deprotection and cleavage conditions compared to the Boc strategy. Similar to the Boc strategy, the C-terminus is attached to the resin, while the N-terminus is protected using the base-labile Fmoc group (*Fig. 3*). Being able to avoid the use of hazardous HF and to reduce the amount of TFA makes the Fmoc strategy more appealing. Moreover, the results for routine peptide syntheses are often superior for the Fmoc strategy. A higher number of different Fmoc building blocks are available, enabling the synthesis of a larger diversity of peptides and/or allowing alternative synthetic strategies that are less laborious, faster, and possibly more economic. In addition, the aromatic systems of the dibenzofulvene and fulvene-piperidine adducts produced during the deprotection step allow the (automated) monitoring of the completeness of the Fmoc removal.



*Fig. 3: Comparison of a) Boc strategy and b) Fmoc strategy for SPPS exemplified on a single, fully protected glutamic acid attached to the resin.*

Apart from facilitating the synthesis of single structures, the ease of handling of the solid supported molecules has led to a variety of approaches to generate vast libraries of structures using combinatorial approaches. The split-mix technique splits a batch of resin into equal portions to which different molecules are coupled, and subsequently combines and mixes the resin beads. By repeating these steps, extensive libraries of peptides and organic compounds can be generated as a mix within a short time and with relatively low effort. Alternatively, the tea-bag method allows for the parallel synthesis of molecules not as a mixture, but as defined products, since the solid support is enclosed in a so-called teabag which serves as simple reaction vessel.

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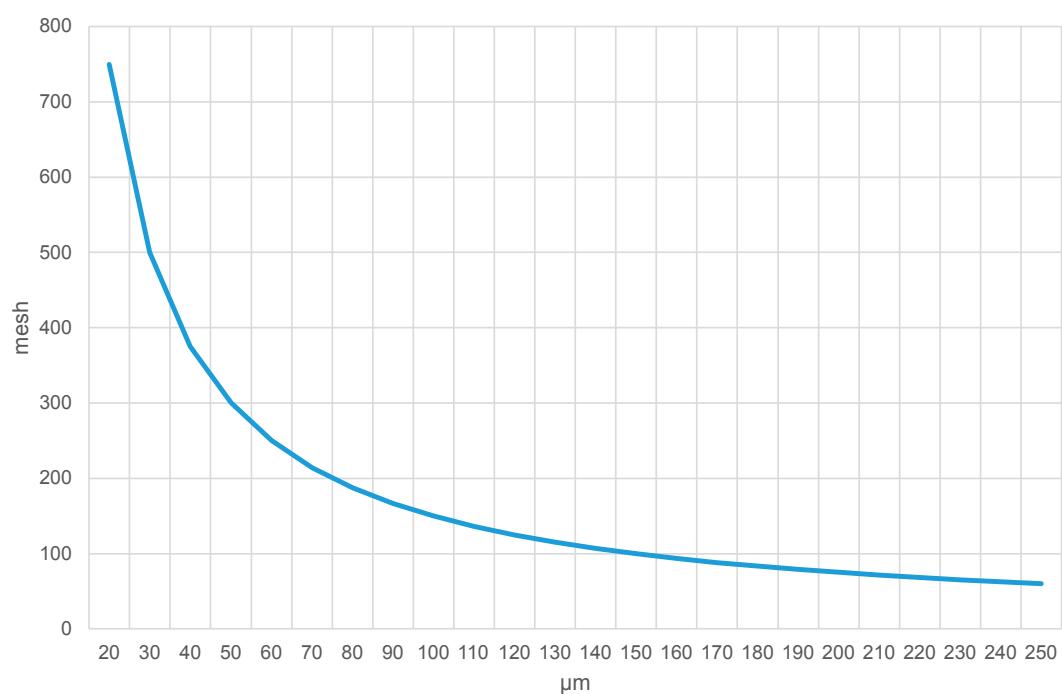


**back to content ↑**

## 2. Physical Properties of Resins

### 2.1. Shape and Bead Size

The size of the resin beads can be described in different ways. The two most common are the standard US mesh size (also known as Tyler mesh size) and the actual diameter of the resin beads. Both values are correlated to each other in an inverse manner as the density of the mesh of a sieve necessary to retrieve a certain particle size will get higher as the actual diameter of the resin beads gets smaller (*Fig. 4*). The smaller the beads are, the faster the reaction kinetics will be, as the surface area is larger in relation to the beads volume and allows for fast diffusion of the reagents into the resin beads. However, if the beads are too small, the filtration time will be extended. For practical purposes a compromise between reaction kinetics and filtration time has to be made, so, a resin with a 100-200 mesh offers the best balance.



*Fig. 4: Relation between mesh size and bead size of the particle. The higher the mesh size, the smaller the resin beads ("US Mesh vs. Micron." [www.filterbag.com/U-S-Mesh-vs-Micron-21.html](http://www.filterbag.com/U-S-Mesh-vs-Micron-21.html)).*

Size/μm	Beads/g	Capacity/bead [nmol]	
		(for polystyrene, = 1 mmol/g)	(for TentaGel® S, = 0.28 nmol/g)
750	4,620	232	65
700	5,010	196	55
650	6,260	157	44
600	7,960	125	35
550	10,340	96	27
500	13,760	71	20
450	18,870	53	15
400	26,870	36	10
350	40,110	25	7

Size/ $\mu\text{m}$	Beads/g	Capacity/bead [nmol] (for polystyrene, = 1 mmol/g)	Capacity/bead [nmol] (for TentaGel® S, = 0.28 nmol/g)
300	63,690	14	4
250	110,060	9	2.5
200	214,970	4.6	1.3
180	294,880	3.4	0.94
150	509,550	2	0.55
130	782,770	1.3	0.35
100	$1.72 \times 10^6$	0.6	0.16
90	$2.86 \times 10^6$	0.4	0.1
35	$4.55 \times 10^7$	$22 \times 10^{-3}$	$6.2 \times 10^{-3}$
20	$2.4 \times 10^8$	$3.6 \times 10^{-3}$	$1 \times 10^{-3}$
10	$1.95 \times 10^9$	$3.6 \times 10^{-4}$	$1.3 \times 10^{-4}$
5	$1.54 \times 10^{10}$	$6.4 \times 10^{-5}$	$1.8 \times 10^{-5}$

Tab. 1: Correlation of particle size, number of beads per gram of resin and capacity per single bead.

## 2.2. Cross-linkage and Swelling

The most common resins are based on polystyrene (PS). These resins can be further functionalized with spacers (e.g. PEG-based) in order to alter the swelling behaviour in certain solvents, as well as to allow for different chemical strategies. Aside from polystyrene, other matrices are used as basis for resins in SPPS, including polyacrylate, polyethylene glycol, and polyacrylamide. By modifying a resin with a grafted spacer or by changing the nature of a core polymer, the properties of a solid support can be adjusted to a given solvent to allow for a high swelling. Good swelling properties are an important factor for the choice of the solid support, since reaction kinetics in SPS are diffusion controlled, i.e. the reaction rates are higher the faster the reactants are able to diffuse into the resin. This holds especially true for the synthesis of large molecules, where a high swelling ensures sufficient space for the growing molecule, and thus minimizes aggregation. Otherwise, deprotection or coupling reactions may be hampered or even completely inhibited, leading to a low yield of the final product.

Polystyrene resins are prepared by radical polymerization. The three-dimensional resin network is established by crosslinking the linear polymer chains with divinylbenzene (DVB) (Fig. 5).

**back to content ↑**

## Resin Guideline

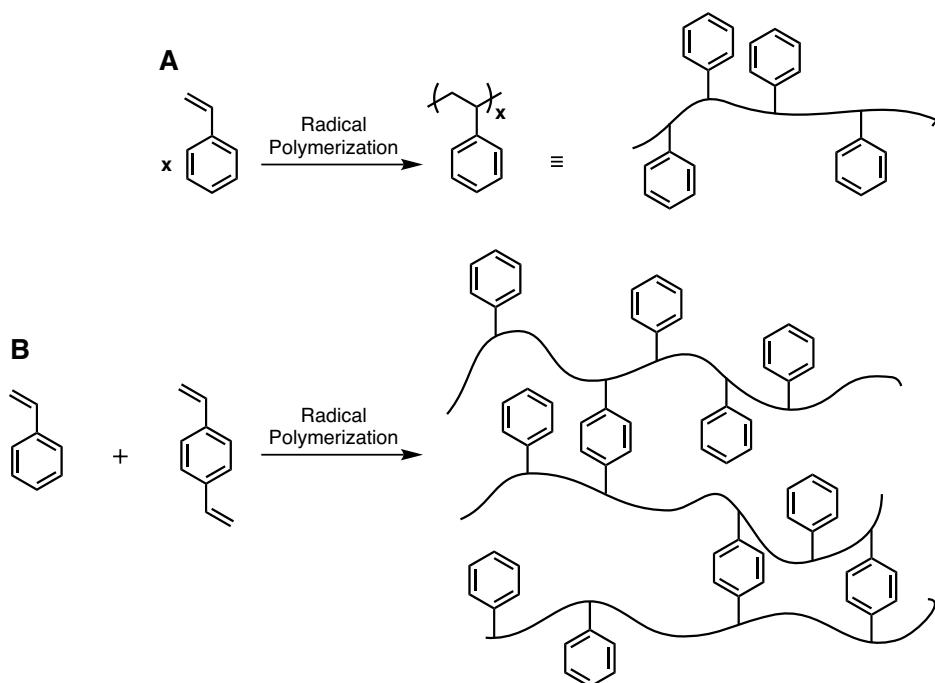


Fig. 5: (A) Radical polymerization of styrene alone leads to single-stranded polystyrene chains. (B) A crosslinked network of these styrene chains is established by adding divinylbenzene to the reaction.

Polystyrene resins are typically crosslinked with 1% to 2% of DVB. In general, the higher the degree of crosslinking, the lower the swelling of the corresponding resin in a given solvent (Fig. 6). By attaching spacers to the polystyrene core, the properties of the PS-based solid support can be altered, a fact that can be used to tailor the resin's swelling properties to be compatible with certain solvents. For example, by grafting PEG spacers to the polystyrene core, even water can be used as solvent to swell the resin sufficiently, as exemplified by TentaGel® resin that exhibits good swelling in both aqueous solutions and organic solvents.

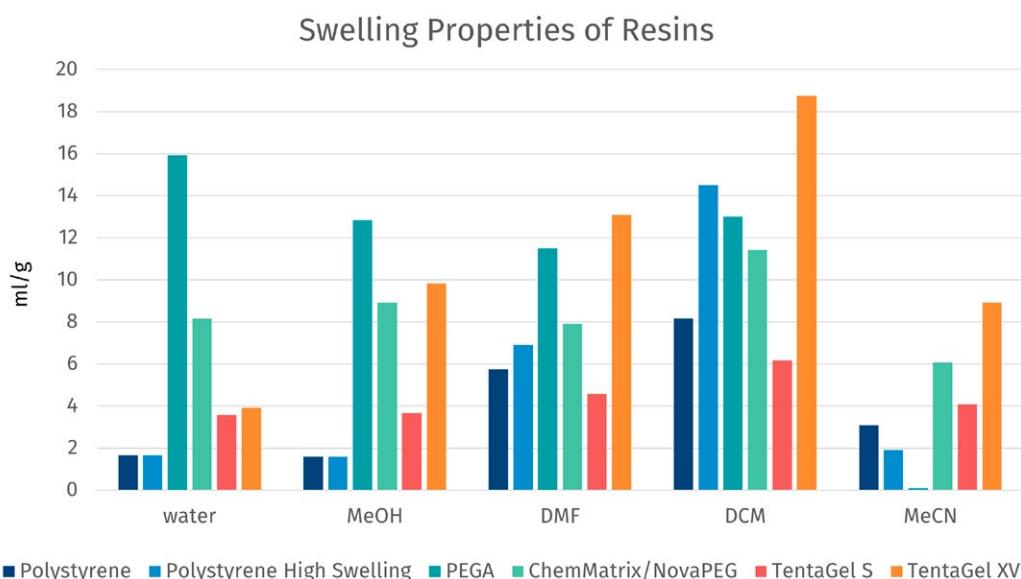
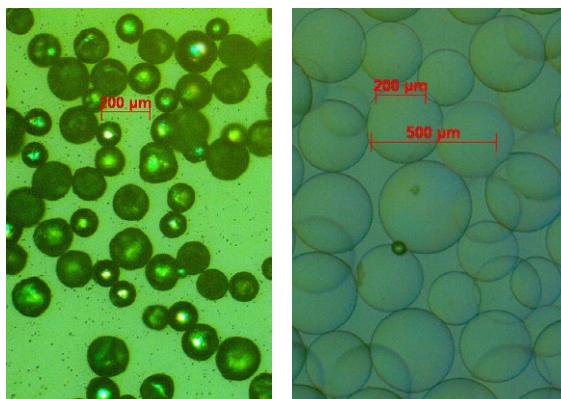


Fig. 6: Swelling characteristics of differently functionalized resins. Depending on the intended use and reaction conditions, resins optimized for hydrophilic and more hydrophobic solvents are available.

Not only spacers have an influence on the swelling properties, but also the crosslinking of the core resin. For the TentaGel® resin, a reduction of the polystyrene core crosslinking resulted in higher swelling properties of the extended volume (XV) resin versus the original Tentagel® S polymer. High swelling creates an extended reaction space, which is a prerequisite for the synthesis of difficult sequences, aggregating peptides, mini proteins and PNAs in high purities and good yields (Fig. 7).



**Fig. 7:** TentaGel® resin as seen under the microscope. Left: dry TentaGel® XV. Right: TentaGel® XV swollen in DMF, showcasing the resin's eponymous extended volume which is useful for the synthesis of long and difficult sequences.

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## 2.3. Resin Substitution

Another important characteristic of solid supports is the quantity of accessible functional groups. The number of these reactive sites is expressed in millimoles per gram of resin and is called the resin substitution. When loading amino acids to a resin and determining this loading gravimetrically, the loading will be higher for amino acids with lower MW than for heavier amino acids. This fact results from the increasing weight of the loaded resin with growing MW of the attached amino acid and the proportional decrease of millimoles per gram. This is summarized in the following formula for weight gain substitution:

$$S_{(Wt)} = \frac{Wt_{(g)} \cdot 1000}{Wt_{(add)} \cdot Wt_{(t)}} \quad \begin{array}{l} S_{(Wt)}: \text{weight gain substitution [mmol/g]} \\ Wt_{(g)}: \text{weight gained by resin [g]} \\ Wt_{(add)}: \text{molecular weight added to the resin = MW of amino acid minus MW of leaving group [g/mol]} \\ Wt_{(t)}: \text{total weight gain of the resin after loading [g]} \end{array}$$

The chemical nature of the reactive sites for the different resins with their cleavage conditions, specific uses, synthetic strategies, and protocols how to attach amino acids to the resins are described in the following. For long or difficult sequences, it is often beneficial to choose a resin with low substitution, as possible side-reactions are avoided by a lower local peptide concentration and enlarged reaction space on the resin.

**back to content ↑**

## 3. Base Resins

The basis resins for SPPS have functional groups that will generate a very stable bond to the molecules attached to the solid support. Therefore, these resins are not employed directly in SPPS, but usually serve as basis for further modifications. All of them are based on polystyrene and require harsh acidic conditions to cleave the final product. Resins that are functionalized with specific linkers are discussed in the subsequent chapter.

### 3.1. Merrifield Resin

Merrifield resin is a polystyrene polymer crosslinked by DVB that carries a chloromethylene group attached to the polystyrene backbone as reactive group to attach amino acids. Usually, the functional group of the resin is incorporated by electrophilic aromatic substitution. However, copolymerization can also be used, which results in a more uniform final resin that may exhibit improved swelling properties as well as more uniform reaction kinetics.

The standard Merrifield resin often serves as basis for other resins that use linkers to introduce a different swelling behaviour, or reactive groups that allow for different chemistries and synthetic strategies.

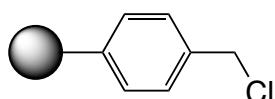


Fig. 8: Merrifield resin.

The cleavage of substrates from the Merrifield resin requires highly acidic conditions and specialized equipment. Aside from the standard HF procedure, low-high HF methods, as well as trifluoromethane-sulfonic acid (TFMSA) and low-high TFMSA protocols can be employed.

#### Protocol 1: Attachment of Carboxylic Acids to Merrifield Resin

- I. Dissolve 1 mmol of carboxylic acid in 5 mL methanol and add 0.5 mL water.
- II. 20% aq.  $\text{Cs}_2\text{CO}_3$  is added to adjust the solution to pH 7.
- III. The solution is evaporated to dryness under reduced pressure.
- IV. Add 2.5 mL DMF to the residue and evaporate to dryness under reduced pressure.
- V. Repeat step IV.
- VI. Swell the resin for 1 h in DMF (6-8 mL per gram of resin) in a flask with heating mantle and thermometer on an orbital shaker.
- VII. Add 1 eq. (based on the chlorine substitution of the resin) of carboxylic acid caesium salt to the resin.

**Note:** the caesium salt must be absolutely dry to achieve optimal results.

- VIII. The mixture is shaken at 50 °C for 24 h.
- IX. Remove the solution by filtration and wash the resin with DMF, followed by 50% (v/v) aq. DMF, then 50% (v/v) aq. methanol and finally pure methanol.
- X. Dry the resin to constant weight under reduced pressure.

**Note:** If desired, the reaction can be checked for completeness by treating an aliquot of the resin with a solution of 4-(4-nitrobenzyl)pyridine in DMF/DCM.

As an alternative to this caesium salt-based method, a potassium fluoride method can be employed.

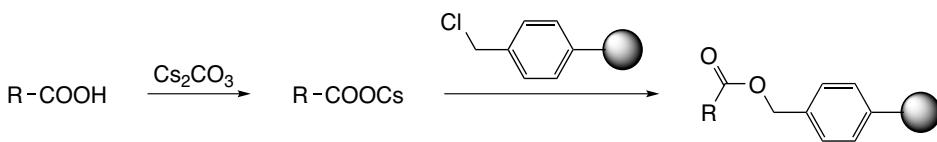


Fig. 9: Loading of Merrifield resin.

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## 3.2. Hydroxymethyl Resin

As incomplete Merrifield resin loading may lead to unwanted side reactions of the unreacted chloromethyl groups during peptide synthesis, the hydroxymethyl analog was developed as alternative. For this resin, free hydroxyl groups can be capped with acetic anhydride.



Fig. 10: Hydroxymethyl resin.

**back to content ↑**

## Protocol 2: Attachment of Carboxylic Acids to Hydroxymethyl Resin

- I. Swell the resin in DMF using 15 mL solvent per gram of resin.
- II. Dissolve 1.5 to 2.5 eq. (relative to the reactive sites on the resin) of carboxylic acid in another vessel with a minimum amount of DMF.
- III. Add the same amount of eq. of OxymaPure and dissolve. If necessary, add more DMF.
- IV. Add the solution to the resin.
- V. Dissolve 0.1 eq. (relative to the reactive sites on the resin) of DMAP in a minimum amount of DMF in a separate vessel.
- VI. Add 1 eq. (relative to the amino acid) of DIC to the resin and subsequently add the DMAP solution and close the container with a drying tube.
- VII. Shake the solution for 2 to 3 h at room temperature.
- VIII. Add 2 eq. (relative to the reactive sites on the resin) of acetic anhydride and pyridine to the mixture and shake for 30 min.
- IX. Remove the solution by filtration and wash the resin 3 times with DMF, 3 times with DCM, and finally 3 times with methanol.
- X. Dry resin to constant weight under reduced pressure.

The conditions for cleaving substrates from the hydroxymethyl resin are the same as for the conventional Merrifield resin.

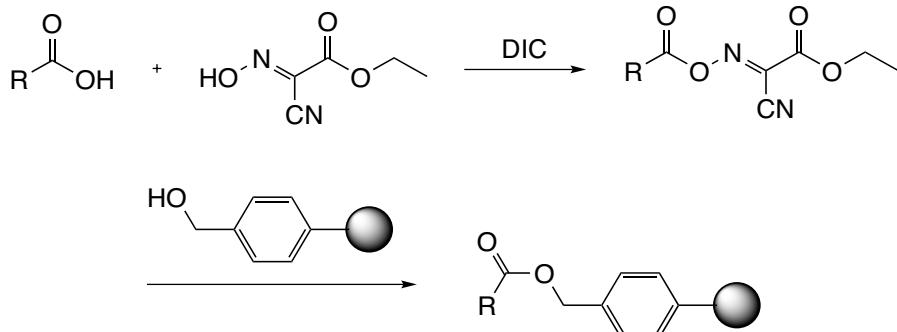


Fig. 11: Loading of hydroxymethyl resin.

### References:

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### 3.3. Amino Core Resins

Amino core resins were originally developed for preparing C-terminal peptide amides via the Boc SPPS strategy. The aminomethyl (AM) resin is structurally similar to the Merrifield and hydroxymethyl resin having an amino group instead of a chloro- or hydroxyl-group, respectively. Additionally, two sterically more demanding resins have been developed with the benzhydrylamine (BHA) and 4-methylbenzhydrylamine (MBHA) resins. Although the BHA and especially the MBHA resin are more sensitive to acid than the AM resin, they still require harsh acidic conditions (HF or TFMSA) for the final product cleavage.

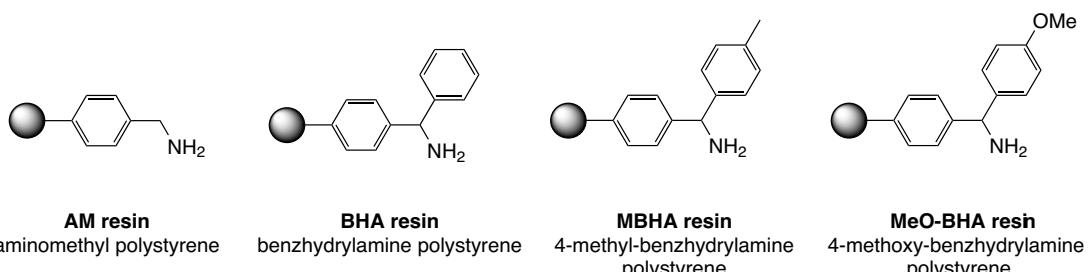


Fig. 12: Various amino core resins.

### Protocol 3: Attachment of Carboxylic Acids to Aminomethyl Resin

- I. Swell the resin in DMF using 15 mL solvent per gram of resin.
- II. Dissolve 1.5 to 2.5 eq. (relative to the reactive sites on the resin) of carboxylic acid in a separate vessel with a minimum amount of DMF.
- III. Add the same number of equivalents of OxymaPure and dissolve. If necessary, add more DMF.
- IV. Add the solution to the resin.
- V. Add 1 eq. (relative to the amino acid) of DIC to the container with the resin and close the vessel with a drying tube.
- VI. Shake the solution for 2 to 3 h at room temperature.

VII. Add 2 eq. (relative to the reactive sites on the resin) of acetic anhydride and pyridine to the mixture and shake for 30 min.

VIII. Take a small sample of resin, wash with DCM and perform a Kaiser test. If free amines are detected, repeat step VII. with 1 eq. of reagents.

IX. Remove the solution by filtration and wash the resin 3 times with DMF, 3 times with DCM, and finally 3 times with methanol.

X. Dry resin to constant weight under reduced pressure.

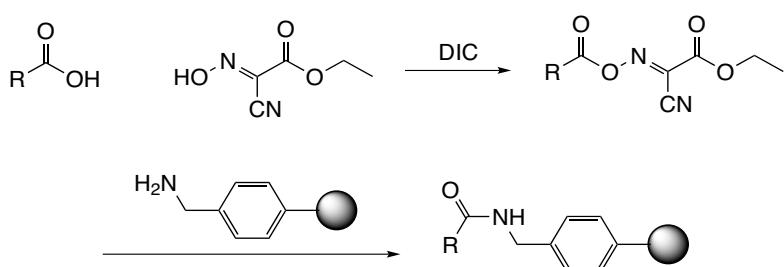


Fig. 13: Loading of aminomethyl resin.

**back to content ↑**

## Protocol 4: Attachment of Carboxylic Acids to BHA or MBHA Resin

- I.** Swell the resin in 10% (v/v) DIPEA in DCM using 10 mL solution per gram of resin for 15 min in an agitated reactor.
- II.** Filter off the solution and wash with DCM.
- III.** Add 10 mL of DMF to the resin.
- IV.** Dissolve 1.5 to 2.5 eq. (relative to the reactive sites on the resin) of carboxylic acid in another container with a minimum amount of DMF.
- V.** Add the same number of equivalents of OxymaPure and dissolve. If necessary, add more DMF.
- VI.** Add the solution to the resin.
- VII.** Put the resin mixture in an ice bath and add 1.0 eq. (relative to the amino acid) of DIC to the resin when the mixture has cooled down. Close the vessel with a drying tube and mix contents by gently moving the vessel.

**VIII.** Remove the ice bath and let the mixture warm up to RT.

**IX.** Shake the solution for 4 h at RT.

**X.** Take a small sample of resin, wash with DCM and perform a Kaiser test. If free amines are detected continue to step XI. Otherwise continue with step XIII.

**XI.** Add 2 eq. (relative to the reactive sites on the resin) of acetic anhydride and pyridine to the mixture and shake for 30 min.

**XII.** Take a small sample of the resin, wash with DCM and perform a Kaiser test. If free amines are detected repeat step XI.

**XIII.** Remove the solution by filtration and wash the resin 3 times with DMF, 3 times with DCM, and finally 3 times with methanol.

**XIV.** Dry resin to constant weight under reduced pressure.

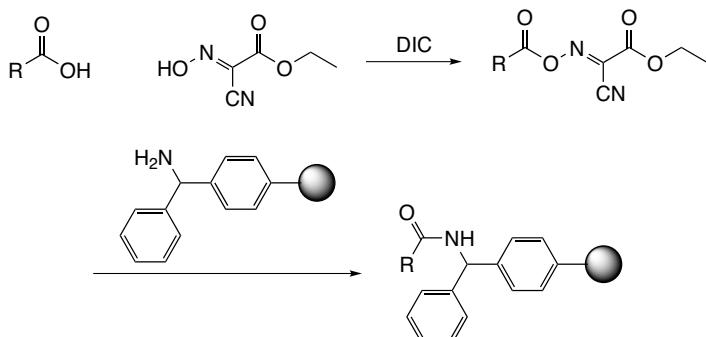


Fig. 14: Loading of BHA resin.

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### 3.4. TentaGel® Resins

TentaGel® resins consist of low cross-linked polystyrene on which poly(ethylene glycol) with a molecular weight of 3000 Da is grafted. The PEG spacer is attached to the polymer matrix via an ether bond, which shows high stability towards acid treatment and minimizes PEG leaching. The properties of TentaGel® resins are dominated by PEG, which solubilizes both hydrophobic and hydrophilic compounds. TentaGel® resins are pressure stable and can be used in batch processes as well as under continuous flow conditions.

Through the attachment of polyethylene glycol (PEG) chains to the polystyrene core, the swelling behavior, especially in hydrophilic solvents such as water and methanol, is considerably increased (Fig. 15) which allows for a broader range of chemistry. Apart from the swelling behavior, the more hydrophilic environment decreases the repulsion of charged organic intermediates formed during reactions. For the base resin, a range of functional groups is available ranging from electrophilic bromine leaving groups to nucleophilic groups like hydroxy, amino, and carboxy functions.

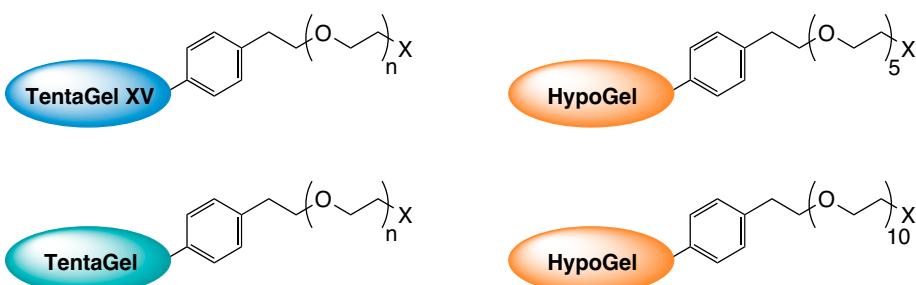


Fig. 15: Left: TentaGel® S (R and HL) and TentaGel® XV are bearing PEG spacers of 3000 Da, while TentaGel® XV is less cross-linked, in order to develop higher swelling properties. Right: HypoGel 200 and HypoGel 400 resins are bearing PEG spacers of 200 ( $n = 5$ ) and 400 Da ( $n = 10$ ) respectively.

For the synthesis of hydrophobic peptides, long peptides, and other challenging molecules, it has been demonstrated that an increased swelling volume of the base resin leads to higher yield and purity. In this context, TentaGel® XV (XV = extended volume) has been developed and shows superior results. The high swelling creates an extended reaction volume which provides the ideal conditions for the synthesis of difficult sequences, aggregating peptides, mini proteins and PNAs in high purities and yields.

The polar PEG spacers allow the composite resin to swell in a wide range of solvents including water, methanol, DMF and DCM, while the handling is still easy and comparable to standard TentaGel® resins.

**back to content ↑**

However, a high resin swelling results in a high consumption of solvents. In case increased solubilizing properties are not required, resins with PEG chains shorter than 3000 Da exhibit sufficient solubilizing property with reduced solvent volume consumption. For such purposes, HypoGel 200 and HypoGel 400 have been developed.

Resin/solvent	H <sub>2</sub> O	MeOH	EtOH	DCM	Toluene	DMF	NMP	MeCN	THF	Dioxane	Ether
<b>Polystyrene 1% DVB</b>	-	1.6	1.7	7.5	7.5	4.1	7.0	2.0	7.5	7.0	3.5
<b>TentaGel® S 0.25-0.3 mmol/g</b>	3.6	3.6	2.9	6.3	4.8	4.7	4.9	4.2	5.0	5.4	1.9
<b>HypoGel® 200 0.7-0.9 mmol/g</b>	1.8	2.8	2.6	7.0	5.1	6.0	-	3.0	6.5	6.4	-
<b>HypoGel® 400 0.6-0.8 mmol/g</b>	1.8	2.9	2.8	6.9	5.5	5.2	-	4.6	5.3	5.6	2.6
<b>TentaGel® XV 0.2-0.4 mmol/g</b>	3.6	6.2	2.2	18.0	12.6	13.2	14.4	8.6	13.4	14.2	2.0

Tab. 2: Swelling volume of polystyrene and different PEG-grafted polystyrene resins in different solvents.

## General Procedure for Measuring the Resin Swelling:

To remove soluble by-products and impurities, the resin has to be washed with toluene, DCM, DMF and MeOH (5 times for each solvent) and dried. To 1 g of dry resin solvent is added in a 10-15 ml graduated cylinder, and the resin is mixed with 12-18 ml of solvent. The cylinder is sealed and after 2 h the resin is stirred again to remove all remaining air bubbles and to form a homogenous resin suspension. The cylinder is sealed again and after 22 h of settlement the resin volume is measured.

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- Towards the Chemical Synthesis of Proteins; E. Bayer; *Angew. Chem. Int. Ed.* 1991; **30**: 113-129.  
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- Formation of C C bond in solid phase synthesis using the heck reaction; M. Hiroshige, J. R. Hauske, P. Zhou; *Tetrahedron Lett.* 1995; **36**: 4567-4570. [https://doi.org/10.1016/0040-4039\(95\)00855-7](https://doi.org/10.1016/0040-4039(95)00855-7)
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[https://doi.org/10.1016/s0040-4039\(97\)01667-5](https://doi.org/10.1016/s0040-4039(97)01667-5)
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## 4. Resins and Linkers for the Synthesis of Peptide Acids

The major driver and advantage of using additional linkers attached to a basis resin are the milder cleavage conditions and a greater variety of functional groups, allowing more and advanced synthetic strategies. Depending on the desired swelling properties and reaction conditions the linkers can be combined with any of the aforementioned basic resins and tailored to the intended use.

### 4.1. Trityl Resins

Resins functionalized with trityl linkers are highly acid sensitive, as the three phenyl rings stabilize the benzylic carbocation that is generated during cleavage. These cleavage conditions are so mild that only 1% of TFA is needed, and even less acidic protocols using 20% hexafluoroisopropanol (HFIP) are sufficient to cleave the products from the resin. Peptides can therefore be cleaved from the resin with all side chain protecting groups in place and the N- and C- terminus separately modified e.g. by head-to-tail cyclization or fragment condensation.

Various trityl-based linkers exist with different substitutions on the trityl group that fine-tune the cleavage conditions.

The most popular of these in peptide chemistry is the 2-chlorotriyl chloride resin 2-CTC. Especially for the attachment of alcohols, phenols, thiols and amines the 4-methyltrityl (Mtt), 4-methoxytrityl (Mmt) and 4,4'-dimethoxytrityl (Dmt) resins can be employed. Aside from being used as a linker for resins, both the Mtt and Mmt group are also employed for side chain protection of Lys and His. Besides the ready-to-use chloride resin, hydroxyl variants are also available that have to be chlorinated before loading the amino acids.

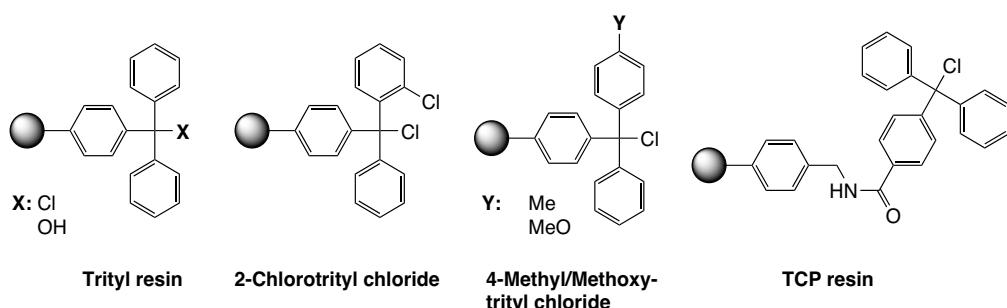


Fig. 16: Trityl resin and its derivatives 2-chlorotriyl resin, 4-methyl-/methoxytrityl resin and TCP resin.

Trityl linkers open up new chemical pathways for modifications after the peptide chain has been built up. Besides that, the steric demand of the trityl group prevents side reactions with proline or N-alkyl amino acids at the C-terminus. If proline is the first or second amino acid at the C-terminus of a peptide, spontaneous diketopiperazine formation can occur and cleave the peptide from the resin. The steric hindrance of trityl linkers is sufficient to prevent this diketopiperazine formation.

Moreover, racemization-prone amino acids such as Cys and His can be attached without enantiomerization, and the reattachment of Met and Trp residues to the resin during the cleaving procedure is minimized.

**back to content ↑**

A further variation of the basic trityl resin are TCP resins. In addition to the advantages of regular trityl resins mentioned above, the *p*-carboxamide group of the TCP-resin exhibits a deactivating effect on the trityl ring system, so that TCP resins are characterized by a well-balanced stability of the anchoring bond. Consequently, preloaded TCP resins are stable under standard storage conditions. Additionally, TCP resins are completely stable towards all common coupling conditions employed in the Fmoc strategy, including HOBt/DIC or Cl-HOBt/DIC at elevated temperatures.

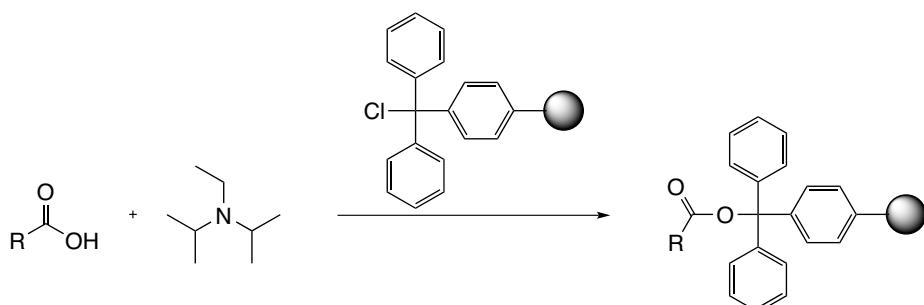


Fig. 17: Loading of trityl resins.

## Protocol 5: Attachment of Carboxylic Acids to Trityl Chloride Resins

**I.** Pre-swell the resin in dry DCM (10 mL/g resin) for 15 min.

**II.** Dissolve 1.2 eq. of carboxylic acid in dry DCM.

**III.** Add 2.5 eq. of DIEA to the solution. This addition can aid the dissolution of the acid.

**IV.** Filter the excess DCM from the resin and add the reaction mixture.

**V.** Shake the mixture for 1 h at room temperature.

**VI.** In order to cap the remaining reactive trityl group, add 1 mL of a solution of methanol and DIEA (5:1; v:v) per gram of resin and agitate the resin for 15 min.

**VII.** Discard the reaction solution and wash the resin 5 times with DCM and 3 times with methanol.

**VIII.** Dry the resin to constant weight under reduced pressure.

**IX.** The loading can be estimated gravimetrically using the formula below:

$$n = \frac{(m_2 - m_1) \cdot 1000}{(MW_{Xaa} - 36.46) \cdot m_2}$$

n = loading of the resin [mol/g of resin]

m<sub>1</sub> = weight of resin before loading [g]

m<sub>2</sub> = weight of resin after loading [g]

MW<sub>Xaa</sub> = molar weight of attached amino acid [g/mol]

36.46 g/mol is the molecular weight of HCl, which is removed and replaced by the amino acid.

**X.** Take a small sample of resin, wash with DCM and perform a Kaiser test. If free amines are detected continue to step XI. Otherwise continue with step XIII.

**XI.** Add 2 eq. (relative to the reactive sites on the resin) of acetic anhydride and pyridine to the mixture and shake for 30 min.

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- Solid phase synthesis of partially protected and free peptides containing disulphide bonds by simultaneous cysteine oxidation-release from 2-chlorotriyl resin; K. Barlos, D. Gatos, S. Kutsogianni, G. Papaphotiou, C. Poulos, T. Tsengenidis; *Int J Pept Protein Res* 1991; **38**: 562–568. <https://doi.org/10.1111/j.1399-3011.1991.tb01540.x>

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## 4.2. Wang Resins

The Wang resin might at first glance look very similar to the original Merrifield resin, but the cleavage conditions are significantly milder (50% (v/v) TFA in DCM) due to the alkoxy group of the para alkoxybenzyl alcohol linker. These mild cleavage conditions made the Wang resin popular not only in the peptide field, but also among organic chemists in general, as it can also be used to attach e.g. phenols and alcohols.

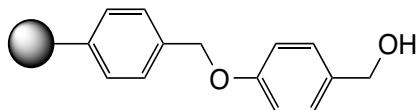


Fig. 18: Wang resin.

To load the Wang resin with carboxylic acids, protocol 2 („[Protocol 2: Attachment of Carboxylic Acids to Hydroxymethyl Resin](#)“ on page 11) can be employed.

### References:

- p-alkoxybenzyl alcohol resin and p-alkoxybenzyloxycarbonylhydrazide resin for solid phase synthesis of protected peptide fragments; S. S. Wang; *J. Am. Chem. Soc.* 1973; **95**: 1328-1333. <https://doi.org/10.1021/ja00785a602>
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### 4.3. AC Resin

The 4-hydroxymethyl-3-methoxyphenoxyacetic (AC; sometimes also MHMPA) linker is even more acid labile than the Wang resin due to an additional methoxy group on the aromatic ring. The peptide acid can be cleaved from the resin with 1% TFA while all the side-chain protecting groups are retained.

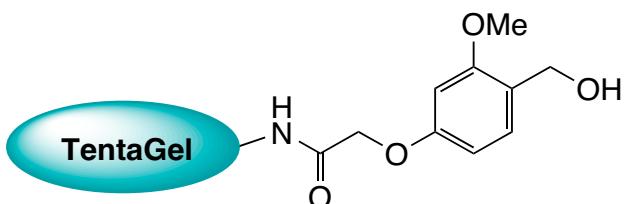


Fig. 19: AC TentaGel® resin.

**Reference:**

- A new protecting group combination for solid phase synthesis of protected peptides; R. C. Sheppard, B. J. Williams; *J. Chem. Soc. Chem. Commun.* 1982; 587-589. <https://doi.org/10.1039/c39820000587>

### 4.4. PAM Resin

The 4-hydroxymethyl-phenylacetamidomethyl functionalized PAM resin is widely used in Boc-chemistry, as it is more stable towards acids and allows the synthesis of medium-sized to large peptides.

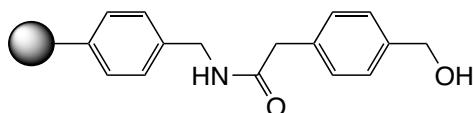


Fig. 20: PAM resin.

Protocol 2 („Protocol 2: Attachment of Carboxylic Acids to Hydroxymethyl Resin“ on page 11) is suitable to load carboxylic acids on the PAM resin, and cleavage is achieved similar to the Merrifield resin.

**References:**

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## 4.5. HMBA Resin

Resins with hydroxymethylbenzoic acid (HMBA) linkers are regarded as one of the most versatile solid supports for SPPS. HMBA linkers are attached to amine base resins and are stable to acidic cleaving conditions. In contrast to the other resins and linkers highlighted before, the cleavage from the resin is achieved by a range of nucleophiles, thus various C-terminal modifications such as alcohols, methyl esters, hydrazides or amides can be synthesized.

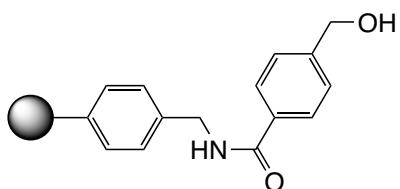


Fig. 21: HMBA resin.

Similar to Wang and PAM resins, protocol 2 ([„Protocol 2: Attachment of Carboxylic Acids to Hydroxymethyl Resin“ on page 11](#)) can be used to load carboxylic acids to the HMBA resin.

### Reference:

- Acid-labile resin linkage agents for use in solid phase peptide synthesis; R. C. Sheppard, B. J. Williams; *Int. J. Pept. Protein Res.* 1982; **20**: 451-454. <https://doi.org/10.1111/j.1399-3011.1982.tb03067.x>

## 4.6. Benzhydryl Resins

Using the *p*-hydroxybenzyl linker (Wang linker) is one of the most frequently applied methodologies to prepare peptides with C-terminal carboxylic acid functions. However, many side reactions have meanwhile been discovered that challenge synthetic chemists to find appropriate purification methods.

However, the coupling of Fmoc-amino acids to *para*-hydroxymethylphenoxyethyl resins using dicyclohexylcarbodiimide (DCC) in the presence of 4-dimethylaminopyridine (DMAP) typically suffers from two problems, namely, the formation of dimers and racemization.

During final treatment, concentrated TFA cleaves the peptide not only at the carboxyl function (the desired position), but also at the phenoxy group, resulting in the formation of unwanted peptide esters. Additionally, alkylation of certain side chains, such as Trp or Tyr may occur. These impurities may be difficult to separate from the desired product.

Another common type of side reaction observed during peptide synthesis on Wang resin is the formation of diketopiperazines by the amino acids on position 1 and 2 of the C-terminus. It becomes a major issue if Pro, Gly or any N<sub>α</sub>-methylated amino acids are located on position 1, whereas Lys or amino acids with NH<sub>2</sub>-bearing side chains are present on position 2 (Lys, Orn, Dab or Dap). A typical side reaction observed when Cys is present at the first position of the C-terminus is the substitution of the thiol group by piperidine during Fmoc removal, leading to the formation of 2-(1-piperidyl)alanine.

**back to content ↑**

## Resin Guideline

Consequently, the final yield may be significantly reduced during peptide synthesis on Wang resin, which affects the cost/efficiency balance in commercial productions. Therefore, new types of resins such as 2-chlorotriptyl resin, where such side reactions are excluded by the design of resin and linker, are increasingly becoming the preferred choice of solid support for peptide synthesis.

Besides, based on the Wang-linker, we present a set of protected amino acid loaded oxymethylphenoxy propionic acid (MPPA) building blocks, which serve as precursors for the linkage to amino substituted solid supports (e.g. aminomethyl polystyrene, BHA or MBHA resins) by standard coupling procedures. After successful synthesis, the peptide is released from the resin by TFA-mediated cleavage yielding the free carboxylic acid on the C-terminus. This method guarantees a low and reproducible epimerization level of the C-terminal amino acid in your peptide and allows the synthesis of pure peptides even in large scale.

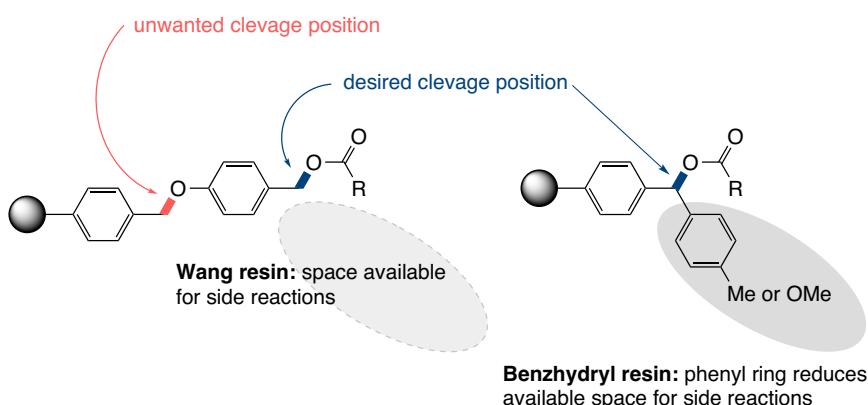


Fig. 22: Advantages of benzhydryl resins over Wang resin with regards to side reactions.

Another alternative type of solid support that is less prone to side reactions than Wang-resins are benzhydryl-based resins. As there is no phenoxy group present, no related side reactions leading to benzyl esters or peptides with alkylated residues can occur. In case of 4-methylbenzhydryl resin, an additional tolyl group is placed as residue. As this does not contribute much to the stability of the resulting carbocation produced during cleavage, conditions are similar to the cleavage conditions typically applied for Wang resin. At least 25% of TFA in DCM with scavengers will liberate the peptide from the resin at room temperature within 30 min.

In case a more acid sensitive resin is required, for example for the production of protected peptide fragments, typically 2-chlorotriptyl resin is being used. However, if the sterical hindrance becomes too high, 4-methoxybenzhydryl resin can be used as an alternative.

### Protocol 6: Attachment of Carboxylic Acids to 4-Methylbenzhydryl Resin

**Note: It is important to use anhydrous solvents and dry reaction vessels.**

**I.** Weigh out 1 mmol of 4-methylbenzhydryl bromide resin in a flask.

**II.** Add DCM and let the resin swell for 15 to 20 min.

**III.** Filter and wash the resin with DCM.

**IV.** Weigh 2 mmol of carboxylic acid, 2 mmol of CsI, 4 mmol DIPEA and add DMF. Let the mixture stand until the solution becomes clear.

**V.** Add the mixture to the swollen resin and let it react for 14 h at 20°C to 25°C.

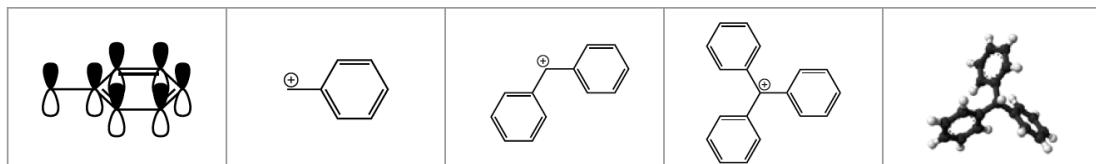
**VI.** Add MeOH and shake for 2 h.

**VII.** Filter off the resin and wash 6 times with DMF and 4 times with DCM.

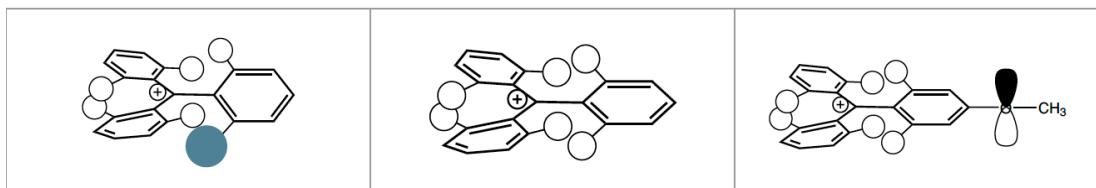
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### Stability of Benzyl-type Protecting Groups and Linkers



Benzyl, Benzhydryl and Trityl moieties are frequently used as protecting groups, as linkers for solid phase synthesis, or as important structural elements of both categories. The reason for this popularity is that the bond between benzylic carbons and neighbouring moieties can be cleaved under relatively mild conditions. This is a result of the high degree of stabilization of the carbenium ion on the benzylic position that is formed upon acidic cleavage by delocalization of the positive charge. The degree of delocalization is higher and thus the stabilization stronger the more phenyl rings are attached to the benzylic position.



The stability of benzyl-type protecting groups and linkers can be fine-tuned by the incorporation of substituents on the phenyl rings that modify the electron density on the benzylic position, or change the degree of overlap of the p-orbitals of several phenyl rings. In the former category, methyl and methoxy

[back to content ↑](#)

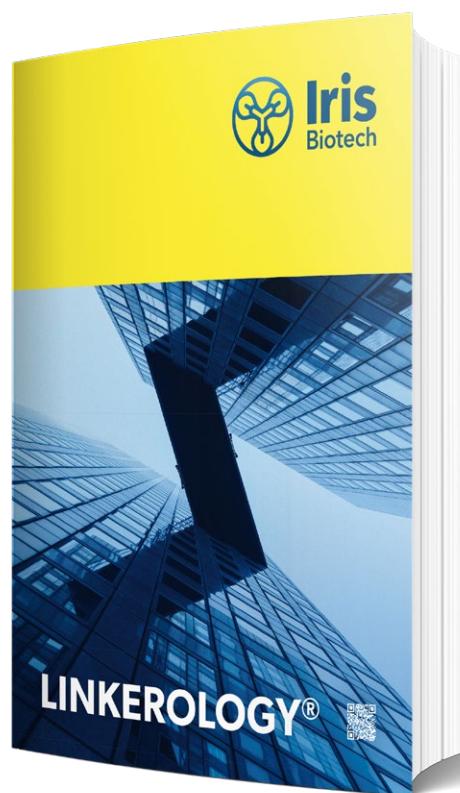
groups are the most frequently used substituents to further stabilize benzylic carbocations, thereby allowing for even milder cleavage conditions. In the latter category, chlorine is the most common substituent. In trityl groups, the large atomic radius of chlorine results in a less planar conformation of the three phenyl rings, which in turn leads to a reduction of p-orbital overlap. The degree of delocalization of a positive charge on the benzylic position is thereby decreased, which means that the protecting group or linker in question is more difficult to cleave and thus more stable. Hence, the following row of stability can be defined:

**2-chlorotriyl → trityl → 4-methyltrityl → 4-methoxytrityl → 4,4'-dimethoxytrityl**



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## 5. Resins and Linkers for the Synthesis of Peptide Amides

### 5.1. Rink Amide and Knorr Resins

C-Terminal amides are the most common modification in peptides. For their synthesis via the Fmoc strategy the Rink amide linker has been developed. The amino group of the Rink linker for amide synthesis is protected with Fmoc (see below), while the corresponding Rink acid linker bears a hydroxyl group instead of the amine (not shown).

Different modifications of the Rink linker have been developed towards varying uses. The standard Rink amide resin is cleaved using 10% TFA in DCM, as higher concentrations of acid can cleave the Rink linker from the polystyrene resin, producing highly colored impurities. The formation of these byproducts can be minimized by adding trialkylsilanes to the cleavage mixture. The Knorr resin avoids this unwanted linker cleavage through the introduction of a more stable acetamide spacer between the Rink linker and the resin.

An additional variant of the Knorr linker is the attachment to an even more acid labile 2CT resin. Through this combination, the protected peptide can be cleaved from the 2CT resin while still carrying the Knorr linker as protecting group for the C-terminus for subsequent modifications using solution phase chemistry. This strategy can be especially useful for synthesizing large peptides *via* ligation that have difficult sequences in the C-terminal region.

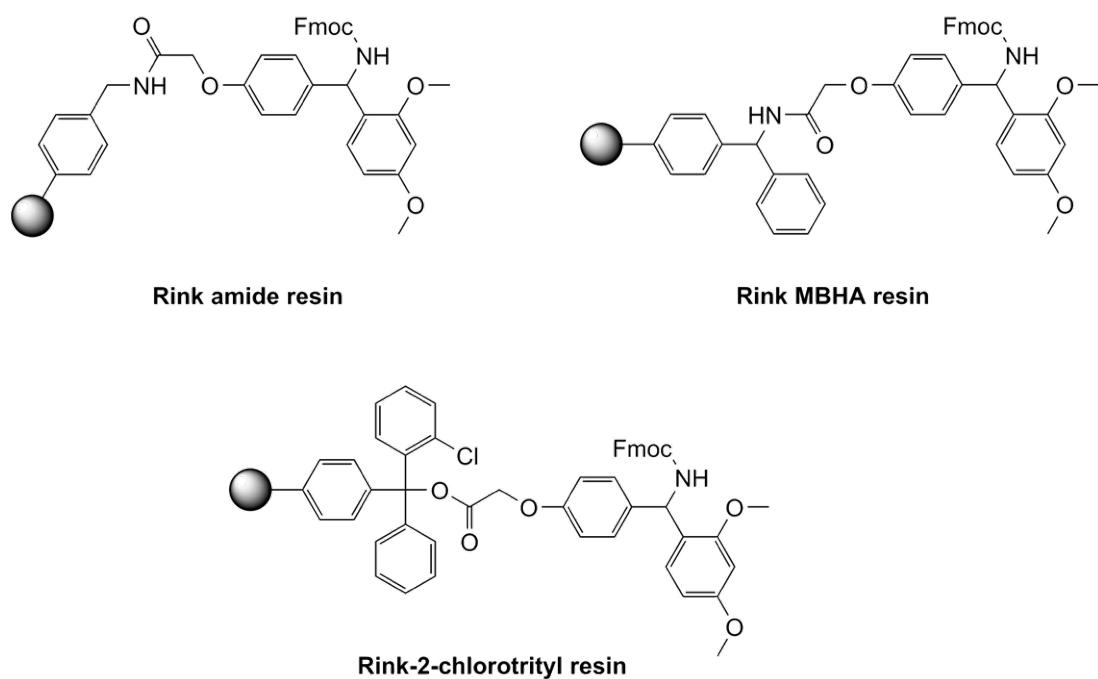


Fig. 23: Rink amide resin and variants thereof.

Loading amino acids to the Rink amide resins is essentially the same reaction sequence as for standard peptide coupling, with a Fmoc deprotection step followed by the coupling reaction.

**back to content ↑**

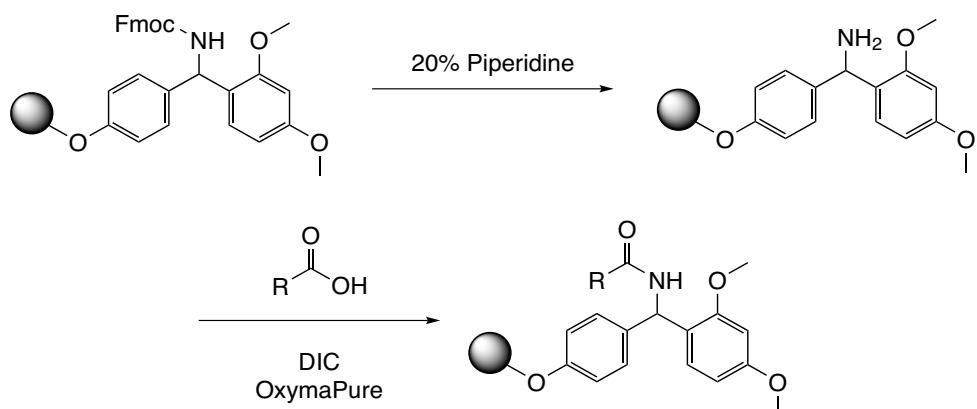


Fig. 24: Loading of Rink resins.

## Protocol 7: Attachment of Carboxylic Acids to Rink Amide Linker Resins

- I. Swell the resin in DMF using 15 mL solvent per gram of resin.
- II. Discard excess liquid and deprotect the Fmoc group from the linker with 15 mL of 20% (v/v) piperidine in DMF for 10 min.
- III. Repeat step II with 5 min reaction time.
- IV. Discard the piperidine solution and wash 5 times with DMF.
- V. Dissolve 1.5 to 2.5 eq. (relative to the reactive sites on the resin) of carboxylic acid in a second vessel with a minimum amount of DMF.
- VI. Add the same number of equivalents of OxymaPure and dissolve. If necessary, add more DMF.
- VII. Add 1 eq. (relative to the amino acid) of DIC to the vessel with the amino-acid/OxymaPure solution and close the vessel with a drying tube. Let the solution stand at RT for 10 min.

VIII. Add the reaction solution to the resin.

IX. Shake the solution for 2 to 3 h at room temperature.

X. Take a small sample of the resin, wash with DCM and perform a Kaiser test. If free amines are detected, continue with step XI, otherwise with step XII.

XI. Add 1 eq. (relative to the reactive sites on the resin) of acetic anhydride and pyridine to the mixture and shake for 30 min.

XII. Remove solution by filtration and wash the resin 3 times with DMF, 3 times with DCM, and finally 3 times with methanol.

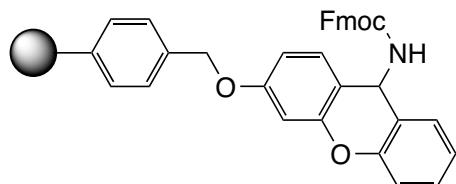
XIII. Dry the resin to constant weight under reduced pressure.

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## 5.2. Sieber Resin

The Sieber amide resin is ideally suited to synthesize side-chain protected peptide amides, as cleavage occurs in 1% TFA in DCM. Since the Sieber linker is less bulky through the fixation of the two aryl rings *via* the phenolether bridge, it is better suited for the synthesis of C-terminal secondary amides.



*Fig. 25: Sieber amide resin.*

A protocol similar to the Rink amide resin loading protocol 7 (chapter 5.1 „[Protocol 7: Attachment of Carboxylic Acids to Rink Amide Linker Resins](#)“ on page 25) can be employed to attach the first amino acid to the solid support.

### References:

- A new acid-labile anchor group for the solid-phase synthesis of C-terminal peptide amides by the Fmoc method; P. Sieber; *Tetrahedron Lett.* 1987; **28**: 2107-2110. [https://doi.org/10.1016/s0040-4039\(00\)96055-6](https://doi.org/10.1016/s0040-4039(00)96055-6)
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## 5.3. Peptide Amides Synthesis by Side Chain Immobilization

As an alternative to using linker chemistry to generate C-terminal amides, if the first amino acid to be attached to the solid support bears a side chain with a suitable functional group (such as an OH-group), the carboxamide of this amino acid can be attached to the resin *via* its side chain. The peptide chain can then be extended through standard SPPS to generate the desired peptide amide (*Fig. 26*). Many amino acids and peptides as well as preloaded resins are commercially available for fast and easy access.

**back to content ↑**

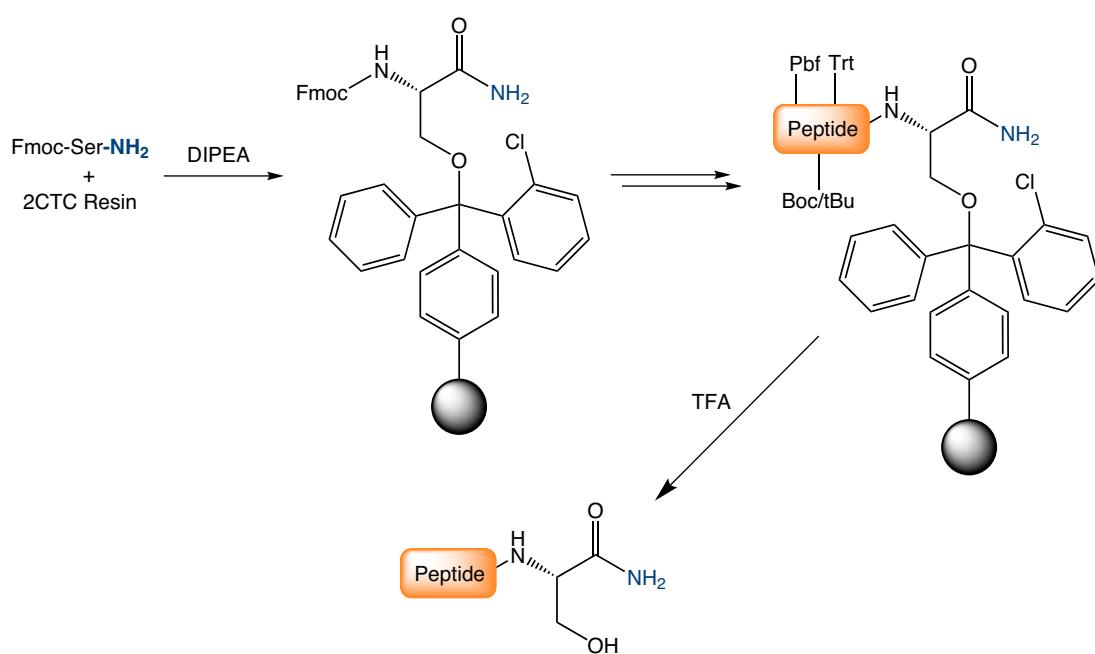


Fig. 26: Example of an alternative way of synthesizing peptide amides by attaching a peptide amide to the solid support (e.g. to a 2CTC resin) via the side chain; said amide is subsequently extended by SPPS.

## 6. Hydrazone Resins

Peptide hydrazides can be easily synthesized using the novel hydrazone resin. The hydrazone linker is completely stable in the course of standard Fmoc SPPS, and tolerates treatment with 5% TFA/DCM, thus permitting selective removal of Mtt or similar acid-labile protecting groups. Subsequent application of tried and tested cleavage cocktails (TFA:water:TIS 95:2.5:2.5) permits to obtain the peptides in good yields and purities.

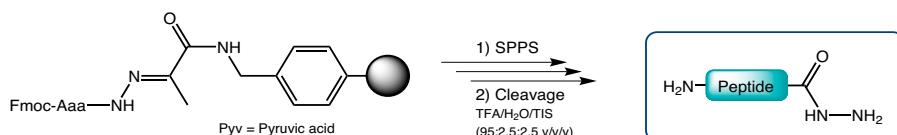


Fig. 27: SPPS on hydrazone resins yielding a peptide hydrazide.

Synthesized peptide hydrazides can be applied as building blocks for the conjugation to different carrier molecules using the hydrazone ligation technique or be converted to peptide thioesters that may be used in native chemical ligation (NCL).



Fig. 28: Native Chemical Ligation utilizing C-terminal thioesters synthesized from peptide hydrazides.

### Protocol 8: Attachment of Carboxylic Acids to Hydrazone Resin

#### Method 1.

- I. Place the Fmoc-NHN=Pyv resin in a clean dry reaction vessel, add sufficient DMF and allow to swell for 1 h.
- II. Wash the resin with DMF and treat with 20% piperidine in DMF (1x2 min; 1x8 min) to remove the Fmoc group. Wash with DMF (2x1 min); iPrOH (2x1 min) and DMF (3x1 min).
- III. Dissolve the Fmoc amino acid (4 eq.) and OxymaPure (4 eq.) in DMF while stirring at room temperature and cool to 0 °C in an ice bath. Add DIC (4 eq.) and stir the reaction mixture for 10 min.
- IV. Transfer the solution of the activated Fmoc amino acid to the reaction vessel containing the resin. Stir for 60 min and leave overnight. Wash the resin with DMF (3x1 min).
- V. Perform the Fmoc loading test. If necessary, repeat steps III and IV.

#### Method 2.

- I. Place the Fmoc-NHN=Pyv resin in a clean dry reaction vessel, add sufficient DMF and allow to swell for 1 h.
- II. Wash the resin with DMF and treat with 20% piperidine in DMF (1x2 min; 1x8 min) to remove the Fmoc group. Wash with DMF (2x1 min); iPrOH (2x1 min) and DMF (3x1 min).
- III. Dissolve the Fmoc amino acid (4 eq.) and PyAOP (4 eq.) in DMF while stirring at room temperature, add DIEA (8 eq.) and stir the reaction mixture for 8 min.
- IV. Transfer the solution of the activated Fmoc amino acid to the reaction vessel containing the resin. Stir for 60 min and leave overnight. Wash the resin with DMF (3x1 min).
- V. Perform the Fmoc loading test. If necessary, repeat steps III and IV.

**back to content ↑**

## Important notes:

- It is advised to use anhydrous solvents and a dry reaction vessel.
- The formation of truncated peptide sequences was not observed so far, however the residual hydrazone groups can be capped using a mixture of Ac<sub>2</sub>O/DIEA/DCM.
- Method 2 is not suitable in the case of Ser and Cys due to the partial racemization.

## Reference:

→ Convenient method of peptide hydrazide synthesis using a new hydrazone resin; P. S. Chelushkin, K. V. Polyanichko, M. V. Leko, M. Y. Dorosh, T. Bruckdorfer, S. V. Burov; *Tetrahedron Lett.* 2015; **56**: 619-622.  
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## Lysine Dendrons – easily accessible via Hydrazone Resin

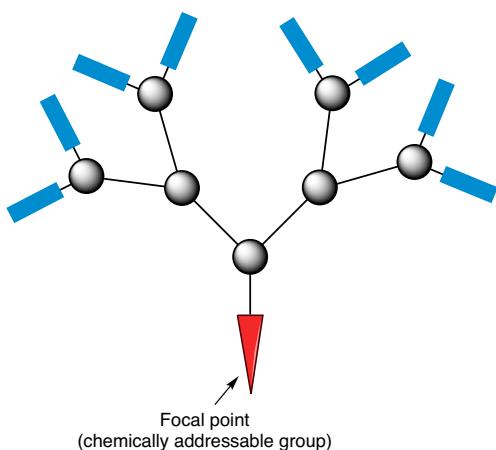


Fig. 29: Schematic illustration of lysine dendrons.

Lysine dendrons with a hydrazide functional group at the focal point/C-terminus can undergo chemoselective conjugation with synthetic or natural polymers or molecules bearing aldehyde groups (in peptides for example by oxidation of N-terminal Ser or Thr residues). The conjugation can be performed with (or without) subsequent reduction of the hydrazone bond by NaBH<sub>4</sub>. Conjugates then can for example be applied for the design of gene delivery systems or for modifying the surface properties of polymers.

DOTA-functionalized dendrons conjugated to peptide or polymer carrier molecules facilitate delivery of paramagnetic ions (Gd<sup>3+</sup>; Mn<sup>2+</sup>) or radioactive isotopes. Applications include the targeted delivery of MR contrast agents (e.g. Gd<sup>3+</sup>) and radio immunotherapy.

The triphenylphosphonium (TPP)-bearing dendron was designed for the targeted delivery of peptides, polymers, and different drugs to mitochondria.

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**back to content ↑**

## 7. Scavenger Resins

In contrast to the solid supports previously discussed, the special resins in this chapter are not used to attach and modify molecules on solid support. Instead, these resins bear immobilized reagents that can be easily filtered off from the products after completion of the desired chemical transformation.

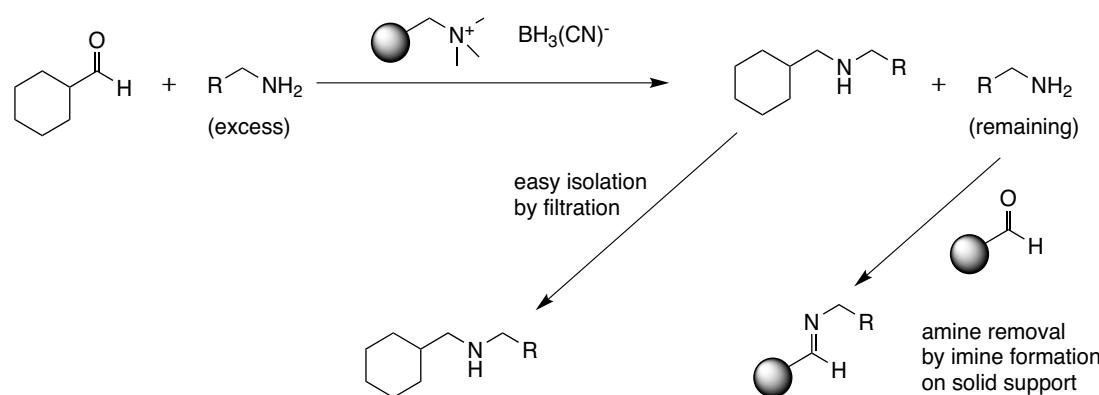
Scavenger resins are functionalized solid supports that are used for the rapid inactivation of reactive side products generated during solution phase chemistry. There is a wide variety of functional groups available on different resins that will react with various by-products to remove them from the reaction solution.

Scavenger resins have become increasingly popular in solution phase combinatorial synthesis for active pharmaceutical ingredients. In comparison to other purification methods, scavenger resins have several advantages:

- Quick purification by easy and fast separation through filtration.
- Can be used in excess to capture impurities more efficiently and faster.
- Product stays in solution and can be subjected to further reactions without prior work-up.
- Compatible with a wide variety of solvents.
- Orthogonal purification principle that can be combined with other methods.

### Example: Reductive Amination and Excess Amine Removal

The following two-step procedure nicely demonstrates the application of solid-supported reagents and scavenger resins. Reductive amination often requires an excess of amine. The reducing borane reagent is immobilized by ionic interaction on a positively charged ammonium resin that can be easily filtered off once the reduction is completed. The excess of amine can then be removed by imine formation with an aldehyde resin and subsequent filtration (*Fig. 30*).



*Fig. 30: Reductive amination and subsequent facile purification using two different scavenger resins.*

Aldehyde resins have a significant advantage over other amine scavengers, such as isocyanate resins, as they are fully capable to distinguish between primary and secondary amines.

## 8. Standard Protocols for Peptide Synthesis

### Protocol 9: Fmoc Deprotection (Fmoc Strategy)

- I.** Swell the resin in DMF using 10 mL solvent per gram of resin.
- II.** Discard excess liquid, and deprotect Fmoc group by adding 10 mL of 20% (v/v) piperidine in DMF per gram of resin, and agitating the resin for 10 min.
- III.** Repeat step II with 5 min reaction time.
- IV.** Discard the piperidine solution and wash 5 times with DMF.

### Protocol 10: Boc Deprotection (Boc Strategy)

- I.** Swell the resin in DCM using 10 mL solvent per gram of resin.
- II.** Discard excess liquid and deprotect Boc group by adding 10 mL of 50% (v/v) TFA in DCM per gram of resin and agitating for 5 min. Add 0.5% DTT when Cys, Met or Trp are present in the peptide.
- III.** Repeat step II with 20 min reaction time.
- IV.** Discard the TFA solution and wash 2 times with DCM and subsequently 2 times with IPA before neutralization.

### Protocol 11: Neutralization after Boc Deprotection (Boc Strategy)

- I.** Treat resin with 10 mL of 10% (v/v) TEA in DCM per gram resin for 10 min.
- II.** Discard liquid and repeat step I.
- III.** Wash the resin 3 times alternatingly with DCM and IPA each.

### Protocol 12: Standard Amino Acid Coupling

- I.** Dissolve 2 eq. (relative to resin loading) of carboxylic acid, COMU and OxymaPure in a vessel with 10 mL of DMF per gram of resin.
- II.** Add 1 eq. (relative to the amino acid) of DIEA to the vessel with the amino-acid solution and mix.
- III.** Add the reaction solution to the swollen resin and shake the solution for 1 h at room temperature.
- IV.** Remove solution by filtration and wash the resin 5 times with DMF.

**back to content ↑**

## Protocol 13: Difficult Amino Acid Coupling

Numerous protocols have been published for achieving good yields while coupling sterically hindered amino acids, such as Aib or other difficult carboxylic acids using reagents like HATU and/or HOAt. These reagents recently have been classified as explosives and hence cannot be used anymore by the peptide community.

**I.** Dissolve 2 eq. (relative to resin loading) of carboxylic acid, HDMA and OxymaPure in a vessel with 10 mL of DMF per gram of resin.

**II.** Add 1 eq. (relative to the amino acid) of DIPEA to the vessel with the amino-acid solution and mix.

**III.** Add the reaction solution to the swollen resin and shake the solution for 3 h at room temperature.

**IV.** Remove solution by filtration and wash the resin 5 times with DMF.

## Modern substitutes are:

### Substitute for HATU:

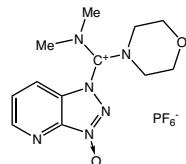
RL-2170      HDMA

1-[(Dimethylamino)(morpholino)methylene]-1H-[1,2,3]triazolo[4,5-b]pyridine-1-ium 3-oxide hexafluorophosphate

CAS-No.      958029-37-3

Formula      C<sub>12</sub>H<sub>17</sub>N<sub>6</sub>O<sub>2</sub>\*PF<sub>6</sub>

Mol. weight      277,30\*144,96 g/mol



Product details



### Substitute for HOAt:

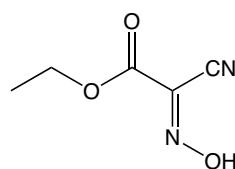
RL-1180      OxymaPure

Ethyl cyano(hydroxyimino)acetate, Ethyl cyano-glyoxylate-2-oxime

CAS-No.      3849-21-6

Formula      C<sub>5</sub>H<sub>6</sub>N<sub>2</sub>O<sub>3</sub>

Mol. weight      142,11 g/mol



Product details



## Protocol 14: TFA Peptide Cleavage (Fmoc Strategy), High Concentration

- I.** Add 20 mL of a TFA, water and TIPS mixture (95/2.5/2.5; v:v:v) to the dry resin and react for 2 h.
- II.** Separate cleavage cocktail from resin via filtration.
- III.** Reduce volume of cleavage cocktail to approximately 10% of original volume.
- IV.** Add 10 volumes of ice-cold diethyl ether (relative to remaining volume of cleavage cocktail) to precipitate the peptide.
- V.** Decant diethyl ether or filter off the precipitate.
- VI.** Wash 2 times with diethyl ether and dry peptide.

## Protocol 15: Dilute TFA Peptide Cleavage (Fmoc Strategy)

Fully side chain protected peptides will be generated with highly acid-sensitive resins like 2-chloro-trityl resin, trityl-TentaGel® or Sieber resins. Due to the high acid sensitivity of the peptide-resin bond and the hydrophobic nature of the cleaved, fully protected peptide, careful prior experimentation is necessary, and appropriate minor modifications of the protocol given below may be required.

- I.** Swell the resin in DCM using 10 mL solvent per gram of resin and discard excess of liquid.
- II.** Add 10 mL of a 1% TFA and 1% EDT in DCM, seal the container and shake for 2 min.
- III.** Filter the solution by applying gravity or nitrogen pressure (no vacuum!) into a flask containing 10% pyridine in MeOH (v/v 2 mL per 10 mL cleavage solution).
- IV.** Repeat from step II 10 times.
- V.** Add 10 volumes of ice-cold diethyl ether (relative to remaining volume of cleavage cocktail) to precipitate the peptide.
- VI.** Decant diethyl ether or filter off the precipitate.
- VII.** Wash 2 times with diethyl ether and dry peptide.

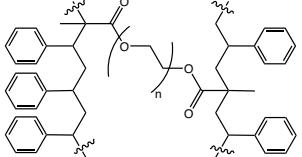
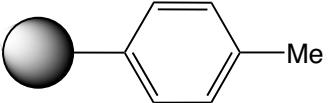
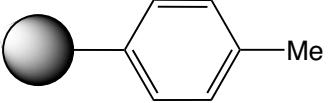
## Protocol 16: Low-High HF Peptide Cleavage (Boc Strategy)

- I.** A solution of DMS/p-cresol (65:10; v/v) (*p*-thiocresol if Trp(For) is present) is added to the reactor with the resin.
- II.** Distill HF into the reactor until the solution reaches a HF/DMS/p-cresol ratio of 25:65:10 (v/v/v) with 10 mL solution per gram resin.
- III.** Agitate for 2 h at 0-5 °C.
- IV.** Evaporate HF and DMS under reduced pressure.
- V.** Remove the resin from the reactor and wash with DCM.
- VI.** Return the resin to the reactor with *p*-cresol.
- VII.** Perform high HF cleavage for 1 h at 0-5 °C in a mixture of HF/p-cresol of 9:1 (v/v).
- VIII.** Remove HF under reduced pressure.
- IX.** Suspend the cleaved peptide and resin in diethyl ether and wash thoroughly with diethyl ether.
- X.** Remove ether by drying.
- XI.** Dissolve the peptide in 50% aqueous acetic acid, filter off resin and dilute peptide solution with water.
- XII.** Recover the peptide by lyophilization or use solution directly for HPLC purification.

**back to content ↑**

## 9. Product Catalogue

### 9.1. Base Resins

		Product details
BR-5240	Polystyrene (PEG crosslinked)	
Polystyrene (PEG crosslinked)		
Mesh Size	100-200 mesh	
DVB	PEG Crossl	
BR-5085	Polystyrene-Me	
4-Methyl polystyrene		
Mesh Size	100-200 mesh	
Loading	1.0-2.0 mmol/g	
DVB	1% DVB	
BR-5086	Polystyrene-Me	
4-Methyl polystyrene		
Mesh Size	75-100 mesh	
DVB	1% DVB	



Interested in Polystyrene?

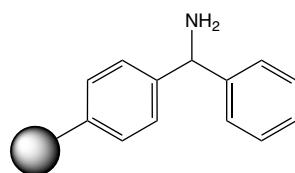
Contact us with required quantity and cross-linking!

### 9.1.1. Benzhydryl/Benzophenon Type Resins

[Product details](#)
**BR-5226      BHA-Resin**

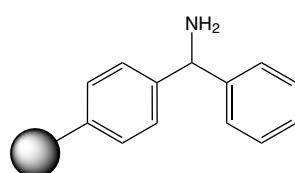
Benzhydrylamine Resin

Mesh Size	100-200 mesh
Loading	0.1-0.4 mmol/g
DVB	1% DVB


**BR-5227      BHA-Resin**

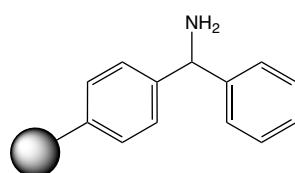
Benzhydrylamine Resin

Mesh Size	100-200 mesh
Loading	0.5-1.5 mmol/g
DVB	1% DVB


**BR-5228      BHA-Resin**

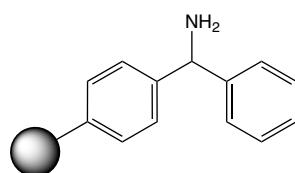
Benzhydrylamine Resin

Mesh Size	100-200 mesh
Loading	1.6-2.5 mmol/g
DVB	1% DVB


**BR-5229      BHA-Resin**

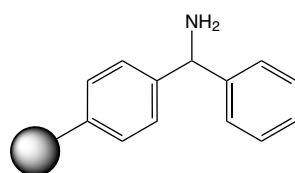
Benzhydrylamine Resin

Mesh Size	200-400 mesh
Loading	0.1-0.4 mmol/g
DVB	1% DVB

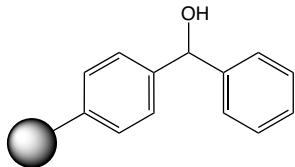
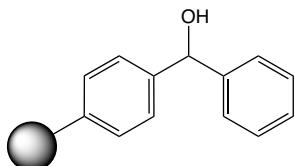
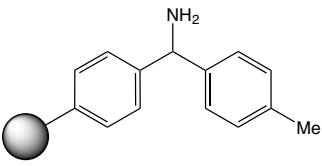
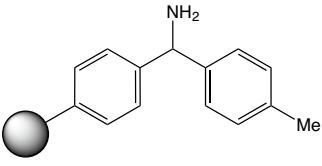
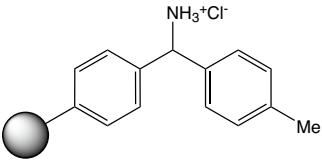
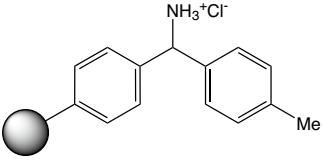

**BR-5230      BHA-Resin**

Benzhydrylamine Resin

Mesh Size	200-400 mesh
Loading	0.5-1.5 mmol/g
DVB	1% DVB


[back to content ↑](#)

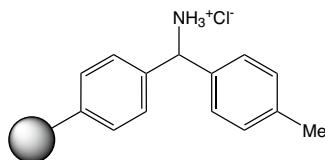
## Resin Guideline

		Product details
<b>BR-5202</b>	<b>BH-OH Resin</b>	
Benzhydryl alcohol polystyrene		
Mesh Size	100-200 mesh	
Loading	0.5-2.0 mmol/g	
DVB	1% DVB	
<b>BR-5203</b>	<b>BH-OH Resin</b>	
Benzhydryl alcohol polystyrene		
Mesh Size	100-200 mesh	
Loading	2.1-4.0 mmol/g	
DVB	1% DVB	
<b>BR-1120</b>	<b>MBHA-Resin</b>	
4-Methylbenzhydrylamine Resin		
Mesh Size	100-200 mesh	
Loading	0.5-1.5 mmol/g	
DVB	1% DVB	
<b>BR-1125</b>	<b>MBHA-Resin</b>	
4-Methylbenzhydrylamine Resin		
Mesh Size	200-400 mesh	
Loading	0.5-1.5 mmol/g	
DVB	1% DVB	
<b>BR-5070</b>	<b>MBHA-Resin</b>	
4-Methylbenzhydrylamine Resin hydrochloride		
Mesh Size	100-200 mesh	
Loading	0.1-0.4 mmol/g	
DVB	1% DVB	
<b>BR-5071</b>	<b>MBHA-Resin</b>	
4-Methylbenzhydrylamine Resin hydrochloride		
Mesh Size	100-200 mesh	
Loading	1.5-2.0 mmol/g	
DVB	1% DVB	

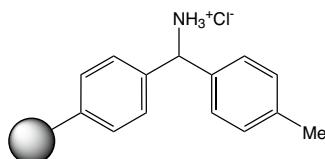
## Product details

**BR-5072 MBHA Resin**

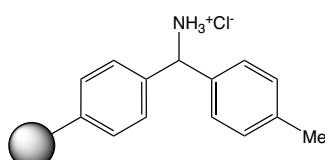
4-Methylbenzhydrylamine Resin hydrochloride

Mesh Size      200-400 mesh  
Loading        0.1-0.6 mmol/g  
DVB            1% DVB

**BR-5073 MBHA-Resin**

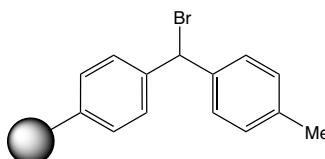
4-Methylbenzhydrylamine Resin hydrochloride

Mesh Size      200-400 mesh  
Loading        0.5-1.5 mmol/g  
DVB            1% DVB

**BR-5074 MBHA-Resin**

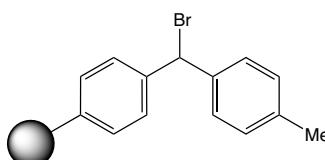
4-Methylbenzhydrylamine Resin

Mesh Size      200-400 mesh  
Loading        1.6-2.5 mmol/g  
DVB            1% DVB

**BR-1180 MBH-Br Resin**

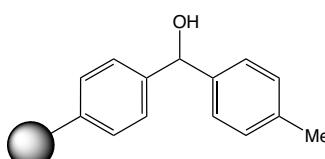
4-Methylbenzhydryl bromide resin

Mesh Size      100-200 mesh  
Loading        1.2-2.0 mmol/g  
DVB            1% DVB

**BR-1185 MBH-Br Resin**

4-Methylbenzhydryl bromide resin

Mesh Size      200-400 mesh  
Loading        1.2-2.0 mmol/g  
DVB            1% DVB

**BR-1190 4-Me-BH-OH Resin**

4-Methylbenzhydryl-alcohol resin

Mesh Size      100-200 mesh  
Loading        1.2-2.0 mmol/g  
DVB            1% DVB

[back to content ↑](#)

## Resin Guideline

Product details

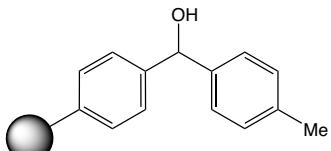
### BR-1195 4-Me-BH-OH Resin

4-Methylbenzhydryl-alcohol resin

Mesh Size 200-400 mesh

Loading 1.2-2.0 mmol/g

DVB 1% DVB



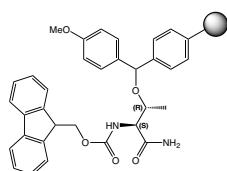
### RAA2680 Fmoc-L-Thr(MeO-BH resin)-NH<sub>2</sub>

Fmoc-L-Threonine alpha-amide-O-(4-methoxybenzhydryl resin)

Mesh Size 100-200 mesh

Loading ca. 0.5 mmol/g

DVB 1% DVB



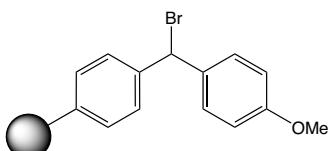
### BR-1030 4-MeO-BH-Br Resin

4-Methoxybenzhydryl bromide resin

Mesh Size 100-200 mesh

Loading 1.0-2.0 mmol/g

DVB 1% DVB



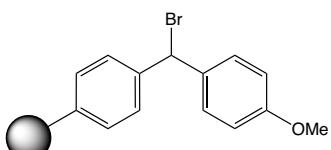
### BR-1035 4-MeO-BH-Br Resin

4-Methoxybenzhydryl bromide resin

Mesh Size 200-400 mesh

Loading 1.0-2.0 mmol/g

DVB 1% DVB



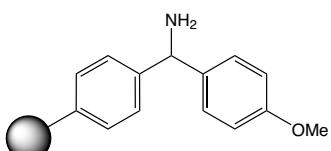
### BR-1010 4-MeO-BH-NH<sub>2</sub> Resin

4-Methoxybenzhydryl amine resin

Mesh Size 100-200 mesh

Loading 1.0-1.7 mmol/g

DVB 1% DVB



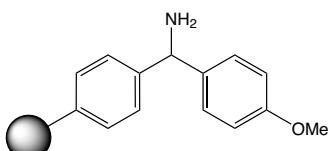
### BR-1015 4-MeO-BH-NH<sub>2</sub> Resin

4-Methoxybenzhydryl amine resin

Mesh Size 200-400 mesh

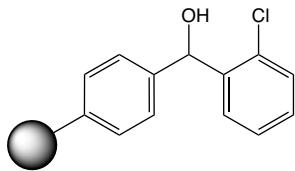
Loading 1.0-1.7 mmol/g

DVB 1% DVB

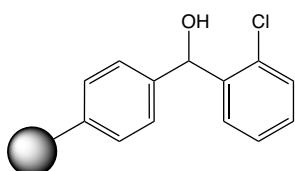


[Product details](#)
**BR-5200 2-Cl-BH-OH Resin**

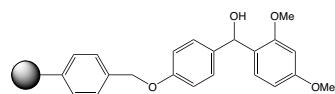
2-Chlorobenzhydryl alcohol Polystyrene

 Mesh Size      100-200 mesh  
 Loading        1.0-2.0 mmol/g  
 DVB            1% DVB

**BR-5222 2-Cl-BH-OH Resin**

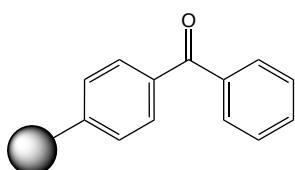
2-Chlorobenzhydryl alcohol Polystyrene

 Mesh Size      100-200 mesh  
 Loading        2.1-3.5 mmol/g  
 DVB            1% DVB

**BR-5088 Rink Acid Resin**

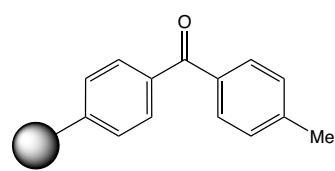
Rink Polystyrene Resin

 Mesh Size      100-200 mesh  
 Loading        0.5-1.3 mmol/g  
 DVB            1% DVB

**BR-1245 Benzophenon Resin**

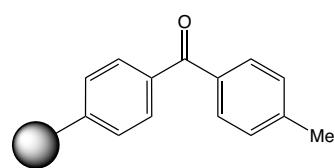
Benzophenon Resin

 Mesh Size      100-200 mesh  
 Loading        > 1.1 mmol/g  
 DVB            1% DVB

**BR-1215 4-Me-Benzophenon Resin**

4-Methylbenzophenon Resin

 Mesh Size      100-200 mesh  
 Loading        > 1.1 mmol/g  
 DVB            1% DVB

**BR-1220 4-Me-Benzophenon Resin**

4-Methylbenzophenon Resin

 Mesh Size      200-400 mesh  
 Loading        > 1.1 mmol/g  
 DVB            1% DVB

[back to content ↑](#)

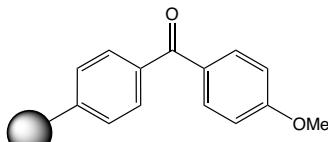
# Resin Guideline

Product details

## BR-1225 4-MeO-Benzophenon Resin

4-Methoxybenzophenon Resin

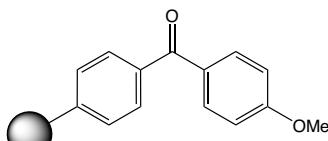
Mesh Size 100-200 mesh  
Loading > 1.1 mmol/g  
DVB 1% DVB



## BR-1230 4-MeO-Benzophenon Resin

4-Methoxybenzophenon Resin

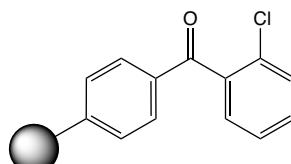
Mesh Size 200-400 mesh  
Loading > 1.1 mmol/g  
DVB 1% DVB



## BR-1200 2-Cl-Benzophenon Resin

2-Chlorobenzophenon Resin

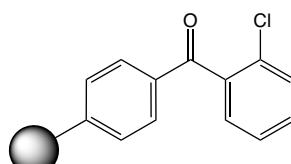
Mesh Size 100-200 mesh  
Loading > 1.1 mmol/g  
DVB 1% DVB



## BR-1205 2-Cl-Benzophenon Resin

2-Chlorobenzophenon Resin

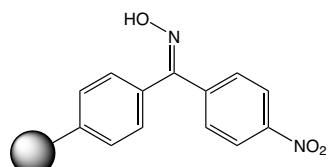
Mesh Size 200-400 mesh  
Loading > 1.1 mmol/g  
DVB 1% DVB



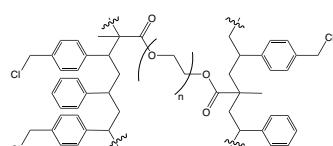
## BR-5076 Oxime Resin

p-Nitrobenzhydryl oxime polystyrene

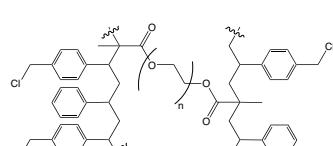
Mesh Size 100-200 mesh  
Loading 0.5-1.5 mmol/g  
DVB 1% DVB



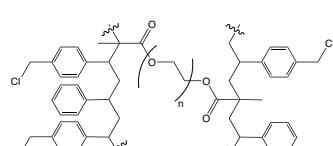
## 9.1.2. Merrifield Type Base Resins

		Product details
<b>BR-5031</b>	<b>Merrifield-PEG Resin</b>	
PEG Crosslinked Chloromethylpolystyrene (n=4)		 
Mesh Size	100-200 mesh	
Loading	0.8-2.0 mmol/g	
DVB	by PEG	

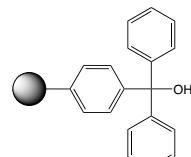
  

		Product details
<b>BR-5032</b>	<b>Merrifield-PEG Resin</b>	
PEG Crosslinked Chloromethylpolystyrene (n=9)		 
Mesh Size	100-200 mesh	
Loading	0.8-1.5 mmol/g	
DVB	by PEG	

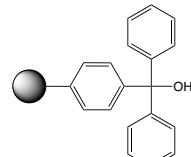
  

		Product details
<b>BR-5030</b>	<b>Merrifield-PEG Resin</b>	
PEG Crosslinked Chloromethylpolystyrene (n=16)		 
Mesh Size	100-200 mesh	
Loading	0.8-1.5 mmol/g	
DVB	by PEG	

## 9.1.3. Trityl Type Base Resins

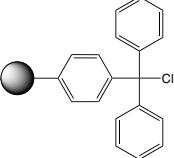
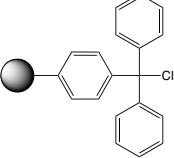
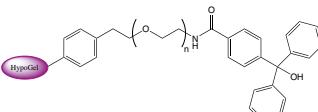
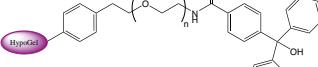
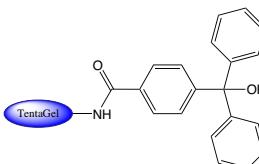
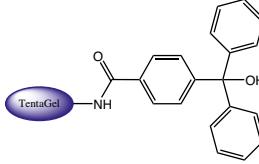
		Product details
<b>BR-1150</b>	<b>Trt-OH Resin</b>	
Trityl alcohol resin		 
Mesh Size	100-200 mesh	
Loading	1.2-2.0 mmol/g	
DVB	1% DVB	

		Product details
<b>BR-1155</b>	<b>Trt-OH Resin</b>	
Trityl alcohol resin		 
Mesh Size	200-400 mesh	
Loading	1.2-2.0 mmol/g	
DVB	1% DVB	

[back to content ↑](#)

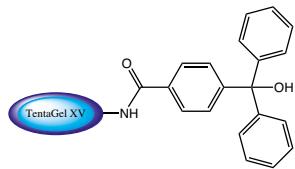
# Resin Guideline

		Product details
<b>BR-1140</b>	<b>Trt-Cl Resin</b>	
Trityl chloride resin		
Mesh Size	100-200 mesh	
Loading	1.0-2.0 mmol/g	
DVB	1% DVB	
<b>BR-1145</b>	<b>Trt-Cl Resin</b>	
Trityl chloride resin		
Mesh Size	200-400 mesh	
Loading	1.2-2.0 mmol/g	
DVB	1% DVB	
<b>BRH1140</b>	<b>HypoGel® 200 Trt-OH</b>	
HypoGel-PEG200-trityl alcohol (n=5)		
Mesh Size	110-150 µm	
Loading	0.6-0.8 mmol/g	
<b>BRH1260</b>	<b>HypoGel® 400 Trt-OH</b>	
HypoGel-PEG400-trityl alcohol (n=10)		
Mesh Size	110-150 µm	
Loading	0.4-0.6 mmol/g	
<b>S-30012</b>	<b>TG S Trt-OH (90µm)</b>	
TentaGel S Trt-OH		
Mesh Size	90 µm	
Loading	0.2-0.25 mmol/g	
<b>HL12012</b>	<b>TG HL Trt-OH (75µm)</b>	
TentaGel HL Trt-OH (75µm)		
Loading	0.3-0.4 mmol/g	

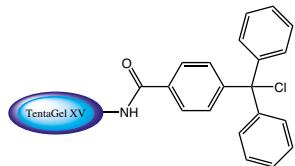
## Product details

**XV30012 TG XV Trt-OH (100µm)**

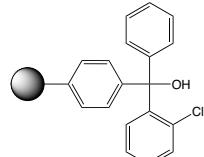
Hydroxytrityl-TentaGel XV

 Mesh Size      100-200 µm  
 Loading        0.2-0.4 mmol/g

**XV30031 TG XV Trt-Cl (100µm)**

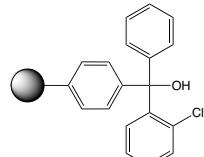
Chlorotriptyl-TentaGel XV

 Mesh Size      100-200 µm  
 Loading        0.2-0.4 mmol/g

**BR-1170 2CT-OH Resin**

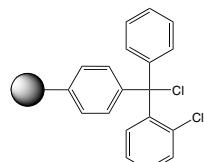
2-Chlorotriptyl alcohol resin

 Mesh Size      100-200 mesh  
 Loading        1.2-2.5 mmol/g  
 DVB            1% DVB

**BR-1175 2CT-OH Resin**

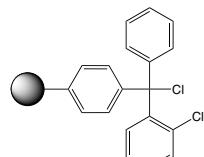
2-Chlorotriptyl alcohol resin

 Mesh Size      200-400 mesh  
 Loading        1.2-2.0 mmol/g  
 DVB            1% DVB

**BR-1055 2CTC Resin**

2-Chlorotriptyl chloride resin

 CAS-No.       934816-82-7  
 Mesh Size      50-100 mesh  
 Loading        1.0-1.6 mmol/g  
 DVB            1% DVB

**BR-1060LL 2CTC Resin**

2-Chlorotriptyl chloride resin

 CAS-No.       934816-82-7  
 Mesh Size      100-200 mesh  
 Loading        0.1-0.9 mmol/g  
 DVB            1% DVB

[back to content ↑](#)

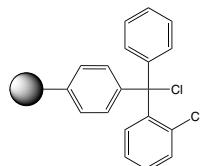
# Resin Guideline

Product details

## BR-1060 2CTC Resin

2-Chlorotriyl chloride resin

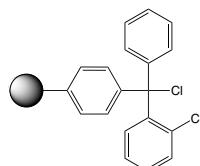
CAS-No. 934816-82-7  
Mesh Size 100-200 mesh  
Loading 1.0-1.6 mmol/g  
DVB 1% DVB



## BR-1065 2CTC Resin

2-Chlorotriyl chloride resin

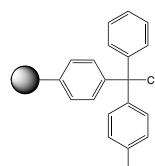
CAS-No. 934816-82-7  
Mesh Size 200-400 mesh  
Loading 1.1-1.8 mmol/g  
DVB 1% DVB



## BR-1130 Mtt-Cl Resin

4-Methyltrityl chloride resin

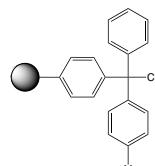
Mesh Size 100-200 mesh  
Loading 0.5-2.0 mmol/g  
DVB 1% DVB



## BR-1135 Mtt-Cl Resin

4-Methyltrityl chloride resin

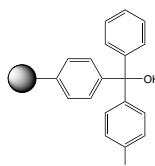
Mesh Size 200-400 mesh  
Loading 0.5-2.0 mmol/g  
DVB 1% DVB



## BR-1160 Mmt-OH Resin

4-Methoxytrityl alcohol resin

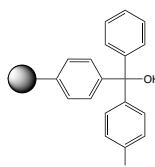
Mesh Size 100-200 mesh  
Loading 1.2-2.0 mmol/g  
DVB 1% DVB



## BR-1165 Mmt-OH Resin

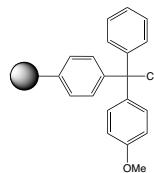
4-Methoxytrityl alcohol resin

Mesh Size 200-400 mesh  
Loading 1.2-2.0 mmol/g  
DVB 1% DVB

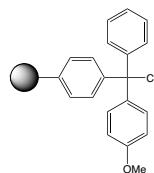


[Product details](#)
**BR-1110 Mmt-Cl Resin**

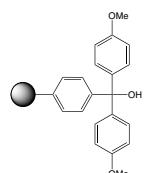
4-Methoxytrityl chloride resin

 Mesh Size      100-200 mesh  
 Loading        1.0-2.0 mmol/g  
 DVB            1% DVB

**BR-1115 Mmt-Cl Resin**

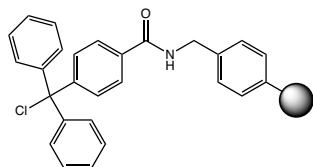
4-Methoxytrityl chloride resin

 Mesh Size      200-400 mesh  
 Loading        1.2-2.0 mmol/g  
 DVB            1% DVB

**BR-5063 Dmt-OH Resin**

4,4'-Dimethoxytrityl alcohol resin

 Mesh Size      100-200 mesh  
 DVB            1% DVB

**BR-2010 TCP Resin**

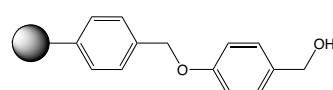
Tritylchloride-Polystyrene

 Mesh Size      200-400 mesh  
 Loading        0.9-1.0 mmol/g  
 DVB            1% DVB


## 9.1.4. Wang and other Benzylalcohol Basis Resins

[Product details](#)
**BR-5098 Wang Resin**

4-Benzyloxybenzyl alcohol polystyrene

 CAS-No.       65307-53-1  
 Mesh Size      100-200 mesh  
 Loading        0.4-1.0 mmol/g  
 DVB            1% DVB

[back to content ↑](#)

# Resin Guideline

Product details

## BR-5244 Wang Resin

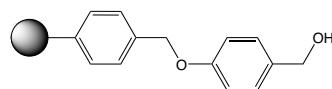
4-Benzylxybenzyl alcohol polystyrene

CAS-No. 65307-53-1

Mesh Size 100-200 mesh

Loading 1.0-2.0 mmol/g

DVB 1% DVB



## BR-5245 Wang Resin

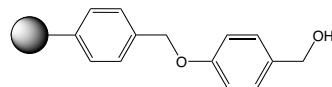
4-Benzylxybenzyl alcohol polystyrene

CAS-No. 65307-53-1

Mesh Size 200-400 mesh

Loading 0.4-1.0 mmol/g

DVB 1% DVB



## BR-1420 Wang Resin

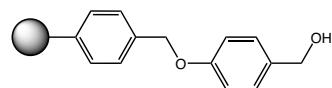
4-Benzylxybenzyl alcohol polystyrene

CAS-No. 65307-53-1

Mesh Size 200-400 mesh

Loading 1.0-2.0 mmol/g

DVB 1% DVB



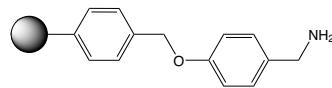
## BR-5106 Wang-amide Resin

4-Benzylxybenzyl amine polystyrene

Mesh Size 100-200 mesh

Loading 0.5-1.3 mmol/g

DVB 1% DVB



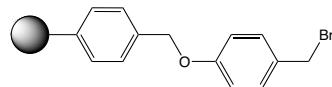
## BR-5216 Wang-Br Resin

4-Benzylxybenzyl bromide polystyrene

Mesh Size 100-200 mesh

Loading 0.5-1.3 mmol/g

DVB 1% DVB

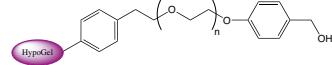


## BRH1150 HypoGel® 200 Wang

HypoGel-PEG200-p-Hydroxybenzyl alcohol (n=5)

Mesh Size 110-150 µm

Loading 0.6-0.8 mmol/g



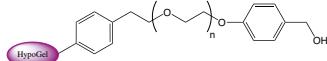
## Product details

**BRH1270 HypoGel® 400 Wang**

HypoGel-PEG400-p-Hydroxybenzyl alcohol (n=10)

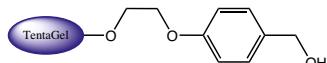
Mesh Size 110-150 µm

Loading 0.4-0.6 mmol/g


**R28013 TG R Wang (90µm)**

TentaGel R PHB (90µm)

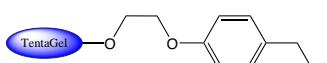
Loading 0.18-0.23 mmol/g


**S-30013 TG S Wang (90µm)**

TentaGel S PHB

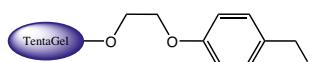
Mesh Size 90 µm

Loading 0.2-0.25 mmol/g


**HL12013 TG HL Wang (75µm)**

TentaGel HL PHB (75µm)

Loading 0.3-0.4 mmol/g

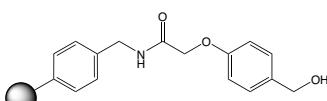

**BR-5068 HMPA Resin**

4-(Hydroxymethyl)phenoxyacetyl amidomethylpolystyrene resin

Mesh Size 100-200 mesh

Loading 0.8-1.2 mmol/g

DVB 1% DVB

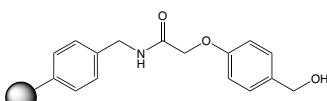

**BR-5250 HMPA Resin**

4-(Hydroxymethyl)phenoxyacetyl amidomethylpolystyrene resin

Mesh Size 200-400 mesh

Loading 0.8-1.2 mmol/g

DVB 1% DVB


[back to content ↑](#)

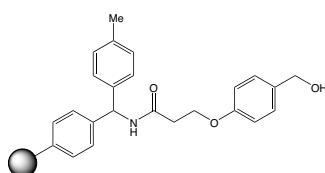
# Resin Guideline

Product details

## BR-5069 HMPPA-MBHA Resin

(4-Hydroxymethyl)phenoxypropionic acid-4-methylbenzhydrylamide resin

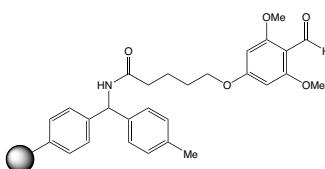
Mesh Size 100-200 mesh  
Loading 0.7-1.3 mmol/g  
DVB 1% DVB



## BR-5201 BAL Resin

5-(4-Formyl-3,5-dimethoxyphenoxy)pentanoyl amido (4-methylphenyl)methyl polystyrene

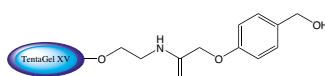
Mesh Size 100-200 mesh  
Loading 0.6-1.2 mmol/g  
DVB 1% DVB



## XV30015 TG XV HMPA (100µm)

4-Hydroxymethyl-phenoxyacetamido-TentaGel XV

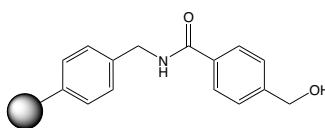
Mesh Size 100-200 µm  
Loading 0.2-0.4 mmol/g



## BR-5066 HMBA-AM Resin

4-(Hydroxymethyl)benzoyl-aminomethyl polystyrene

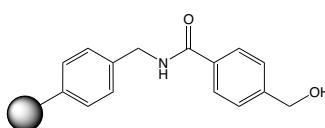
Mesh Size 100-200 mesh  
Loading 0.6-1.0 mmol/g  
DVB 1% DVB



## BR-5249 HMBA-AM Resin

4-(Hydroxymethyl)benzoyl-aminomethyl polystyrene

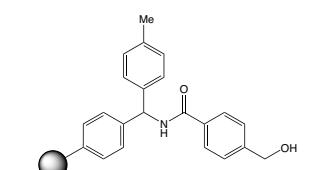
Mesh Size 200-400 mesh  
Loading 0.8-1.2 mmol/g  
DVB 1% DVB



## BR-5207 HMBA-MBHA Resin

4-(Hydroxymethyl)benzoyl-4-methylbenzhydrylamide resin

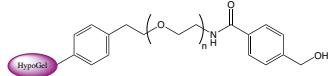
Mesh Size 100-200 mesh  
Loading 0.7-1.3 mmol/g  
DVB 1% DVB



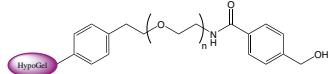
## Product details

**BRH1100 HypoGel® 200 HMBA**

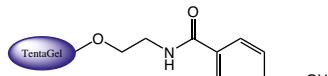
Hydroxymethylbenzoylamide-PEG200-HypoGel (n=5)

 Mesh Size 110-150 µm  
 Loading 0.6-0.8 mmol/g

**BRH1220 HypoGel® 400 HMBA**

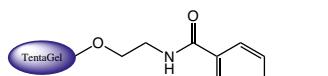
Hydroxymethylbenzoylamide-PEG400-HypoGel (n=10)

 Mesh Size 110-150 µm  
 Loading 0.4-0.6 mmol/g

**R28014 TG R HMBA (90µm)**

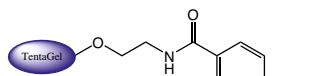
TentaGel R 4-(hydroxymethyl)benzoyl amide

 Mesh Size 90 µm  
 Loading 0.18-0.22 mmol/g

**S-30014 TG S HMBA (90µm)**

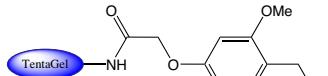
TentaGel S 4-(hydroxymethyl)benzoyl amide

 Mesh Size 90 µm  
 Loading 0.2-0.28 mmol/g

**HL12014 TG HL HMBA (75µm)**

TentaGel HL 4-(hydroxymethyl)benzoyl amide

 Mesh Size 75 µm  
 Loading 0.3-0.4 mmol/g

**S-30011 TG S AC (90µm)**

TentaGel S AC

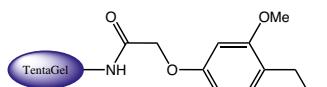
 Mesh Size 90 µm  
 Loading 0.2-0.3 mmol/g

[back to content ↑](#)

## Resin Guideline

Product details

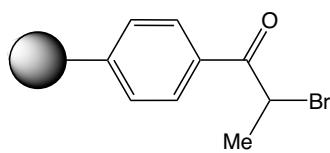
### HL12011 TG HL AC (75µm)

TentaGel HL AC (75µm)  
Loading 0.3-0.4 mmol/g



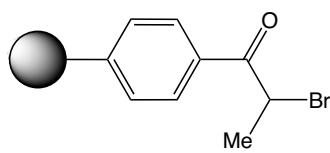
### BR-5060 Brominated Wang Resin

Brominated Wang Resin  
Mesh Size 100-200 mesh  
Loading 0.5-1.4 mmol/g  
DVB 1% DVB



### BR-5231 Brominated Wang Resin

Brominated Wang Resin  
Mesh Size 200-400 mesh  
Loading 0.5-1.5 mmol/g  
DVB 1% DVB

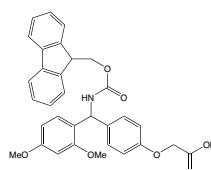


## 9.1.5. Resins for the Synthesis of Peptide Amides

Product details

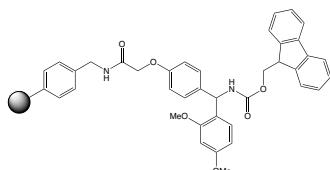
### RL-1027 Fmoc-Rink Amide-Linker

4'-(R,S)-alpha-[1-(9-Fluorenyl)methoxycarbonylamino]-2,4-dimethoxybenzyl]-phenoxyacetic acid  
CAS-No. 126828-35-1  
Formula C<sub>32</sub>H<sub>29</sub>NO<sub>7</sub>  
Mol. weight 539,58 g/mol



### BR-1320 Fmoc-Rink-Amide AM resin

Fmoc-Rink Amide aminomethyl-polystyrene Resin  
Mesh Size 100-200 mesh  
Loading < 0.4 mmol/g  
DVB 1% DVB

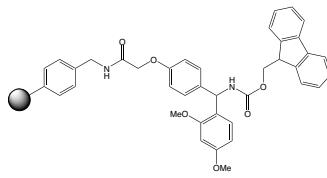


## Product details

**BR-1330 Fmoc-Rink Amide AM resin**

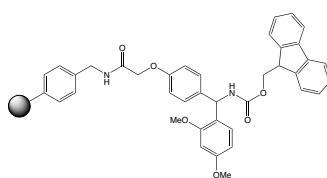
Fmoc-Rink Amide aminomethyl-polystyrene Resin

CAS-No.	183599-10-2
Mesh Size	100-200 mesh
Loading	0.4-0.75 mmol/g
DVB	1% DVB


**BR-1340 Fmoc-Rink-Amide AM resin**

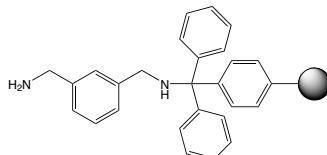
Fmoc-Rink Amide aminomethyl-polystyrene Resin

Mesh Size	200-400 mesh
Loading	0.4-0.8 mmol/g
DVB	1% DVB


**BR-5247 1,3-Bis-(aminomethyl)-benzene-trityl resin**

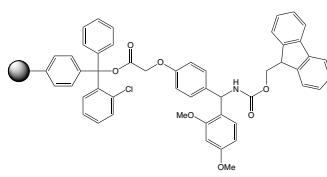
 1,3-Bis-(aminomethyl)-benzene-trityl resin (*m*-xylylene diamine-trityl resin)

Mesh Size	100-200 mesh
Loading	1.0-1.5 mmol/g
DVB	1% DVB


**BR-1310 Fmoc-Rink-Amide-2CT resin**

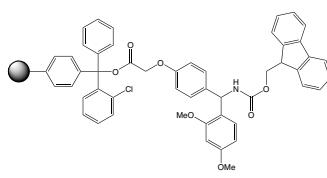
Fmoc-Rink Amide 2-chlorotriptyl Resin

Mesh Size	100-200 mesh
Loading	> 0.4 mmol/g
DVB	1% DVB


**BR-1315 Fmoc-Rink-Amide-2CT resin**

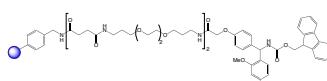
Fmoc-Rink Amide 2-chlorotriptyl Resin

Mesh Size	200-400 mesh
Loading	> 0.4 mmol/g
DVB	1% DVB


**BR-1360 Fmoc-Rink-Amide PEG AM Resin**

Fmoc-Rink Amide PEG aminomethyl-polystyrene Resin

Mesh Size	100-200 mesh
Loading	> 0.3 mmol/g
DVB	1% DVB


[back to content ↑](#)

## Resin Guideline

Product details

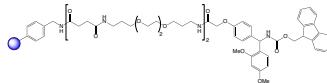
### BR-1365 Fmoc-Rink-Amide PEG AM Resin

Fmoc-Rink Amide PEG aminomethyl-polystyrene Resin

Mesh Size 200-400 mesh

Loading > 0.3 mmol/g

DVB 1% DVB



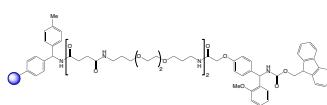
### BR-1366 Fmoc-Rink-Amide PEG MBHA Resin

Fmoc-Rink Amide PEG 4-methylbenzhydrylamine Resin

Mesh Size 200-400 mesh

Loading > 0.4 mmol/g

DVB 1% DVB



### BR-1300 Fmoc-Rink-Amid MBHA resin

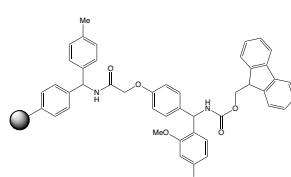
Fmoc-Rink-Amid-4-methylbenzhydrylamine resin, Knorr Resin

CAS-No. 431041-83-7

Mesh Size 100-200 mesh

Loading > 0.4 mmol/g

DVB 1% DVB



### BR-1305 Fmoc-Rink-Amid-MBHA resin

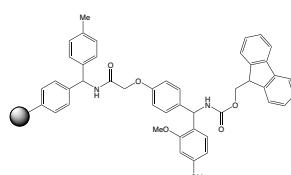
Fmoc-Rink-Amid-4-methylbenzhydrylamine resin, Knorr Resin

CAS-No. 431041-83-7

Mesh Size 200-400 mesh

Loading 0.4-0.9 mmol/g

DVB 1% DVB

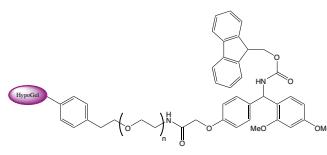


### BRH1110 HypoGel® 200 RAM

Fmoc-Rink-Amide-PEG200-HypoGel

Mesh Size 110-150 µm

Loading 0.6-0.7 mmol/g

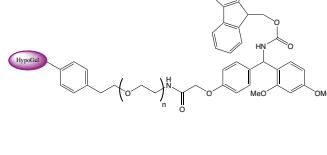


### BRH1230 HypoGel® 400 RAM

Fmoc-Rink-Amide-PEG400-HypoGel (n=10)

Mesh Size 110-150 µm

Loading 0.4-0.6 mmol/g

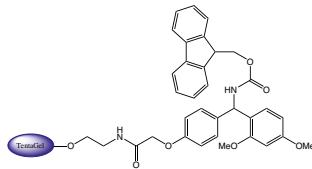


## Product details

**R28023      TG R RAM (90µm)**

TentaGel R RAM (90µm)

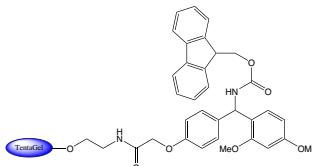
Loading      0.18-0.22 mmol/g


**S-30023      TG S RAM (90µm)**

TentaGel S RAM

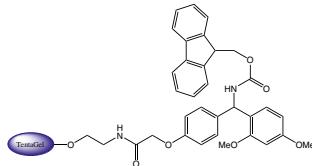
Mesh Size      90 µm

Loading      0.2-0.25 mmol/g


**HL12023      TG HL RAM (75µm)**

TentaGel HL RAM (75µm)

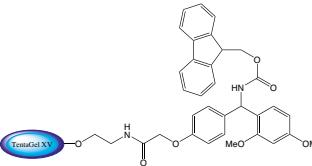
Loading      0.3-0.4 mmol/g


**XV30023      TG XV RAM (100µm)**

Fmoc-Rink-Amide-TentaGel XV

Mesh Size      100-200 µm

Loading      0.2-0.4 mmol/g

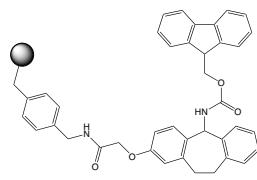

**BR-5204      Ramage Resin**

2-(5-(9-Fluorenylmethoxy carbonyl)amino-10,11-dihydro-5H-dibenzo[a,d]cycloheptenyl-2-oxy)actamido polystyrene

Mesh Size      100-200 mesh

Loading      0.3-1.5 mmol/g

DVB      1% DVB

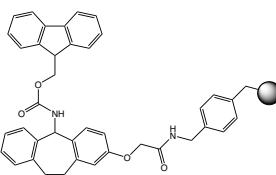

**BR-2015      Ramage Resin**

Fmoc-Ramage-Amide-(aminomethyl)-Resin

Mesh Size      200-400 mesh

Loading      0.3-0.7 mmol/g

DVB      1% DVB


[back to content ↑](#)

# Resin Guideline

Product details

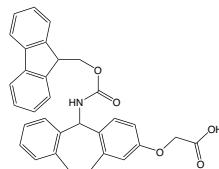
## RL-1029 Ramage-Linker

(R,S)-2-[[5-(9-Fluorenylmethyloxycarbonylamino)-di-benzo[a,d]cycloheptane-2-yl]oxy]-acetic acid

CAS-No. 212783-75-0

Formula C<sub>32</sub>H<sub>27</sub>NO<sub>5</sub>

Mol. weight 505,58 g/mol



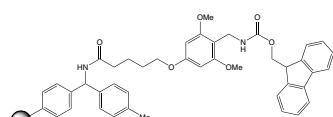
## BR-5209 Fmoc-PAL-MBHA Resin

5-(4-Fmoc-aminomethyl-3,5-dimethoxyphenoxy)-pentanoyl amide 4-methyl-benzhydryl polystyrene

Mesh Size 100-200 mesh

Loading 0.4-0.8 mmol/g

DVB 1% DVB



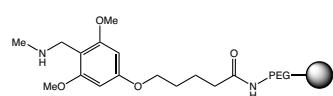
## BR-1050 N-Methyl-PAL-PEG resin

(5-(3,5-Dimethoxy-4-((methylamino)methyl)phenoxy)pentanoyl)aminoethyl polyethyleneglycol resin

Mesh Size 90 µm

Loading 0,10-0,30

DVB 1%



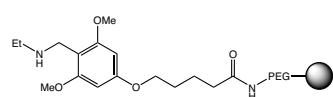
## BR-1070 N-Ethyl-PAL-PEG resin

(5-(3,5-Dimethoxy-4-((ethylamino)methyl)phenoxy)pentanoyl)aminoethyl polyethyleneglycol resin

Mesh Size 90 µm

Loading 0,10-0,30

DVB 1%



## BR-2000 Fmoc-Sieber-PS resin

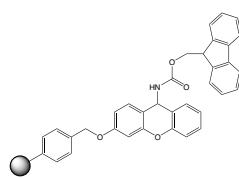
Fmoc-Sieber-polystyrene resin

CAS-No. 915706-90-0

Mesh Size 100-200 mesh

Loading 0.5-0.9 mmol/g

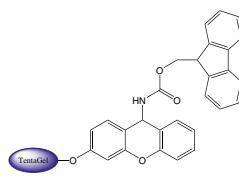
DVB 1% DVB



## BR-2005 Fmoc-Sieber-TG resin

Fmoc-Sieber-TentaGel resin

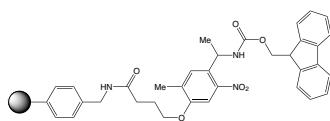
Loading 0.15-0.3 mmol/g



[Product details](#)
**BR-5205 Fmoc-Photolabile Resin**

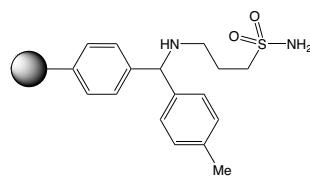
4-[4-[1-(Fmoc-amino)-ethyl]-2-methoxy-5-nitrophenoxyl]butanamide polystyrene

Mesh Size	100-200 mesh
Loading	0.6-1.0 mmol/g
DVB	1% DVB


**BR-5093 Safety Catch (Aliphatic) MBHA Resin**

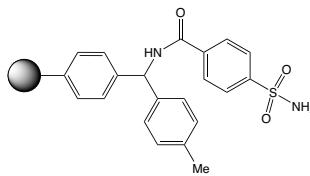
4-(Amidosulfonyl)butyramido-4-methyl-benzhydryl resin

Mesh Size	100-200 mesh
Loading	0.9-1.1 mmol/g
DVB	1% DVB


**BR-5094 Safety Catch (Aromatic) MBHA Resin**

4-(Amidosulfonyl)benzoylamido-4-methyl-benzhydryl resin

Mesh Size	100-200 mesh
Loading	0.7-1.3 mmol/g
DVB	1% DVB

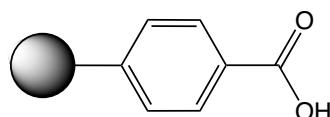


## 9.1.6. Base Resins with Acid and Ester Functions

[Product details](#)
**BR-5213 Polystyrene-COOH**

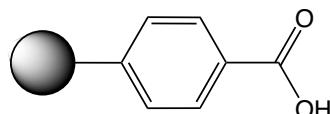
Carboxy polystyrene

Mesh Size	100-200 mesh
Loading	1.0-2.4 mmol/g
DVB	1% DVB


**BR-5259 Polystyrene-COOH**

Carboxy polystyrene

Mesh Size	200-400 mesh
Loading	1.0-1.8 mmol/g
DVB	1% DVB


[back to content ↑](#)

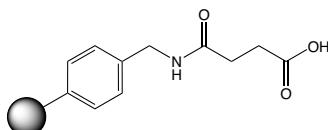
## Resin Guideline

Product details

### BR-5256 Polystyrene-AM-COOH

Aminomethyl-succinamic acid polystyrene

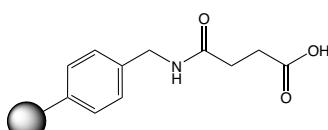
Mesh Size 100-200 mesh  
Loading 0.8-1.2 mmol/g  
DVB 1% DVB



### BR-5257 Polystyrene-AM-COOH

Aminomethyl-succinamic acid polystyrene

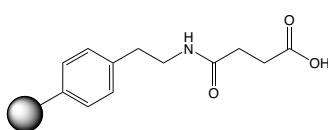
Mesh Size 200-400 mesh  
Loading 0.8-1.2 mmol/g  
DVB 1% DVB



### BR-5251 Polystyrene-AE-COOH

Aminoethyl-succinamic acid polystyrene

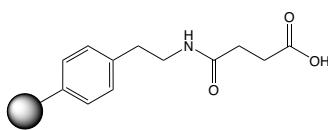
Mesh Size 100-200 mesh  
Loading 0.8-1.2 mmol/g  
DVB 1% DVB



### BR-5252 Polystyrene-AE-COOH

Aminoethyl-succinamic acid polystyrene

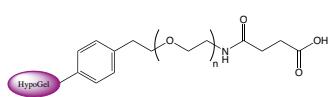
Mesh Size 200-400 mesh  
Loading 0.8-1.2 mmol/g  
DVB 1% DVB



### BRH1000 HypoGel®200 COOH

HypoGel-PEG200-aminoalkyl-succinamic acid (n=5)

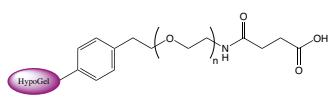
Mesh Size 110-150 µm  
Loading 0.6-0.9 mmol/g



### BRH1020 HypoGel®400 COOH

HypoGel-PEG400-aminoalkyl-succinamic acid (n=10)

Mesh Size 110-150 µm  
Loading 0.5-0.7 mmol/g



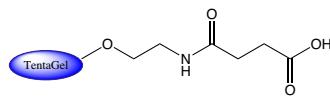
## Product details

**S-30903 TG S COOH (90µm)**

TentaGel S COOH

Mesh Size 90 µm

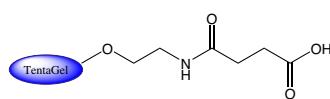
Loading 0.2-0.3 mmol/g


**S-30133 TG S COOH (130µm)**

TentaGel S COOH

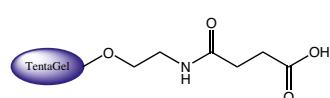
Mesh Size 130 µm

Loading 0.2-0.3 mmol/g


**HL12903 TG HL COOH (75µm)**

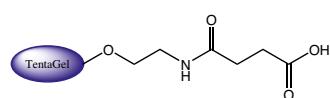
TentaGel HL COOH (75µm)

Loading 0.4-0.6 mmol/g


**HL12133 TG HL COOH (110µm)**

TentaGel HL COOH (110µm)

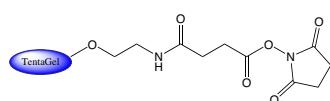
Loading 0.4-0.6 mmol/g


**S-30905 TG S CO-NHS (90µm)**

TentaGel S Succinimidyl ester

Mesh Size 90 µm

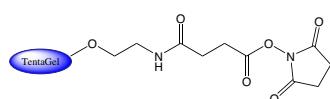
Loading 0.2-0.3 mmol/g


**S-30135 TG S CO-NHS (130µm)**

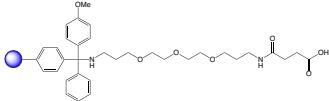
TentaGel S Succinimidyl ester

Mesh Size 130 µm

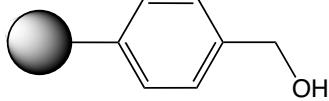
Loading 0.2-0.3 mmol/g


[back to content ↑](#)

## Resin Guideline

		Product details
<b>BR-9011</b>	<b>TTDS-Mmt-Resin</b>	 
1,13-diamino-4,7,10-trioxatridecan-13-succinamic acid-1-(4-methoxy-trityl) resin		
Mesh Size	100-200 mesh	
Loading	> 0.3 mmol/g	
DVB	1% DVB	

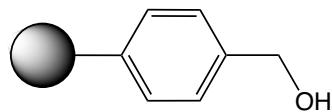
### 9.1.7. Base Resins with Alcohol Functions

		Product details
<b>BR-5019</b>	<b>Polystyrene-Me-OH</b>	 
Hydroxymethylpolystyrene		
Mesh Size	100-200 mesh	
Loading	0.7-1.2 mmol/g	
DVB	1% DVB	
<b>BR-5241</b>	<b>Polystyrene-Me-OH</b>	 
Hydroxymethylpolystyrene		
Mesh Size	75-100 mesh	
Loading	0.7-1.5 mmol/g	
DVB	1% DVB	
<b>BR-5242</b>	<b>Polystyrene-Me-OH</b>	 
Hydroxymethylpolystyrene		
Mesh Size	75-100 mesh	
Loading	1.5-2.5 mmol/g	
DVB	1% DVB	

[Product details](#)
**BR-5214 Polystyrene-Me-OH**

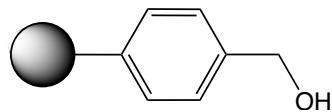
Hydroxymethylpolystyrene

Mesh Size	100-200 mesh
Loading	1.3-2.5 mmol/g
DVB	1% DVB


**BR-5020 Polystyrene-Me-OH**

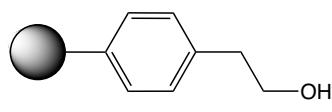
Hydroxymethylpolystyrene

Mesh Size	200-400 mesh
Loading	0.7-1.2 mmol/g
DVB	1% DVB


**BR-5113 Polystyrene-Et-OH**

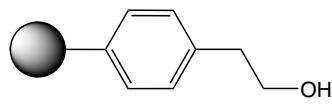
Hydroxyethylpolystyrene

Mesh Size	100-200 mesh
Loading	0.8-1.5 mmol/g
DVB	1% DVB


**BR-5114 Polystyrene-Et-OH**

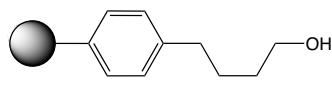
Hydroxyethylpolystyrene

Mesh Size	200-400 mesh
Loading	0.8-1.5 mmol/g
DVB	1% DVB


**BR-5111 Polystyrene-Bu-OH**

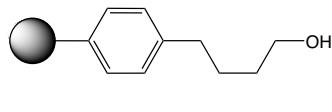
Hydroxybutylpolystyrene

Mesh Size	100-200 mesh
Loading	0.8-1.2 mmol/g
DVB	1% DVB

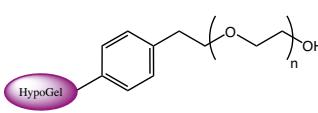
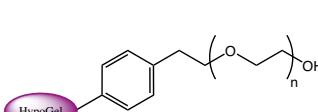
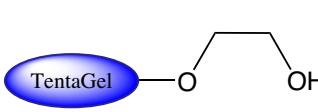
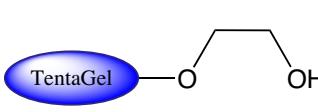
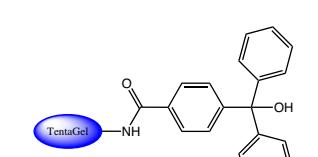
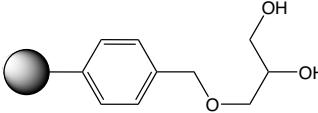

**BR-5112 Polystyrene-Bu-OH**

Hydroxybutylpolystyrene

Mesh Size	200-400 mesh
Loading	0.8-1.2 mmol/g
DVB	1% DVB


[back to content ↑](#)

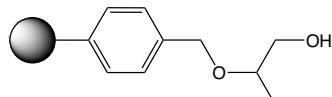
## Resin Guideline

		Product details
BRH1280	HypoGel200® OH	<p>HypoGel-PEG200-alcohol (n=5)</p> <p>Loading            0.6-0.9 mmol/g</p>  
BRH1290	HypoGel400® OH	<p>HypoGel-PEG400-alcohol (n=5)</p> <p>Loading            0.5-0.7 mmol/g</p>  
S-30130	TG S OH (130µm)	<p>TentaGel S OH</p> <p>Mesh Size        130 µm</p> <p>Loading            0.2-0.3 mmol/g</p>  
S-30900	TG S OH (90µm)	<p>TentaGel S OH</p> <p>Mesh Size        90 µm</p> <p>Loading            0.2-0.3 mmol/g</p>  
R280120	TG R Trt-OH (90µm)	<p>TentaGel R Trt-OH (90µm)</p> <p>Loading            0.18-0.22 mmol/g</p>  
BR-5206	1-Diol Resin	<p>1-Glycerol Resin</p> <p>Mesh Size        100-200 mesh</p> <p>Loading            0.6-1.2 mmol/g</p> <p>DVB              1% DVB</p>  

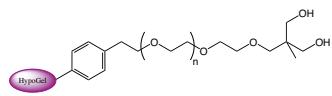
## Product details

**BR-5224 2-Diol Resin**
**2-Glycerol Resin**

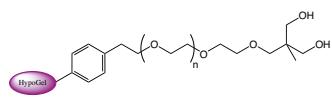
Mesh Size      100-200 mesh  
 Loading        1.3-2.5 mmol/g  
 DVB            1% DVB


**BRH1070 HypoGel® 200 Diol**
**HypoGel-PEG200-1,3-propanediol (n=5)**

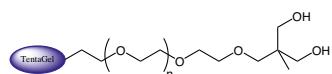
Mesh Size      110-150 µm  
 Loading        1.2-1.5 mmol/g


**BRH1190 HypoGel® 400 Diol**
**HypoGel-PEG400-1,3-propanediol (n=10)**

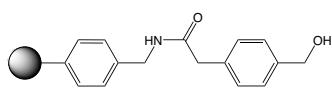
Mesh Size      110-150 µm  
 Loading        0.9-1.3 mmol/g


**HL12010 TG HL Diol (75µm)**
**TentaGel HL Diol (75µm)**

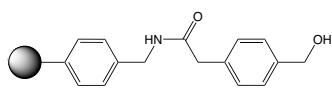
Loading        0.6-0.8 mmol/g


**BR-5239 PAM Resin**
**p-Hydroxymethylphenylacetamidomethyl polystyrene**

Mesh Size      100-200 mesh  
 Loading        0.1-0.5 mmol/g  
 DVB            1% DVB


**BR-5210 PAM Resin**
**p-Hydroxymethylphenylacetamidomethyl polystyrene**

Mesh Size      100-200 mesh  
 Loading        0.6-1.3 mmol/g  
 DVB            1% DVB


[back to content ↑](#)

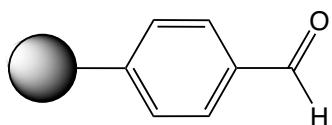
## 9.1.8. Base Resins with Aldehyde Functions

Product details

### BR-5217 Polystyrene-CHO

Formylpolystyrene

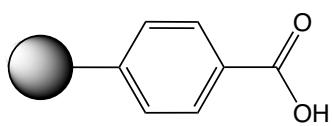
Mesh Size 100-200 mesh  
Loading 0.7-1.5 mmol/g  
DVB 1% DVB



### BR-5263 Polystyrene-CHO

Formylpolystyrene

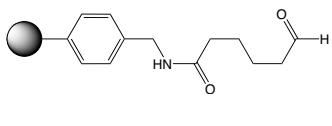
Mesh Size 200-400 mesh  
Loading 0.6-0.9 mmol/g  
DVB 1% DVB



### BR-5254 Polystyrene-AM-CHO

6-Oxo-caproic amidomethyl polystyrene

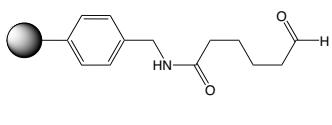
Mesh Size 100-200 mesh  
Loading 0.8-1.2 mmol/g  
DVB 1% DVB



### BR-5255 Polystyrene-AM-CHO

6-Oxo-caproic amidomethyl polystyrene

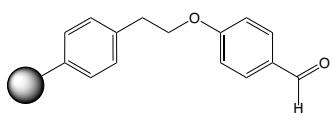
Mesh Size 200-400 mesh  
Loading 0.8-1.2 mmol/g  
DVB 1% DVB



### BR-5276 Polystyrene-O-Ph-CHO

4-Alkoxybenzaldehyde resin

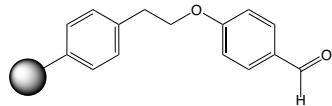
Mesh Size 100-200 mesh  
Loading 0.7-1.1 mmol/g  
DVB 1% DVB



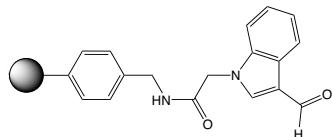
## Product details

**BR-5277 Polystyrene-O-Ph-CHO**

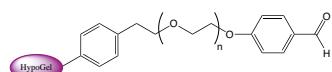
4-Alkoxybenzaldehyde resin  
 Mesh Size 200-400 mesh  
 Loading 0.7-1.1 mmol/g  
 DVB 1% DVB


**BR-5218 Polystyrene-Indole-CHO**

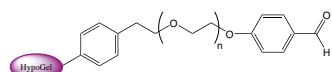
Indole Resin  
 Mesh Size 100-200 mesh  
 Loading 0.5-1.5 mmol/g  
 DVB 1% DVB


**BRH1090 HypoGel® 200 FP**

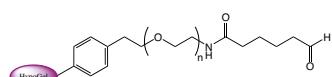
4-Formyl-phenoxy-PEG200-HypoGel (n=5)  
 Mesh Size 110-150 µm  
 Loading 0.5-0.7 mmol/g


**BRH1210 HypoGel® 400 FP**

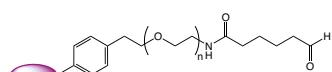
4-Formyl-phenoxy-PEG400-HypoGel (n=10)  
 Mesh Size 110-150 µm  
 Loading 0.4-0.6 mmol/g


**BRH1060 HypoGel® 200 CHO**

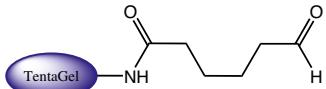
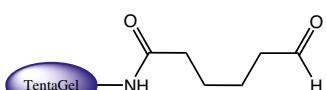
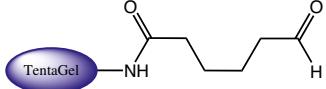
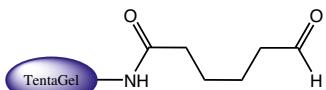
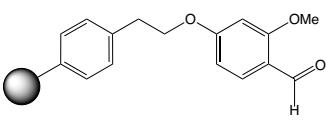
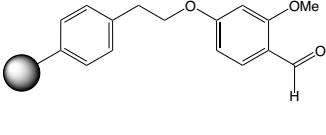
6-Oxo-caproic-amidoalkyl-PEG200-HypoGel (n=5)  
 Mesh Size 110-150 µm  
 Loading 0.6-0.9 mmol/g


**BRH1180 HypoGel® 400 CHO**

6-Oxo-caproic-amidoalkyl-PEG400-HypoGel (n=10)  
 Mesh Size 110-150 µm  
 Loading 0.6-0.9 mmol/g


[back to content ↑](#)

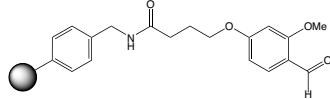
## Resin Guideline

		Product details
S-30906	TG S CHO (90µm)	<p>TentaGel S CHO</p> <p>Mesh Size 90 µm Loading 0.2-0.3 mmol/g</p>  
S-30136	TG S CHO (130µm)	<p>TentaGel S CHO</p> <p>Mesh Size 130 µm Loading 0.2-0.3 mmol/g</p>  
HL12906	TG HL CHO (75µm)	<p>TG HL CHO (75µm)</p> <p>Loading 0.4-0.6 mmol/g</p>  
HL12136	TG HL CHO (110µm)	<p>TentaGel HL CHO (110µm)</p> <p>Loading 0.4-0.6 mmol/g</p>  
BR-5272	Polystyrene-FMP	<p>4-Formyl-3-methoxyphenoxy-ethyl polystyrene</p> <p>Mesh Size 100-200 mesh Loading 0.7-1.1 mmol/g DVB 1% DVB</p>  
BR-5273	Polystyrene-FMP	<p>4-Formyl-3-methoxyphenoxy-ethyl polystyrene</p> <p>Mesh Size 200-400 mesh Loading 0.7-1.1 mmol/g DVB 1% DVB</p>  

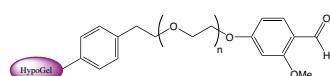
## Product details

**BR-5056 FMP AM Resin**

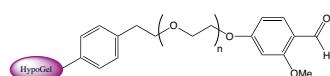
4-(4-Formyl-3-methoxyphenoxy)butyr amidomethyl polystyrene

 Mesh Size      100-200 mesh  
 Loading        0.5-2.5 mmol/g  
 DVB            1% DVB

**BRH1080 HypoGel® 200 FMP**

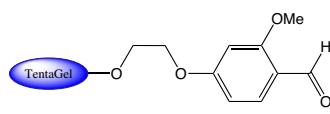
4-Formyl-3-methoxyphenoxy-PEG200-HypoGel (n=5)

 Mesh Size      110-150 µm  
 Loading        0.5-0.7 mmol/g

**BRH1200 HypoGel® 400 FMP**

4-Formyl-3-methoxyphenoxy-PEG400-HypoGel (n=10)

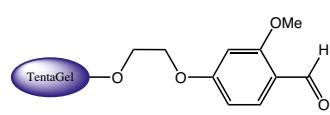
 Mesh Size      110-150 µm  
 Loading        0.4-0.6 mmol/g

**S-30016 TG S FMP (90µm)**

TentaGel S FMP

 Mesh Size      90 µm  
 Loading        0.2-0.25 mmol/g

**HL12016 TG HL FMP (75µm)**

TentaGel HL FMP (75µm)

Loading        0.3-0.4 mmol/g


[back to content ↑](#)

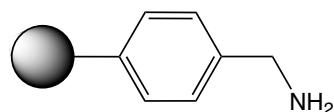
### 9.1.9. Base Resins with Amino and Hydrazino Functions

Product details

#### BR-1000a Polystyrene-Me-NH<sub>2</sub>

Aminomethyl polystyrene

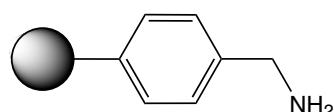
Mesh Size      100-200 mesh  
Loading        0.4-0.9 mmol/g  
DVB            1% DVB



#### BR-1000b Polystyrene-Me-NH<sub>2</sub>

Aminomethyl polystyrene resin

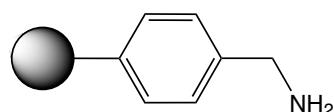
Mesh Size      100-200 mesh  
Loading        0.9-1.3 mmol/g  
DVB            1% DVB



#### BR-1000c Polystyrene-Me-NH<sub>2</sub>

Aminomethyl polystyrene

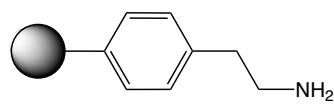
Mesh Size      100-200 mesh  
Loading        1.3-2.5 mmol/g  
DVB            1% DVB



#### BR-5266 Polystyrene-Et-NH<sub>2</sub>

Aminoethyl polystyrene

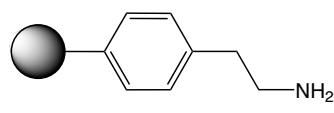
Mesh Size      100-200 mesh  
Loading        0.8-1.4 mmol/g  
DVB            1% DVB



#### BR-5268 Polystyrene-Et-NH<sub>2</sub>

Aminoethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.8-1.4 mmol/g  
DVB            1% DVB



## Product details

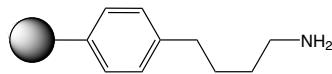
**BR-5261 Polystyrene-Bu-NH<sub>2</sub>**

Aminobutyl polystyrene

Mesh Size 45-80 µm

Loading 0.8-1.3 mmol/g

DVB 1% DVB

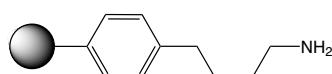

**BR-5262 Polystyrene-Bu-NH<sub>2</sub>**

Aminobutyl polystyrene

Mesh Size 80-160 µm

Loading 0.8-1.3 mmol/g

DVB 1% DVB

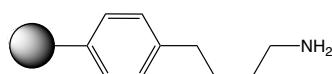

**BR-5260 Polystyrene-Bu-NH<sub>2</sub>**

Aminobutyl polystyrene

Mesh Size 125-160 µm

Loading 0.8-1.3 mmol/g

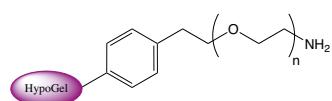
DVB 1% DVB


**BRH1010 HypoGel®200 NH<sub>2</sub>**

HypoGel-PEG200-alkylamine (n=5)

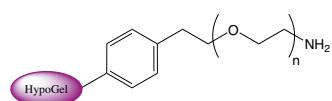
Mesh Size 110-150 µm

Loading 0.6-0.9 mmol/g


**BRH1030 HypoGel®400 NH<sub>2</sub>**

HypoGel-PEG400-alkylamine (n=10)

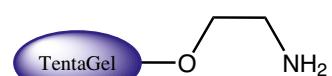
Loading 0.5-0.7 mmol/g


**R28902 TG R NH<sub>2</sub> (90µm)**

 TentaGel R NH<sub>2</sub>

Mesh Size 90 µm

Loading 0.18-0.22 mmol/g


[back to content ↑](#)

## Resin Guideline

			Product details
S-30902	TG S NH <sub>2</sub> (90μm)	<p>TentaGel S NH<sub>2</sub></p> <p>Mesh Size      90 μm</p> <p>Loading        0.2-0.35 mmol/g</p>	
S-30132	TG S NH <sub>2</sub> (130μm)	<p>TentaGel S NH<sub>2</sub></p> <p>Mesh Size      130 μm</p> <p>Loading        0.2-0.35 mmol/g</p>	
HL12902	TG HL NH <sub>2</sub> (75μm)	<p>TentaGel HL NH<sub>2</sub> (75 μm, 0.4-0.6 mmol/g)</p> <p>Loading        0.4-0.6 mmol/g</p>	
HL12132	TG HL NH <sub>2</sub> (110μm)	<p>TentaGel HL NH<sub>2</sub> (110 μm, 0.4-0.6 mmol/g)</p> <p>Loading        0.4-0.6 mmol/g</p>	
XV30002	TG XV NH <sub>2</sub> (100μm)	<p>TentaGel XV NH<sub>2</sub></p> <p>Mesh Size      100-200 μm</p> <p>Loading        0.2-0.4 mmol/g</p>	

### References:

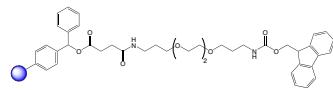
- SPPS resins impact the PNA-syntheses' improvement; R. Pipkorn, S. Rawer, M. Wiessler, W. Waldeck, M. Koch, H. H. Schrenk, K. Braun; *Int J Med Sci* 2013; **10**: 331-7. <https://doi.org/10.7150/ijms.5374>
- W. Rapp et al. in Peptides 2012, Proceedings of the 32<sup>nd</sup> European Peptide Symposium, G. Kokotos, V. Constantinou-Kokotos, J. Matsoukas (Eds.); *European Peptide Society* 2012; p. 28.
- S. Rawer et al. in Peptides 2012, Proceedings of the 32<sup>nd</sup> European Peptide Symposium, G. Kokotos, V. Constantinou-Kokotos, J. Matsoukas (Eds.); *European Peptide Society* 2012; p. 406.

## Product details

**BR-9014 Fmoc-TTDS-BH Resin**

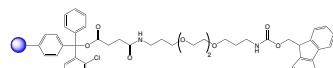
[N1-(9-Fluorenylmethoxycarbonyl)-1,13-diamino-4,7,10-trioxatridecan-succinamic acid-benzhydryl resin

Mesh Size 100-200 mesh  
Loading > 0.3 mmol/g  
DVB 1% DVB


**BR-9013 Fmoc-TTDS-Trt Resin**

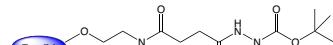
[N1-(9-Fluorenylmethoxycarbonyl)-1,13-diamino-4,7,10-trioxatridecan-succinamic acid-2-chlorotriyl resin

Mesh Size 100-200 mesh  
Loading > 0.3 mmol/g  
DVB 1% DVB


**S-30907 TG S NH-NH-Boc (90μm)**

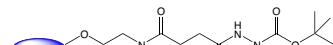
TentaGel S NH-NH-Boc

Mesh Size 90 μm  
Loading 0.2-0.3 mmol/g


**S-30137 TG S NH-NH-Boc (130μm)**

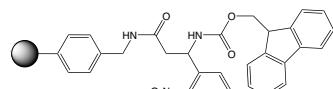
TentaGel S NH-NH-Boc

Mesh Size 130 μm  
Loading 0.2-0.3 mmol/g


**BR-5054 ANP-AM Resin**

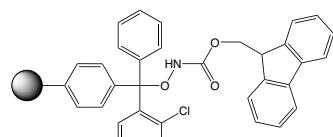
3-(Fmoc-amino)-3-(2-nitrophenyl)propionyl amido-methylpolystyrene

Mesh Size 100-200 mesh  
Loading 0.8-1.5 mmol/g  
DVB 1% DVB

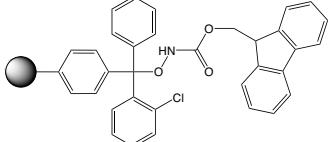

**BR-5219 Fmoc-NH-O-2CT Resin**

Fmoc-hydroxylamine-2-chlorotriyl resin

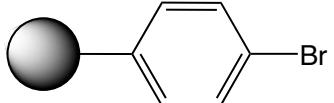
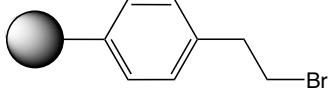
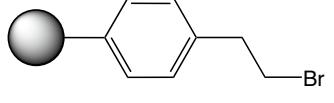
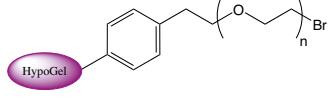
Mesh Size 100-200 mesh  
Loading 0.7-1.5 mmol/g  
DVB 1% DVB


[back to content ↑](#)

# Resin Guideline

		Product details
<b>RAL1155</b>	<b>Fmoc-NH-O-2CT Resin</b> Fmoc-hydroxylamine-2-chlorotriptyl resin Mesh Size 200-400 mesh Loading > 0.3 mmol/g DVB 1% DVB	 

## 9.1.10. Base Resins with Halogens

		Product details
<b>BR-5212</b>	<b>Polystyrene-Br</b> Bromo polystyrene Mesh Size 100-200 mesh Loading 1.0-2.6 mmol/g DVB 1% DVB	 
<b>BR-5264</b>	<b>Polystyrene-Et-Br</b> Bromoethyl polystyrene Mesh Size 100-200 mesh Loading 0.8-1.2 mmol/g DVB 1% DVB	 
<b>BR-5265</b>	<b>Polystyrene-Et-Br</b> Bromoethyl polystyrene Mesh Size 200-400 mesh Loading 0.8-1.2 mmol/g DVB 1% DVB	 
<b>BRH1040</b>	<b>HypoGel® 200 Br</b> Bromo-PEG200-HypoGel (n=5) Mesh Size 110-150 µm Loading 0.6-0.9 mmol/g	 

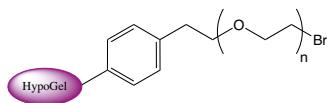
## Product details

**BRH1160 HypoGel® 400 Br**

Bromo-PEG400-HypoGel (n=10)

Mesh Size 110-150 µm

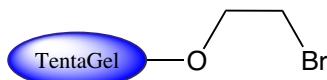
Loading 0.5-0.7 mmol/g


**S-30901 TG S Br (90µm)**

TentaGel S Br

Mesh Size 90 µm

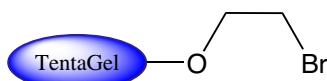
Loading 0.2-0.3 mmol/g


**S-30131 TG S Br (130µm)**

TentaGel S Br

Mesh Size 130 µm

Loading 0.2-0.3 mmol/g

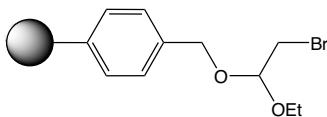

**BR-5061 2-Bromoacetal Resin**

(2-Bromo-1-ethoxyethoxy)methyl polystyrene

Mesh Size 100-200 mesh

Loading 0.7-2.0 mmol/g

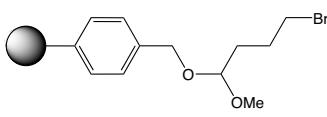
DVB 1% DVB


**BR-5225 4-Bromoacetal Resin**

(4-Bromo-1-methoxybutoxy)methyl polystyrene

Mesh Size 100-200 mesh

DVB 1% DVB

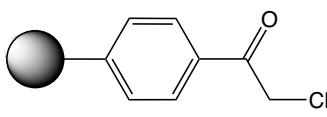

**BR-5084 Polystyrene-COCH<sub>2</sub>-Cl**

Chloroacetyl polystyrene

Mesh Size 100-200 mesh

Loading 2.0-6.0 mmol/g

DVB 1% DVB


[back to content ↑](#)

## Resin Guideline

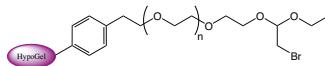
Product details

### BRH1050 HypoGel® 200 Bromo Acetal

HypoGel-PEG200-bromo acetal (n=5)

Mesh Size 110-150 µm

Loading 0.75-0.95 mmol/g

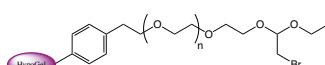


### BRH1170 HypoGel® 400 Bromo Acetal

HypoGel-PEG400-bromo acetal (n=10)

Mesh Size 110-150 µm

Loading 0.6-0.8 mmol/g

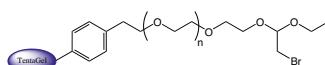


### HL12019 TG HL Bromo Acetal (110µm)

TentaGel HL Bromo Acetal (110µm)

Mesh Size 110 µm

Loading 0.4-0.55 mmol/g



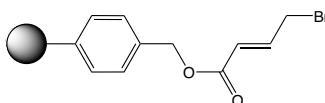
### BR-5248 Polystyrene-Allyl

4-Bromocrotonoyl methylpolystyrene

Mesh Size 100-200 mesh

Loading 0.5-1.3 mmol/g

DVB 1% DVB



## 9.1.11. Thiol Containing Base Resins

Product details

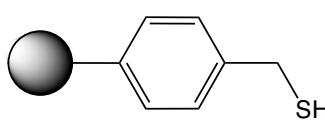
### BR-5274 Polystyrene-Me-SH

Mercaptomethylpolystyrene

Mesh Size 100-200 mesh

Loading 0.8-1.3 mmol/g

DVB 1% DVB

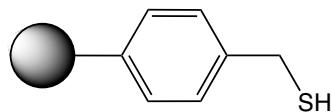


## Product details

**BR-5275 Polystyrene-Me-SH**

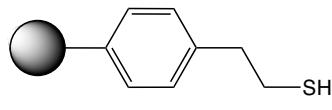
Mercaptomethylpolystyrene

Mesh Size	200-400 mesh
Loading	0.8-1.3 mmol/g
DVB	1% DVB


**BR-5270 Polystyrene-Et-SH**

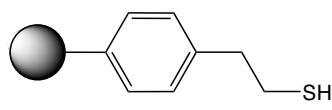
Mercaptoethylpolystyrene

Mesh Size	100-200 mesh
Loading	0.8-1.5 mmol/g
DVB	1% DVB


**BR-5271 Polystyrene-Et-SH**

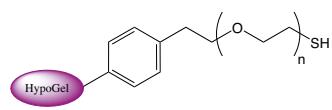
Mercaptoethylpolystyrene

Mesh Size	200-400 mesh
Loading	0.8-1.5 mmol/g
DVB	1% DVB


**BRH1130 HypoGel® 200 SH**

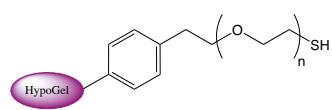
Mercaptoalkyl-PEG200-HypoGel (n=5)

Mesh Size	110-150 µm
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**BRH1250 HypoGel® 400 SH**

Mercaptoalkyl-PEG400-HypoGel (n=10)

Mesh Size	110-150 µm
Loading	0.5-0.7 mmol/g

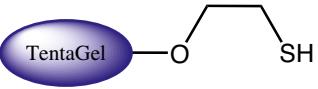
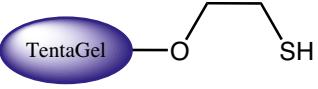
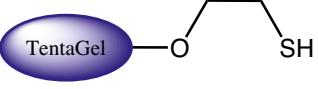
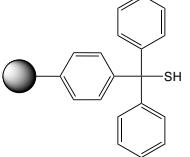

**S309040 TG S SH (90µm)**

TentaGel S SH

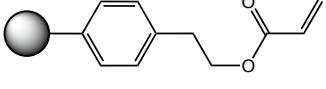
Mesh Size	90 µm
Loading	0.2-0.3 mmol/g


[back to content ↑](#)

## Resin Guideline

			Product details
S301340	TG S SH (130µm)	<p>TentaGel S SH</p> <p>Mesh Size 130 µm</p> <p>Loading 0.2-0.3 mmol/g</p> 	
HL12904	TG HL SH (75µm)	<p>TentaGel HL SH (75µm)</p> <p>Loading 0.4-0.6 mmol/g</p> 	
HL12134	TG HL SH (110µm)	<p>TentaGel HL SH (110µm)</p> <p>Loading 0.4-0.6 mmol/g</p> 	
BR-5215	Trt-SH Resin	<p>Thiol Trityl Resin</p> <p>Mesh Size 100-200 mesh</p> <p>Loading 0.6-1.2 mmol/g</p> <p>DVB 1% DVB</p> 	

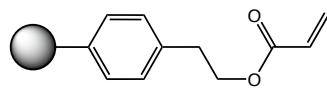
### 9.1.12. Base Resins with Vinyl Functions

			Product details
SR-1036	REM Resin	<p>Acryloylmethyl polystyrene</p> <p>Mesh Size 100-200 mesh</p> <p>Loading 0.8-1.3 mmol/g</p> <p>DVB 1% DVB</p> 	

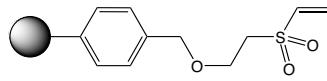
## Product details

**SR-1118 REM Resin**

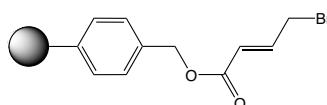
Acryloylmethyl polystyrene  
 Mesh Size 200-400 mesh  
 DVB 1% DVB


**BR-5208 Linear Vinyl Sulfone Resin**

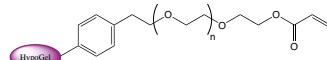
Vinylsulfonyl-ethoxymethyl polystyrene  
 Mesh Size 100-200 mesh  
 Loading 0.4-1.2 mmol/g  
 DVB 1% DVB


**BR-5248 Polystyrene-Allyl**

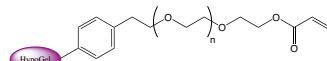
4-Bromocrotonoyl methylpolystyrene  
 Mesh Size 100-200 mesh  
 Loading 0.5-1.3 mmol/g  
 DVB 1% DVB


**BRH1120 HypoGel® 200 REM**

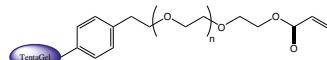
Acryloyl-ethyl-PEG200-HypoGel (n=5)  
 Mesh Size 110-150 µm  
 Loading 0.6-0.8 mmol/g


**BRH1240 HypoGel® 400 REM**

Acryloyl-ethyl-PEG400-HypoGel (n=10)  
 Mesh Size 110-150 µm  
 Loading 0.5-0.6 mmol/g


**HL12018 TG HL REM (75µm)**

Acryloyl TentaGel HL resin  
 Loading 0.3-0.5 mmol/g

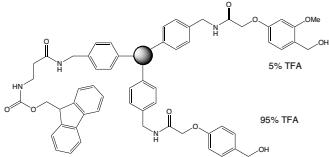
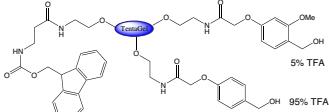
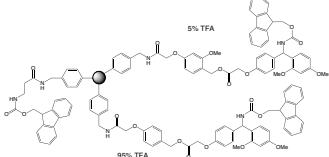
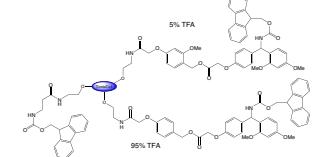

[back to content ↑](#)

# Resin Guideline

## References:

- Solid Phase Peptide Synthesis of the Fragment BPC 157 of Human Gastric Juice Protein BPC and its Analogues; Z. Pflaum, R. Ručman; *Acta Chim. Slov.* 2005; 52.
- Solid Phase Synthesis of Peptides and Glycopeptides on Polymeric Supports with Allylic Anchor Groups; H. Kunz, B. Dombo; *Angew. Chem. Int. Ed.* 1988; 27: 711-713. <https://doi.org/10.1002/anie.198807111>

## 9.1.13. Multifunctional and other Special Resins

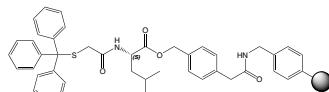
		Product details
<b>TR-1000</b>	<b>Polystyrene-AM-AC-HMPA</b>	 
Trifunctionalized Polystyrene-[Fmoc-beta-Ala/AC-Linker/HMPA-Linker]	Mesh Size Loading DVB	75-100 mesh 0.25-0.35 mmol/g 1% DVB
<b>TR-1200</b>	<b>TentaGel-AC-HMPA</b>	 
Trifunctionalized TentaGel-[Fmoc-beta-Ala/AC-Linker/HMPA-Linker]	Mesh Size Loading	90 µm 0.1-0.2 mmol/g
<b>TR-2000</b>	<b>Polystyrene-AM-(AC-HMPA)-RAM</b>	 
Trifunctionalized Polystyrene-[Fmoc-beta-Ala/AC-Rink-Linker/HMPA-Rink-Linker]	Mesh Size Loading DVB	75-100 mesh 0.15-0.25 mmol/g 1% DVB
<b>TR-2100</b>	<b>TentaGel-AM-(AC-HMPA)-RAM</b>	 
Trifunctionalized TentaGel-[Fmoc-beta-Ala/AC-Rink-Linker/HMPA-Rink-Linker]	Mesh Size Loading	90 µm 0.1-0.2 mmol/g

## Product details

**PAM5795 Trt-S-Ac-L-Leu-PAM Resin**

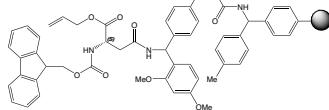
2-(Tritylmercapto)acetyl-L-leucinyl-PAM Resin

Mesh Size	100-200 mesh
Loading	0.6-0.9 mmol/g
DVB	1% DVB

**CAA1000 Fmoc-L-Asn(Rink-Resin)-OAll**

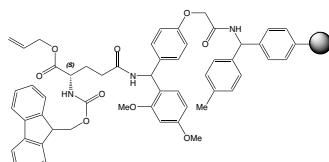
Fmoc-L-Asn(Rink Amide MBHA resin) alpha-allyl ester

Mesh Size	100-200 mesh
Loading	0.15-0.5 mmol/g
DVB	1% DVB

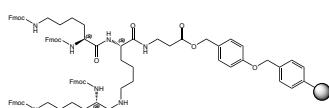
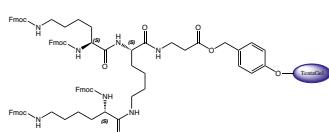
**RAA1077 Fmoc-L-Gln(Rink-Resin)-OAll**

Fmoc-L-Gln(Rink Amide MBHA resin)-alpha-allyl ester

Mesh Size	100-200 mesh
Loading	0.15-0.5 mmol/g
DVB	1% DVB

**WAA2014 (Fmoc)<sub>4</sub>-Lys2-Lys-beta-Ala-Wang PS**(Fmoc)<sub>4</sub>-Lys<sub>2</sub>-Lys-beta-Ala-Wang polystyrene resins

Mesh Size	100-200mesh
Loading	0.3-0.6 mmole/g
DVB	1% DVB

**SAL2013 (Fmoc)<sub>4</sub>-Lys2-Lys-beta-Ala-Wang TG**(Fmoc)<sub>4</sub>-Lys<sub>2</sub>-Lys-beta-Ala-Wang TentaGel**References:**

- Matrix assisted synthetic transformations: a mosaic of diverse contributions. II. The pattern is completed; D. Hudson; *J Comb Chem* 1999; **1**: 403-57. <https://doi.org/10.1021/cc990046s>
- Parallel personal comments on “classical” papers in combinatorial chemistry; M. Lebl; *J Comb Chem* 1999; **1**: 3-24. <https://doi.org/10.1021/cc9800327>
- Solid-phase organic reactions: A review of the recent literature; P. H. H. Hermkens, H. C. J. Ottenheijm, D. Rees; *Tetrahedron* 1996; **52**: 4527-4554. [https://doi.org/10.1016/0040-4020\(96\)00216-5](https://doi.org/10.1016/0040-4020(96)00216-5)
- Solid-phase organic reactions II: A review of the literature Nov 95-Nov 96; P. H. H. Hermkens, H. C. J. Ottenheijm, D. C. Rees; *Tetrahedron* 1997; **53**: 5643-5678. [https://doi.org/10.1016/s0040-4020\(97\)00279-2](https://doi.org/10.1016/s0040-4020(97)00279-2)

**back to content ↑**

## 9.2. Preloaded Resins

### 9.2.1. Preloaded Resins for Boc Strategy

Solid phase peptide synthesis has been invented by using Merrifield resins, i.e. substituted methylpolystyrene. Amino acids have been protected at their  $\alpha$ -amino function with Boc combined with orthogonal protection (Bzl and others) of the functional side groups. For final cleavage of the peptide, a strong acid like HF is required. Although this methodology produced highly pure peptides, the use is limited today due to the hazardous nature of HF. It almost has completely been substituted by the Fmoc/tBu approach.

On demand we supply all L- and D-amino acids loaded onto Boc/Bzl compatible resins, like preloaded Merrifield and PAM resins.

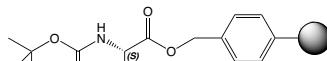


Please inquire with type of amino acid, side protection, desired specifications and quantity.

Product details

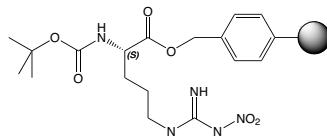
#### MAA5200 Boc-L-Ala-Merrifield Resin

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB



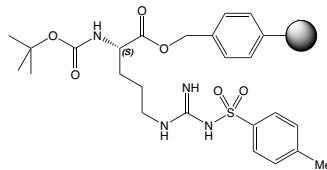
#### MAA5207 Boc-L-Arg(NO<sub>2</sub>)-Merrifield Resin

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB



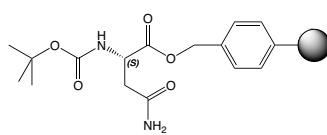
#### MAA5205 Boc-L-Arg(Tos)-Merrifield Resin

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB

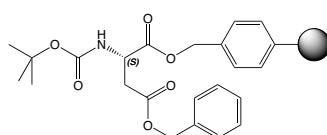


[Product details](#)
**MAA5210 Boc-L-Asn-Merrifield Resin**

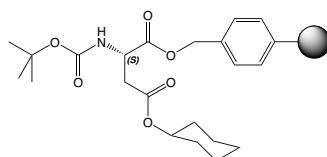
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5215 Boc-L-Asp(Bzl)-Merrifield Resin**

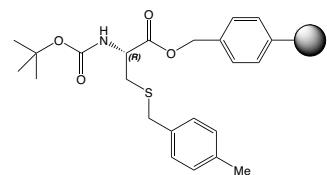
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5216 Boc-L-Asp(cHx)-Merrifield Resin**

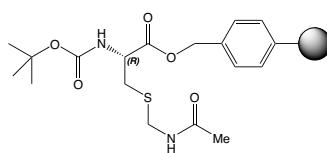
**Boc-L-Asp(OcHx)-Merrifield Resin**  
 Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5221 Boc-L-Cys(4-MeBzl)-Merrifield Resin**

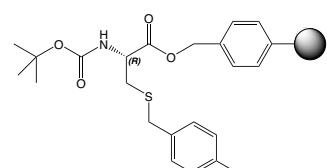
**Boc-L-Cys(4-MeBzl)-Merrifield Resin**  
 Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5222 Boc-L-Cys(Acm)-Merrifield Resin**

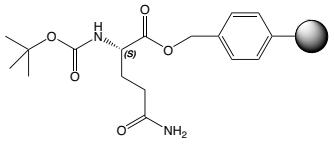
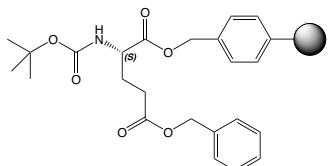
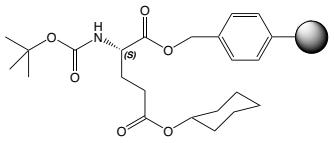
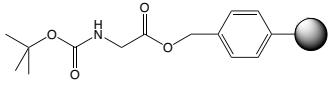
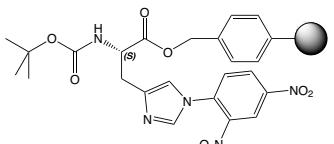
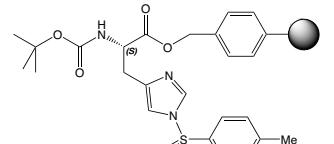
**N-alpha-t-Butyloxycarbonyl-S-(acetyl-amino-methyl)-L-cysteinyl-Merrifield Resin**  
 Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5220 Boc-L-Cys(Mob)-Merrifield Resin**

**Boc-L-Cys(4-MeO-Bzl)-Merrifield Resin**  
 Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB

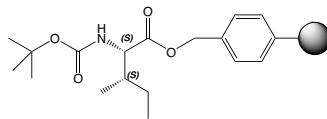

[back to content ↑](#)

# Resin Guideline

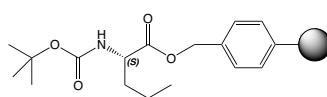
			Product details
<b>MAA5225</b>	<b>Boc-L-Gln-Merrifield Resin</b>		
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		
<b>MAA5230</b>	<b>Boc-L-Glu(Bzl)-Merrifield Resin</b>		
Boc-L-Glu(OBzl)-Merrifield Resin			
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		
<b>MAA5231</b>	<b>Boc-L-Glu(cHx)-Merrifield Resin</b>		
Boc-L-Glu(OcHx)-Merrifield Resin			
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		
<b>MAA5239</b>	<b>Boc-Gly-Merrifield Resin</b>		
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		
<b>MAA5238</b>	<b>Boc-L-His(Dnp)-Merrifield Resin</b>		
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		
<b>MAA5237</b>	<b>Boc-L-His(Tos)-Merrifield Resin</b>		
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		

[Product details](#)
**MAA5240 Boc-L-Ile-Merrifield Resin**

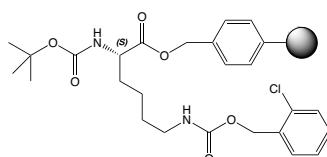
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5245 Boc-L-Leu-Merrifield Resin**

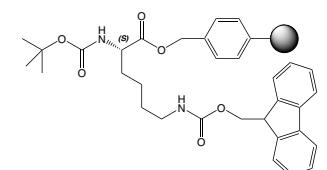
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5250 Boc-L-Lys(2-Cl-Z)-Merrifield Resin**

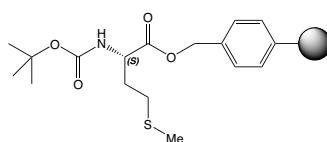
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5252 Boc-L-Lys(Fmoc)-Merrifield Resin**

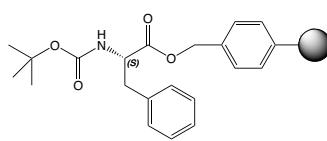
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5255 Boc-L-Met-Merrifield Resin**

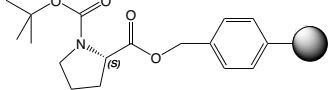
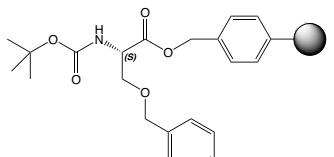
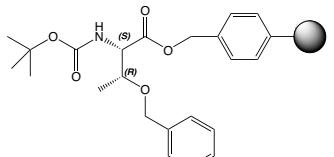
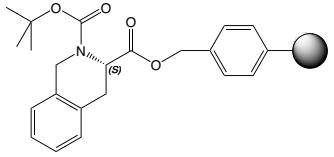
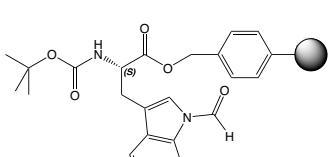
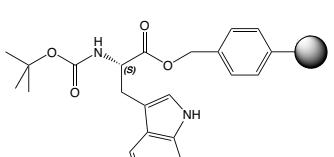
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5260 Boc-L-Phe-Merrifield Resin**

Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


[back to content ↑](#)

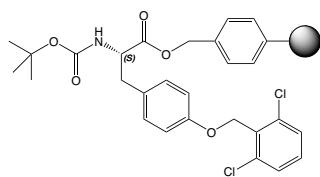
## Resin Guideline

			Product details
<b>MAA5265</b>	<b>Boc-L-Pro-Merrifield Resin</b>		
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		
<b>MAA5270</b>	<b>Boc-L-Ser(Bzl)-Merrifield Resin</b>		
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		
<b>MAA5275</b>	<b>Boc-L-Thr(Bzl)-Merrifield Resin</b>		
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		
<b>MAA5395</b>	<b>Boc-L-Tic-Merrifield Resin</b>		
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		
<b>MAA5281</b>	<b>Boc-L-Trp(CHO)-Merrifield Resin</b>		
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		
<b>MAA5280</b>	<b>Boc-L-Trp-Merrifield Resin</b>		
Mesh Size	100-200 mesh		
Loading	> 0.5 mmol/g		
DVB	1% DVB		

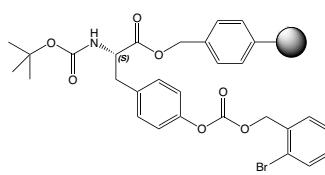
## Product details

**MAA5285 Boc-L-Tyr(2,6-Cl<sub>2</sub>-Bzl)-Merrifield Resin**

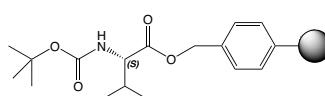
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5286 Boc-L-Tyr(2-Br-Z)-Merrifield Resin**

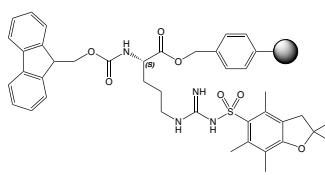
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5290 Boc-L-Val-Merrifield Resin**

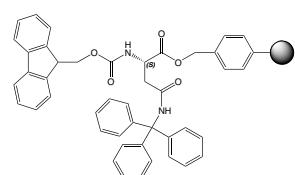
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5110 Fmoc-L-Arg(Pbf)-Merrifield Resin**

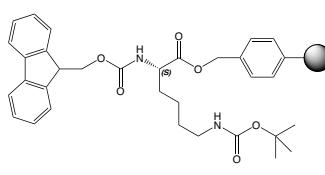
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5111 Fmoc-L-Asn(Trt)-Merrifield Resin**

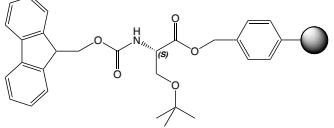
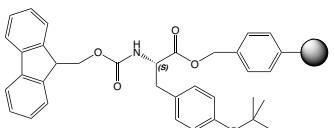
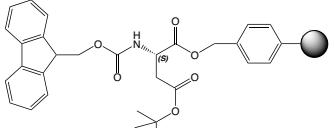
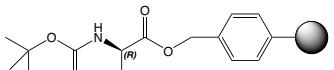
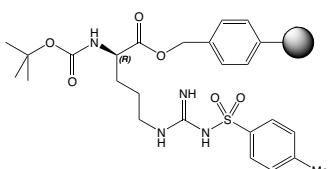
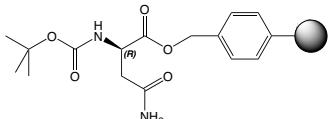
Mesh Size      100-200 mesh  
 Loading        > 0.3 mmol/g  
 DVB            1% DVB


**MAA5112 Fmoc-L-Lys(Boc)-Merrifield Resin**

Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


[back to content ↑](#)

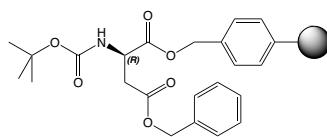
## Resin Guideline

		Product details
MAA5113	Fmoc-L-Ser( <i>t</i> Bu)-Merrifield Resin	 
Mesh Size Loading DVB	100-200 mesh > 0.5 mmol/g 1% DVB	
MAA5114	Fmoc-L-Tyr( <i>t</i> Bu)-Merrifield Resin	 
Mesh Size Loading DVB	100-200 mesh > 0.5 mmol/g 1% DVB	
MAA5115	Fmoc-L-Asp( <i>O</i> tBu)-Merrifield Resin	 
Mesh Size Loading DVB	100-200 mesh > 0.5 mmol/g 1% DVB	
MAA5300	Boc-D-Ala-Merrifield Resin	 
Mesh Size Loading DVB	100-200 mesh > 0.5 mmol/g 1% DVB	
MAA5305	Boc-D-Arg(Tos)-Merrifield Resin	 
Mesh Size Loading DVB	100-200 mesh > 0.5 mmol/g 1% DVB	
MAA5310	Boc-D-Asn-Merrifield Resin	 
Mesh Size Loading DVB	100-200 mesh > 0.5 mmol/g 1% DVB	

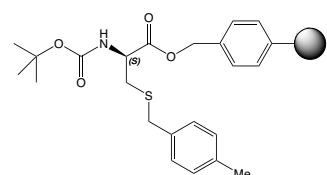
[Product details](#)
**MAA5315 Boc-D-Asp(Bzl)-Merrifield Resin**

Boc-D-Asp(OBzl)-Merrifield Resin

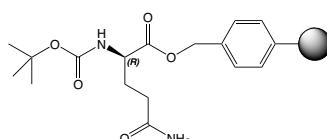
Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


**MAA5321 Boc-D-Cys(4-MeBzl)-Merrifield Resin**

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB

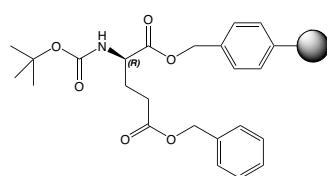

**MAA5325 Boc-D-Gln-Merrifield Resin**

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB

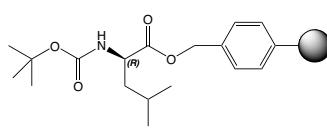

**MAA5330 Boc-D-Glu(Bzl)-Merrifield Resin**

Boc-D-Glu(OBzl)-Merrifield Resin

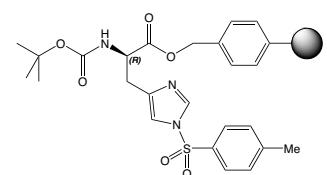
Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


**MAA5345 Boc-D-Leu-Merrifield Resin**

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


**MAA5348 Boc-D-His(Tos)-Merrifield Resin**

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


[back to content ↑](#)

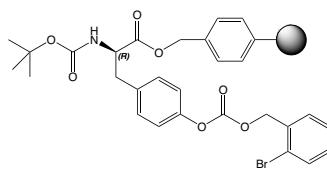
# Resin Guideline

			Product details
<b>MAA5350</b>	Boc-D-Lys(2-Cl-Z)-Merrifield Resin	<p>Mesh Size Loading DVB</p> <p>100-200 mesh &gt; 0.5 mmol/g 1% DVB</p>	<p>The chemical structure shows a Merrifield resin bead (a black sphere) attached via a 4-phenylbenzyl ester linker. The linker is substituted with a (R)-Boc-D-lysine side chain. The side chain features a chiral center with a hydrogen atom and an amino group, which is further substituted with a 2-chlorophenyl group.</p>
<b>MAA5355</b>	Boc-D-Met-Merrifield Resin	<p>Mesh Size Loading DVB</p> <p>100-200 mesh &gt; 0.5 mmol/g 1% DVB</p>	<p>The chemical structure shows a Merrifield resin bead (a black sphere) attached via a 4-phenylbenzyl ester linker. The linker is substituted with a (R)-Boc-D-methionine side chain. The side chain features a chiral center with a hydrogen atom and an amino group, which is further substituted with a methylthio group (S-Me).</p>
<b>MAA5360</b>	Boc-D-Phe-Merrifield Resin	<p>Mesh Size Loading DVB</p> <p>100-200 mesh &gt; 0.5 mmol/g 1% DVB</p>	<p>The chemical structure shows a Merrifield resin bead (a black sphere) attached via a 4-phenylbenzyl ester linker. The linker is substituted with a (R)-Boc-D-phenylalanine side chain. The side chain features a chiral center with a hydrogen atom and an amino group, which is further substituted with a phenyl ring.</p>
<b>MAA5365</b>	Boc-D-Pro-Merrifield Resin	<p>Mesh Size Loading DVB</p> <p>100-200 mesh &gt; 0.5 mmol/g 1% DVB</p>	<p>The chemical structure shows a Merrifield resin bead (a black sphere) attached via a 4-phenylbenzyl ester linker. The linker is substituted with a (R)-Boc-D-proline side chain. The side chain features a chiral center with a hydrogen atom and an amino group, which is further substituted with a cyclopentyl ring.</p>
<b>MAA5375</b>	Boc-D-Thr(Bzl)-Merrifield Resin	<p>Mesh Size Loading DVB</p> <p>100-200 mesh &gt; 0.5 mmol/g 1% DVB</p>	<p>The chemical structure shows a Merrifield resin bead (a black sphere) attached via a 4-phenylbenzyl ester linker. The linker is substituted with a (R)-Boc-D-threonine side chain. The side chain features a chiral center with a hydrogen atom and an amino group, which is further substituted with a benzyl group (Bzl).</p>
<b>MAA5380</b>	Boc-D-Trp-Merrifield Resin	<p>Mesh Size Loading DVB</p> <p>100-200 mesh &gt; 0.5 mmol/g 1% DVB</p>	<p>The chemical structure shows a Merrifield resin bead (a black sphere) attached via a 4-phenylbenzyl ester linker. The linker is substituted with a (R)-Boc-D-tryptophan side chain. The side chain features a chiral center with a hydrogen atom and an amino group, which is further substituted with a tryptophyl ring.</p>

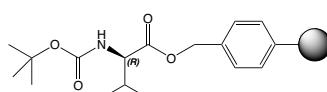
## Product details

**MAA5386 Boc-D-Tyr(2-Br-Z)-Merrifield Resin**

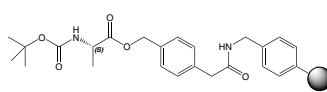
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**MAA5390 Boc-D-Val-Merrifield Resin**

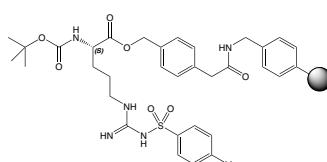
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**PAM5600 Boc-L-Ala-PAM Resin**

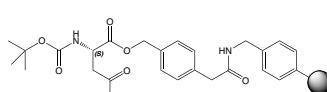
Mesh Size      100-200 mesh  
 DVB            1% DVB


**PAM5605 Boc-L-Arg(Tos)-PAM Resin**

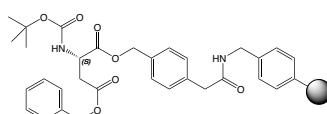
Mesh Size      100-200 mesh  
 DVB            1% DVB


**PAM5610 Boc-L-Asn-PAM Resin**

Mesh Size      100-200 mesh  
 DVB            1% DVB


**PAM5615 Boc-L-Asp(Bzl)-PAM Resin**

Mesh Size      100-200 mesh  
 DVB            1% DVB

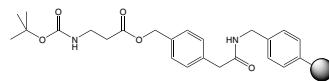

[back to content ↑](#)

## Resin Guideline

Product details

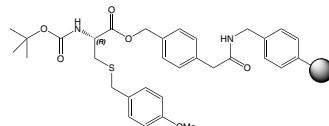
### PAM5601 Boc-beta-Ala-PAM Resin

Mesh Size      100-200 mesh  
DVB            1% DVB



### PAM5621 Boc-L-Cys(4-MeOBzl)-PAM Resin

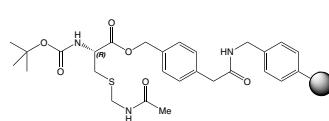
Mesh Size      100-200 mesh  
DVB            1% DVB



### PAM5622 Boc-L-Cys(Acm)-PAM Resin

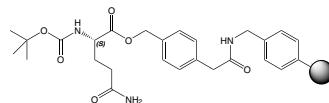
N-alpha-t-Butyloxycarbonyl-S-(acetyl-amino-methyl)-L-cysteinyl-PAM Resin

Mesh Size      100-200 mesh  
DVB            1% DVB



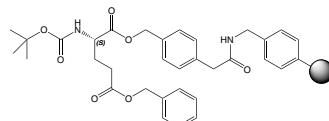
### PAM5625 Boc-L-Gln-PAM Resin

Mesh Size      100-200 mesh  
DVB            1% DVB



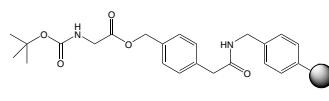
### PAM5630 Boc-L-Glu(Bzl)-PAM Resin

Mesh Size      100-200 mesh  
DVB            1% DVB



### PAM5635 Boc-Gly-PAM Resin

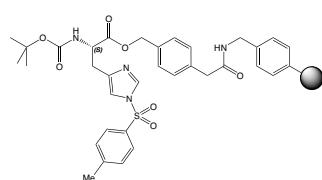
Mesh Size      100-200 mesh  
DVB            1% DVB



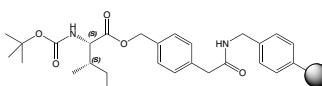
## Product details

**PAM5637 Boc-L-His(Tos)-PAM Resin**

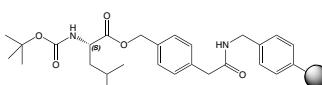
 Mesh Size  
DVB

 100-200 mesh  
1% DVB

**PAM5640 Boc-L-Ile-PAM Resin**

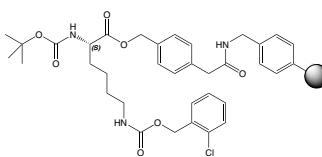
 Mesh Size  
DVB

 100-200 mesh  
1% DVB

**PAM5645 Boc-L-Leu-PAM Resin**

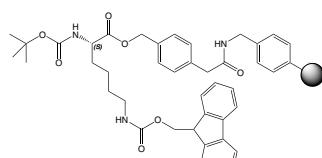
 Mesh Size  
DVB

 100-200 mesh  
1% DVB

**PAM5650 Boc-L-Lys(2-Cl-Z)-PAM Resin**

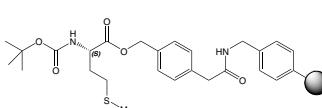
 Mesh Size  
DVB

 100-200 mesh  
1% DVB

**PAM5651 Boc-L-Lys(Fmoc)-PAM Resin**

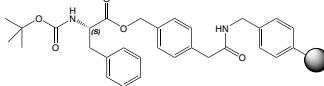
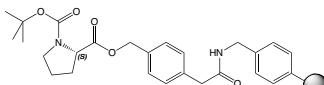
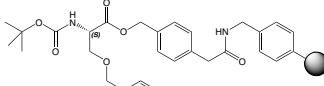
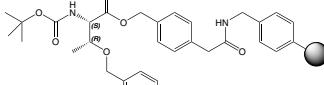
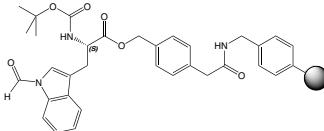
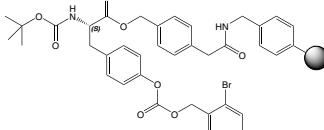
 Mesh Size  
DVB

 100-200 mesh  
1% DVB

**PAM5655 Boc-L-Met-PAM Resin**

 Mesh Size  
DVB

 100-200 mesh  
1% DVB

[back to content ↑](#)

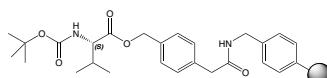
## Resin Guideline

		Product details
PAM5660	Boc-L-Phe-PAM Resin	 
Mesh Size DVB	100-200 mesh 1% DVB	
PAM5665	Boc-L-Pro-PAM Resin	 
Mesh Size DVB	100-200 mesh 1% DVB	
PAM5670	Boc-L-Ser(Bzl)-PAM Resin	 
Mesh Size DVB	100-200 mesh 1% DVB	
PAM5675	Boc-L-Thr(Bzl)-PAM Resin	 
Mesh Size DVB	100-200 mesh 1% DVB	
PAM5681	Boc-L-Trp(CHO)-PAM Resin	 
Mesh Size DVB	100-200 mesh 1% DVB	
PAM5686	Boc-L-Tyr(2-Br-Z)-PAM Resin	 
Mesh Size DVB	100-200 mesh 1% DVB	

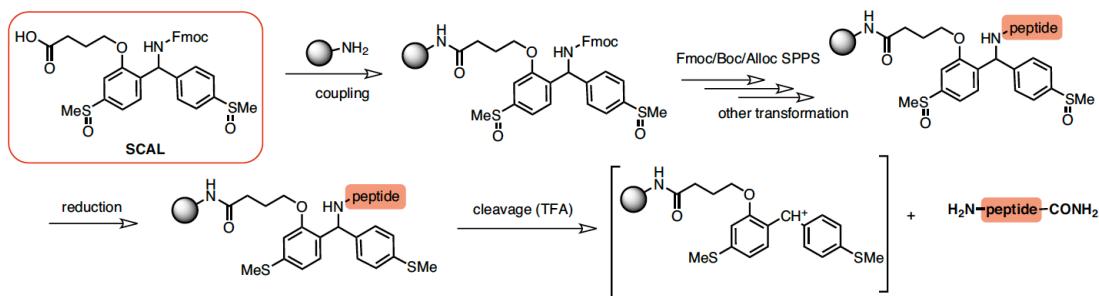
## Product details

**PAM5690 Boc-L-Val-PAM Resin**

Mesh Size      100-200 mesh  
 DVB            1% DVB

**Safety Catch Acid-Labile Linker (SCAL-Linker)**

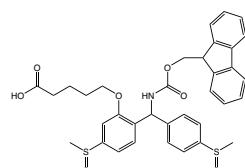
**Enabling Boc-Chemistry without the necessity to us HF!**



## Product details

**RL-2260 Fmoc-NH-MsbH-COOH**

5-(2-(((9H-fluoren-9-yl)methoxy)carbonylamino)  
 (4-(methylsulfinyl)phenyl)methyl)-5-(methylsulfinyl)  
 phenoxy)pentanoic acid  
 CAS-No.        147046-64-8  
 Formula        C<sub>35</sub>H<sub>35</sub>NO<sub>7</sub>S<sub>2</sub>  
 Mol. weight    645,78 g/mol



Stable to:

- bases (aq. 0.5% NaOH, DBU in chloroform, 20-50% piperidine in DMF)
- acids (25-55% TFA/DCM, neat TFA 2x 2 h, HF at 0°C for 2x 2 h)
- Alloc/OAll deprotecting procedures
- hydrostannolysis (Bu<sub>3</sub>SnH, Pd(OAc)<sub>2</sub>, PPh<sub>3</sub> in AcOH and DCM)

When attached to a water compatible support like sepharose, the linker allows complete solid-phase chemical ligation after removing Acm protecting group from cysteine using Hg(II)(AcO)<sub>2</sub> in aq. acetic acid (pH 4).

Final detachment occurs by reduction of sulfoxides followed by acidolysis providing C-terminal peptide amides:

[back to content ↑](#)

# Resin Guideline

## One-step procedures:

NH<sub>4</sub>I/TFA/DMS (0°C to rt over 1 h) or 1 M SiCl<sub>4</sub> (TFA/thioanisole/cresol/ethandithiol (0°C, 2 h)

## Two-step procedures:

- reductive activation (TMSiCl/PPh<sub>3</sub> in DCM or THF, 20% (EtO)<sub>2</sub>P(S)SH/DMPU, 0.1% HBr in AcOH (rt, 2 h)
- acidolytic cleavage by a variety of TFA/scavengers mixtures (TFA/water, 95:5; TFA/DCM/water/Bu<sub>3</sub>SiH, 85:10:2.5:2.5; TFA/*m*-cresole; TFA/DCM, 1:1)



Try the SCAL Linker and enjoy Production of Peptides in High Yield & High Purity!

## Reference:

- Safety-catch anchoring linkage for synthesis of peptide amides by BOC/Fmoc strategy; M. Pátek, M. Lebl; *Tetrahedron Lett.* 1991; **32**: 3891-3894. [https://doi.org/10.1016/s0040-4039\(00\)79406-8](https://doi.org/10.1016/s0040-4039(00)79406-8)

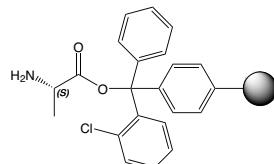
## 9.2.2. Preloaded Trityl Resins

Product details

### RAA1005 H-L-Ala-2CT Resin

H-L-Ala-2-chlorotriyl resin

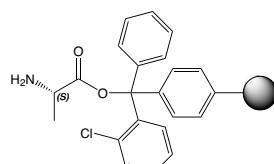
Mesh Size	100-200 mesh
Loading	0.3-1.3 mmol/g
DVB	1% DVB



### RAA1006 H-L-Ala-2CT Resin

H-L-Ala-2-chlorotriyl resin

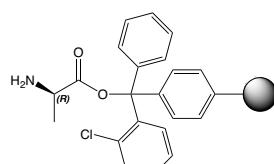
Mesh Size	200-400 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB



### RAA1004 H-D-Ala-2CT Resin

H-D-Ala-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	0.5-1.0 mmol/g
DVB	1% DVB

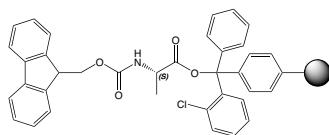


## Product details

**RAA5910 Fmoc-L-Ala-2CT Resin**

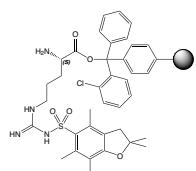
Fmoc-L-Ala-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


**RAA1030 H-L-Arg(Pbf)-2CT Resin**

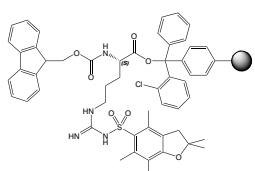
H-L-Arg(Pbf)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


**RAA6136 Fmoc-L-Arg(Pbf)-2CT Resin**

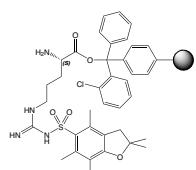
Fmoc-L-Arg(Pbf)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	0.3 - 0.8 mmol/g
DVB	1% DVB


**RAA1031 H-L-Arg(Pbf)-2CT Resin**

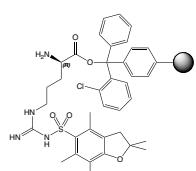
H-L-Arg(Pbf)-2-chlorotriyl resin

Mesh Size	200-400 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


**RAA1029 H-D-Arg(Pbf)-2CT Resin**

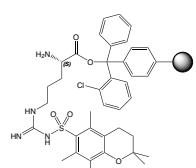
H-D-Arg(Pbf)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


**RAA1335 H-L-Arg(Pmc)-2CT Resin**

H-L-Arg(Pmc)-2-chlorotriyl resin

Mesh Size	200-400 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


[back to content ↑](#)

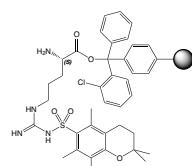
## Resin Guideline

Product details

### RAA1385 H-L-Arg(Pmc)-2CT Resin

H-L-Arg(Pmc)-2-chlorotriyl resin

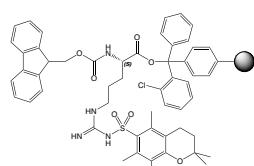
Mesh Size 100-200 mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB



### RAA6135 Fmoc-L-Arg(Pmc)-2Ct Resin

Fmoc-L-Arg(Pmc)-2-chlorotriyl resin

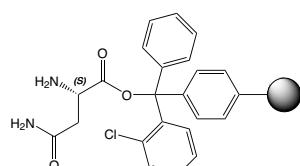
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



### RAA1044 H-L-Asn-2CT Resin

H-L-Asn-2-chlorotriyl resin

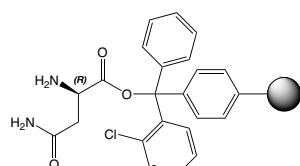
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



### RAA1043 H-D-Asn-2CT Resin

H-D-Asn-2-chlorotriyl resin

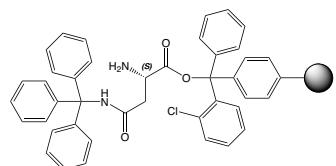
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



### RAA1045 H-L-Asn(Trt)-2CT Resin

H-L-Asn(Trt)-2-chlorotriyl resin

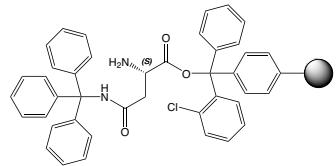
Mesh Size 100-200 mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB



### RAA1046 H-L-Asn(Trt)-2CT Resin

H-L-Asn(Trt)-2-chlorotriyl resin

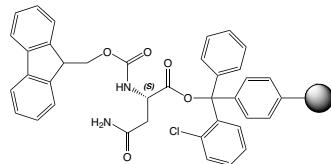
Mesh Size 200-400 mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB



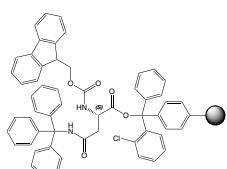
## Product details

**RAA1315 Fmoc-L-Asn-2CT Resin**

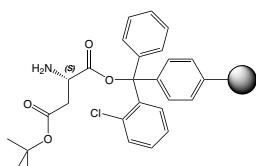
Fmoc-L-Asn-2-chlorotriyl resin

Mesh Size      100-200 mesh  
Loading        > 0.5 mmol/g  
DVB            1% DVB

**RAA6208 Fmoc-L-Asn(Trt)-2CT Resin**

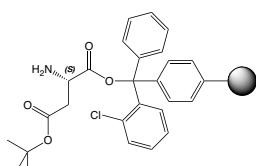
Fmoc-L-Asn(Trt)-2-chlorotriyl resin

Mesh Size      100-200 mesh  
Loading        > 0.5 mmol/g  
DVB            1% DVB

**RAA1047 H-L-Asp(OtBu)-2CT Resin**

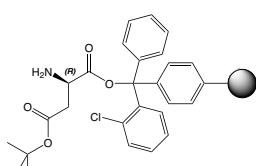
H-L-Asp(OtBu)-2-chlorotriyl resin

Mesh Size      100-200 mesh  
Loading        0.4-1.2 mmol/g  
DVB            1% DVB

**RAA1048 H-L-Asp(OtBu)-2CT Resin**

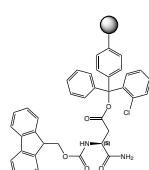
H-L-Asp(OtBu)-2-chlorotriyl resin

Mesh Size      200-400 mesh  
Loading        0.4-1.2 mmol/g  
DVB            1% DVB

**RAA1049 H-D-Asp(OtBu)-2CT Resin**

H-D-Asp(OtBu)-2-chlorotriyl resin

Mesh Size      100-200 mesh  
Loading        > 0.5 mmol/g  
DVB            1% DVB

**RAA2610 Fmoc-L-Asp(2CT resin)-NH<sub>2</sub>**

Fmoc-L-Aspartate alpha-amide-beta-(2-chlorotriyl resin) ester

Mesh Size      100-200 mesh  
Loading        ca. 0.5 mmol/g  
DVB            1% DVB

[back to content ↑](#)

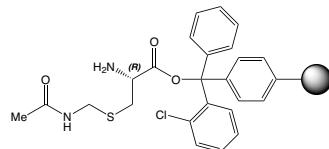
## Resin Guideline

Product details

### RAA1345 H-L-Cys(Acm)-2CT Resin

H-L-Cys(Amc)-2-chlorotriyl resin

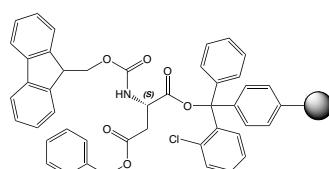
Mesh Size 200-400 mesh  
Loading 0.6 - 1.0 mmol/g  
DVB 1% DVB



### RAA5193 Fmoc-L-Asp(OBzl)-2CT Resin

Fmoc-L-Asp(OBzl)-2-chlorotriyl resin

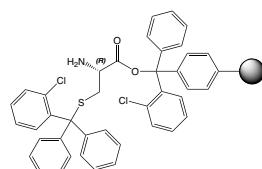
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



### RAA1050 H-L-Cys(Clt)-2CT Resin

H-L-Cys(Clt)-2-chlorotriyl resin

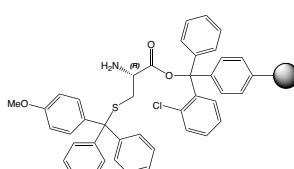
Mesh Size 100-200 mesh  
Loading > 0.4 mmol/g  
DVB 1% DVB



### RAA1055 H-L-Cys(Mmt)-2CT Resin

H-L-Cys(Mmt)-2-chlorotriyl resin

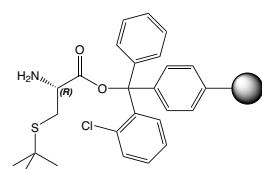
Mesh Size 100-200 mesh  
Loading > 0.4 mmol/g  
DVB 1% DVB



### RAA1355 H-L-Cys(tBu)-2CT Resin

H-L-Cys(tBu)-2-chlorotriyl resin

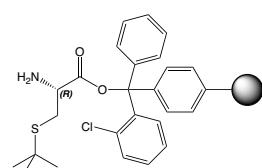
Mesh Size 200-400 mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB



### RAA1395 H-L-Cys(tBu)-2CT Resin

H-L-Cys(tBu)-2-chlorotriyl resin

Mesh Size 100-200 mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB

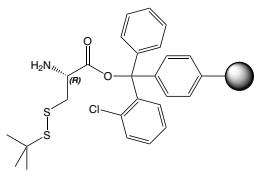


## Product details

**RAA1365 H-L-Cys(StBu)-2CT Resin**

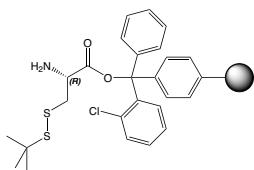
H-L-Cys(StBu)-2-chlorotriptyl resin

Mesh Size      200-400 mesh  
 Loading        0.4-1.2 mmol/g  
 DVB            1% DVB


**RAA1405 H-L-Cys(StBu)-2CT Resin**

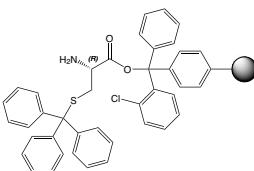
H-L-Cys(StBu)-2-chlorotriptyl resin

Mesh Size      100-200 mesh  
 Loading        0.4-1.2 mmol/g  
 DVB            1% DVB


**RAA1065 H-L-Cys(Trt)-2CT Resin**

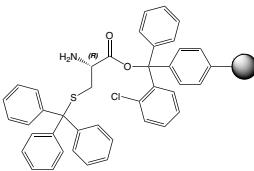
H-L-Cys(Trt)-2-chlorotriptyl resin

Mesh Size      100-200 mesh  
 Loading        0.4-1.2 mmol/g  
 DVB            1% DVB


**RAA1066 H-L-Cys(Trt)-2CT Resin**

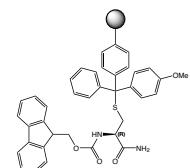
H-L-Cys(Trt)-2-chlorotriptyl resin

Mesh Size      200-400 mesh  
 Loading        0.4-1.2 mmol/g  
 DVB            1% DVB


**RAA2620 Fmoc-L-Cys(Mmt resin)-NH<sub>2</sub>**

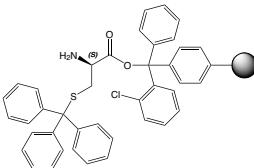
Fmoc-L-Cysteine alpha-amide-S-(4-methoxytrityl resin)

Mesh Size      100-200 mesh  
 Loading        ca. 0.5 mmol/g  
 DVB            1% DVB


**RAA1060 H-D-Cys(Trt)-2CT Resin**

H-D-Cys(Trt)-2-chlorotriptyl resin

Mesh Size      100-200 mesh  
 Loading        > 0.4 mmol/g  
 DVB            1% DVB


[back to content ↑](#)

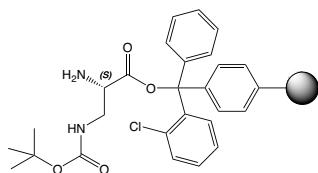
# Resin Guideline

Product details

## RAA1330 H-L-Dap(Boc)-2CT Resin

H-L-Dap(Boc)-2-chlorotriyl resin

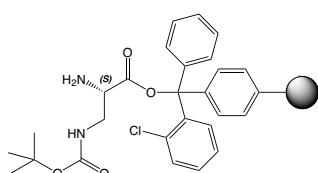
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



## RAA1331 H-L-Dap(Boc)-2CT Resin

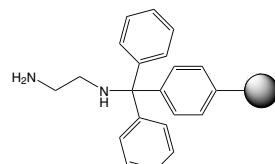
H-L-Dap(Boc)-2-chlorotriyl resin

Mesh Size 200-400 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



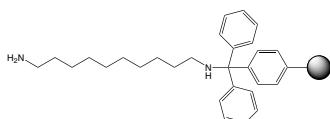
## RDA1020 1,2-Diaminoethane-trityl resin

CAS-No. 1616282-53-1  
Mesh Size 200-400 mesh  
Loading > 0.3 mmol/g  
DVB 1% DVB



## BR-5246 1,10-Diaminodecane-trityl resin

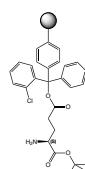
Mesh Size 100-200 mesh  
Loading 0.5-1.9 mmol/g  
DVB 1% DVB



## RAA2700 H-L-Glu(2CT resin)-OtBu

L-Glutamate alpha-t-butyl ester-gamma-(2-chlorotriyl resin) ester

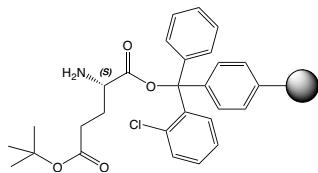
Mesh Size 100-200 mesh  
Loading ca. 0.5 mmol/g  
DVB 1% DVB



## RAA1075 H-L-Glu(OtBu)-2CT Resin

H-L-Glu(OtBu)-2-chlorotriyl resin

Mesh Size 100-200 mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB

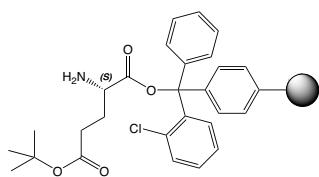


## Product details

**RAA1076 H-L-Glu(OtBu)-2CT Resin**

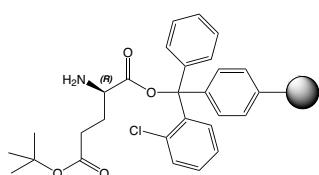
H-L-Glu(OtBu)-2-chlorotriyl resin

Mesh Size	200-400 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


**RAA1074 H-D-Glu(OtBu)-2CT Resin**

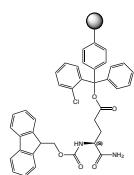
H-D-Glu(OtBu)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


**RAA2630 Fmoc-L-Glu(2CT resin)-NH<sub>2</sub>**

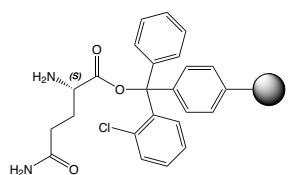
Fmoc-L-Glutamate alpha-amide-gamma-(2-chlorotriyl resin) ester

Mesh Size	100-200 mesh
Loading	ca. 0.5 mmol/g
DVB	1% DVB


**RAA1085 H-L-Gln-2CT Resin**

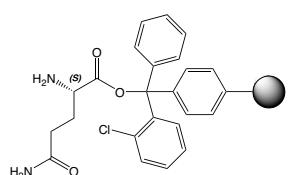
H-L-Gln-2-chlorotriyl resin

Mesh Size	100-200 mesh
DVB	1% DVB


**RAA1086 H-L-Gln-2CT Resin**

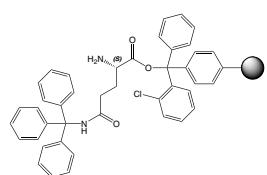
H-L-Gln-2-chlorotriyl resin

Mesh Size	200-400 mesh
Loading	> 0.4 mmol/g
DVB	1% DVB


**RAA1087 H-L-Gln(Trt)-2CT Resin**

H-L-Gln(Trt)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


[back to content ↑](#)

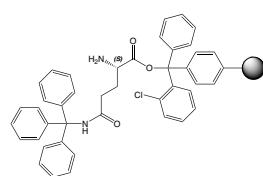
# Resin Guideline

Product details

## RAA1088 H-L-Gln(Trt)-2CT Resin

H-L-Gln(Trt)-2-chlorotriyl resin

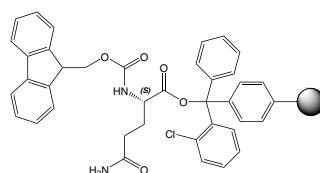
Mesh Size      200-400 mesh  
Loading        0.4-1.2 mmol/g  
DVB            1% DVB



## RAA1310 Fmoc-L-Gln-2CT Resin

Fmoc-L-Gln-2-chlorotriyl resin

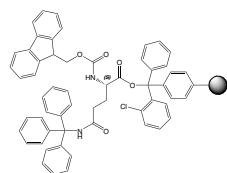
Mesh Size      100-200 mesh  
Loading        > 0.4 mmol/g  
DVB            1% DVB



## RAA5951 Fmoc-L-Gln(Trt)-2CT Resin

Fmoc-L-Gln(Trt)-2-chlorotriyl resin

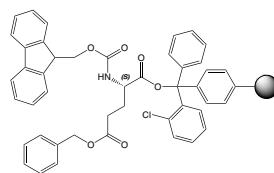
Mesh Size      100-200 mesh  
Loading        > 0.5 mmol/g  
DVB            1% DVB



## RAA5935 Fmoc-L-Glu(OBzl)-2CT Resin

Fmoc-L-Glu(OBzl)-2-chlorotriyl resin

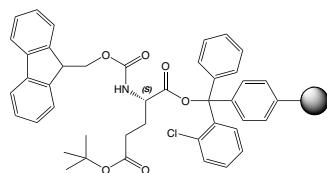
Mesh Size      100-200 mesh  
Loading        > 0.5 mmol/g  
DVB            1% DVB



## RAA6125 Fmoc-L-Glu(OtBu)-2CT Resin

Fmoc-L-Glu(OtBu)-2-chlorotriyl resin

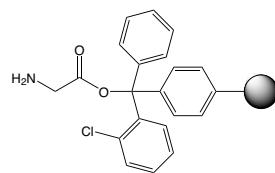
Mesh Size      100-200 mesh  
Loading        > 0.5 mmol/g  
DVB            1% DVB



## RAA1040 H-Gly-2CT Resin

H-Gly-2-chlorotriyl resin

Mesh Size      100-200 mesh  
Loading        0.4-1.2 mmol/g  
DVB            1% DVB

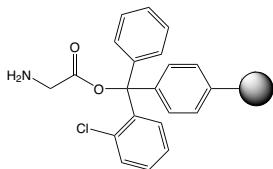


## Product details

**RAA1041 H-Gly-2CT Resin**

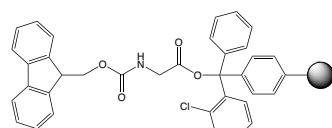
H-Gly-2-chlorotriyl resin

Mesh Size	200-400 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


**RAA1039 Fmoc-Gly-2CT Resin**

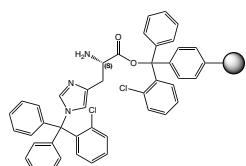
Fmoc-Gly-2-chlorotriyl resin

Mesh Size	100-200 mesh
DVB	1% DVB


**RAA1093 H-L-His(Cl)-2CT Resin**

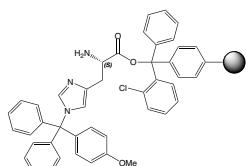
H-L-His(Cl)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	> 0.4 mmol/g
DVB	1% DVB


**RAA1095 H-L-His(Mmt)-2CT Resin**

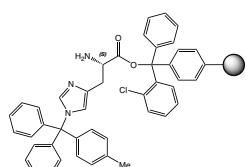
H-L-His(Mmt)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	> 0.4 mmol/g
DVB	1% DVB


**RAA1097 H-L-His(Mtt)-2CT Resin**

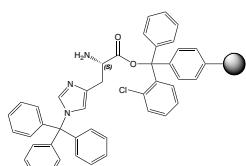
H-L-His(Mtt)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


**RAA1105 H-L-His(Trt)-2CT Resin**

H-L-His(Trt)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


[back to content ↑](#)

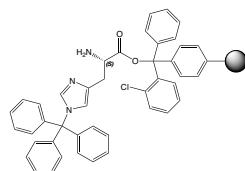
## Resin Guideline

Product details

### RAA1106 H-L-His(Trt)-2CT Resin

H-L-His(Trt)-2-chlorotriyl resin

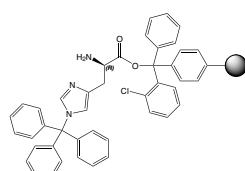
Mesh Size 200-400 mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB



### RAA1100 H-D-His(Trt)-2CT Resin

H-D-His(Trt)-2-chlorotriyl resin

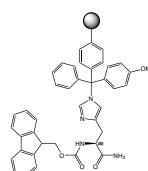
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



### RAA2640 Fmoc-L-His(Mmt resin)-NH<sub>2</sub>

Fmoc-L-Histidine alpha-amide-Nim-(4-methoxytrityl resin)

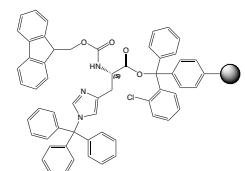
Mesh Size 100-200 mesh  
Loading ca. 0.5 mmol/g  
DVB 1% DVB



### RAA5960 Fmoc-L-His(Trt)-2CT Resin

Fmoc-L-His(Trt)-2-chlorotriyl resin

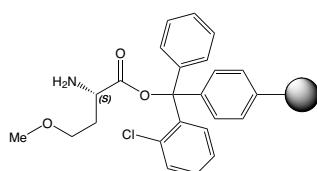
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



### RAA1115 H-L-Hse(Me)-2CT Resin

H-L-Hse(Me)-2-chlorotriyl resin

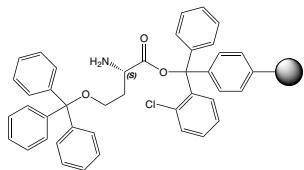
Mesh Size 100-200 mesh  
Loading > 0.4 mmol/g  
DVB 1% DVB



### RAA1125 H-L-Hse(Trt)-2CT Resin

H-L-Hse(Trt)-2-chlorotriyl resin

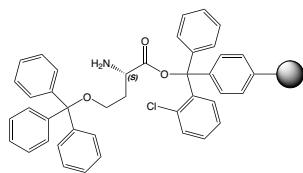
Mesh Size 100-200 mesh  
Loading > 0.4 mmol/g  
DVB 1% DVB



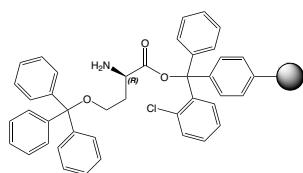
## Product details

**RAA1126 H-L-Hse(Trt)-2CT Resin**

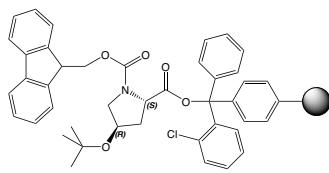
H-L-Hse(Trt)-2-chlorotriyl resin

Mesh Size      200-400 mesh  
Loading        > 0.4 mmol/g  
DVB            1% DVB

**RAA1120 H-D-Hse(Trt)-2CT Resin**

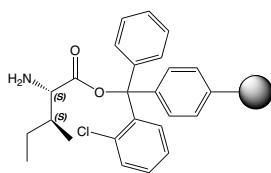
H-D-Hse(Trt)-2-chlorotriyl resin

Mesh Size      100-200 mesh  
Loading        > 0.4 mmol/g  
DVB            1% DVB

**RAA6167 Fmoc-L-Hyp(tBu)-2CT Resin**

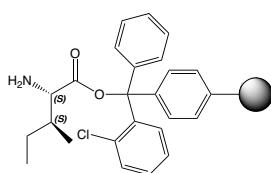
Fmoc-L-Hyp(tBu)-2-chlorotriyl resin

Mesh Size      100-200 mesh  
Loading        > 0.5 mmol/g  
DVB            1% DVB

**RAA1135 H-L-Ile-2CT Resin**

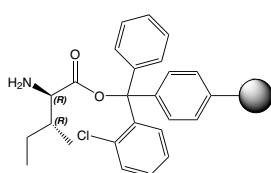
H-L-Ile-2-chlorotriyl resin

Mesh Size      100-200 mesh  
Loading        0.4-1.2 mmol/g  
DVB            1% DVB

**RAA1136 H-L-Ile-2CT Resin**

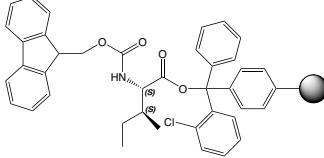
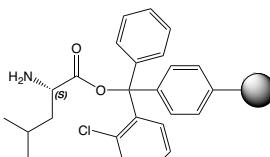
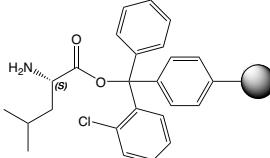
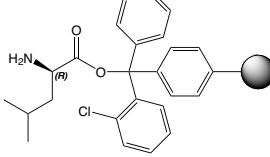
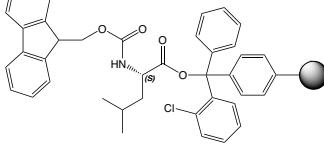
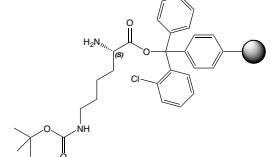
H-L-Ile-2-chlorotriyl resin

Mesh Size      200-400 mesh  
Loading        0.4-1.2 mmol/g  
DVB            1% DVB

**RAA1134 H-D-allo-Ile-2CT Resin**

H-D-allo-Ile-2-chlorotriyl resin

Mesh Size      100-200 mesh  
Loading        > 0.5 mmol/g  
DVB            1% DVB

[back to content ↑](#)

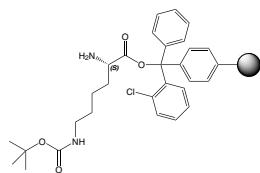
# Resin Guideline

		Product details
<b>RAA6140</b>	<b>Fmoc-L-Ile-2CT Resin</b>	 
<b>RAA1145</b>	<b>H-L-Leu-2CT Resin</b>	 
<b>RAA1146</b>	<b>H-L-Leu-2CT Resin</b>	 
<b>RAA1144</b>	<b>H-D-Leu-2CT Resin</b>	 
<b>RAA5940</b>	<b>Fmoc-L-Leu-2CT Resin</b>	 
<b>RAA1155</b>	<b>H-L-Lys(Boc)-2CT Resin</b>	 

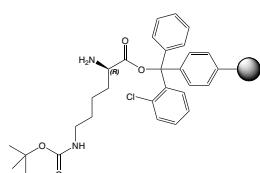
## Product details

**RAA1156 H-L-Lys(Boc)-2CT Resin**

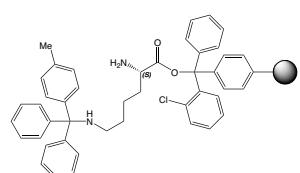
H-L-Lys(Boc)-2-chlorotriptyl resin

 Mesh Size      200-400 mesh  
 Loading        0.4-1.2 mmol/g  
 DVB            1% DVB

**RAA1154 H-D-Lys(Boc)-2CT Resin**

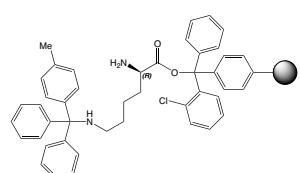
H-D-Lys(Boc)-2-chlorotriptyl resin

 Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB

**RAA1165 H-L-Lys(Mtt)-2CT Resin**

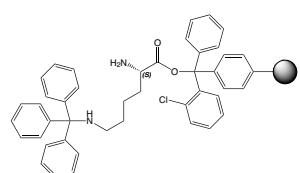
H-L-Lys(Mtt)-2-chlorotriptyl resin

 Mesh Size      100-200 mesh  
 Loading        > 0.4 mmol/g  
 DVB            1% DVB

**RAA1160 H-D-Lys(Mtt)-2CT Resin**

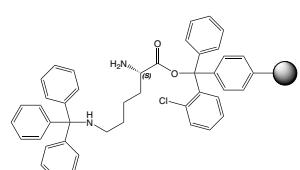
H-D-Lys(Mtt)-2-chlorotriptyl resin

 Mesh Size      100-200 mesh  
 Loading        > 0.4 mmol/g  
 DVB            1% DVB

**RAA1167 H-L-Lys(Trt)-2CT Resin**

H-L-Lys(Trt)-2-chlorotriptyl resin

 Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB

**RAA1168 H-L-Lys(Trt)-2CT Resin**

H-L-Lys(Trt)-2-chlorotriptyl resin

 Mesh Size      200-400 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB

[back to content ↑](#)

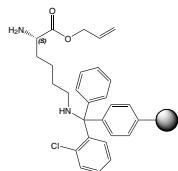
# Resin Guideline

Product details

## RAA1320 H-L-Lys(2CT-Resin)-OAll

H-L-Lys(2-chlorotriptyl resin)-OAll

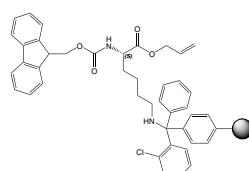
Mesh Size 100-200mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB



## RAA1325 Fmoc-L-Lys(2CT-Resin)-OAll

Fmoc-L-Lys(2-Chloro-Trityl-Resin)-OAll

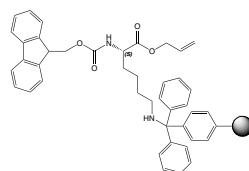
Mesh Size 100-200 mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB



## CAA1008 Fmoc-L-Lys(Trt-Resin)-OAll

Fmoc-L-Lys(Trityl-Resin)-OAll

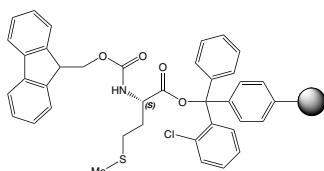
Mesh Size 100-200 mesh  
Loading 0.15-0.5 mmol/g  
DVB 1% DVB



## RAA5980 Fmoc-L-Met-2CT Resin

Fmoc-L-Met-2-chlorotriptyl resin

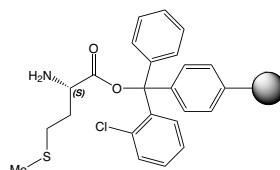
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



## RAA1175 H-L-Met-2CT Resin

H-L-Met-2-chlorotriptyl resin

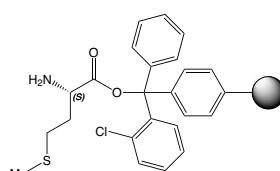
Mesh Size 100-200 mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB



## RAA1176 H-L-Met-2CT Resin

H-L-Met-2-chlorotriptyl resin

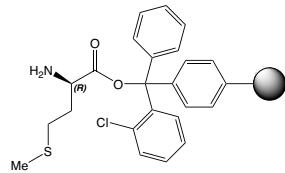
Mesh Size 200-400 mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB



[Product details](#)
**RAA1170 H-D-Met-2CT Resin**

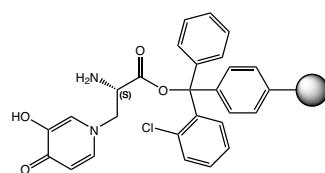
H-D-Met-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


**RAA4000 H-L-Mim-2CT Resin**

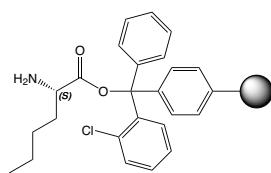
Mimosine-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	ca. 0.45 mmol/g
DVB	1% DVB


**RAA1375 H-L-Nle-2CT Resin**

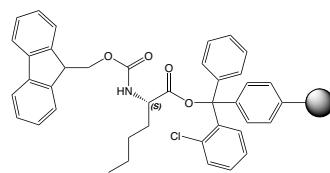
H-L-Nle-2-chlorotriyl resin

Mesh Size	200-400 mesh
Loading	0.7 - 1.1 mmol/g
DVB	1% DVB


**RAA6220 Fmoc-L-Nle-2CT Resin**

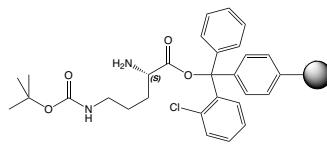
Fmoc-L-Nle-2-Chlorotriyl Resin

Mesh Size	100-200 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


**RAA1185 H-L-Orn(Boc)-2CT Resin**

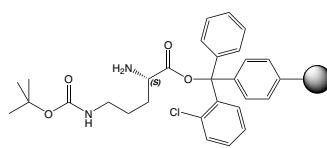
H-L-Orn(Boc)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


**RAA1186 H-L-Orn(Boc)-2CT Resin**

H-L-Orn(Boc)-2-chlorotriyl resin

Mesh Size	200-400 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


[back to content ↑](#)

## Resin Guideline

Product details

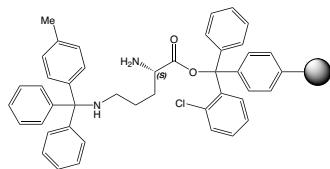
### RAA1195 H-L-Orn(Mtt)-2CT Resin

H-L-Orn(Mtt)-2-chlorotriyl resin

Mesh Size 100-200 mesh

Loading > 0.4 mmol/g

DVB 1% DVB



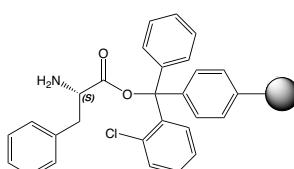
### RAA1205 H-L-Phe-2CT Resin

H-L-Phe-2-chlorotriyl resin

Mesh Size 100-200 mesh

Loading 0.4-1.2 mmol/g

DVB 1% DVB



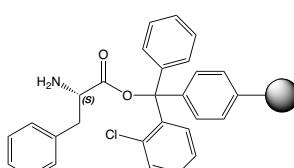
### RAA1206 H-L-Phe-2CT Resin

H-L-Phe-2-chlorotriyl resin

Mesh Size 200-400 mesh

Loading 0.4-1.2 mmol/g

DVB 1% DVB



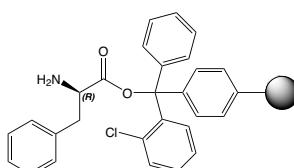
### RAA1200 H-D-Phe-2CT Resin

H-D-Phe-2-chlorotriyl resin

Mesh Size 100-200 mesh

Loading > 0.5 mmol/g

DVB 1% DVB



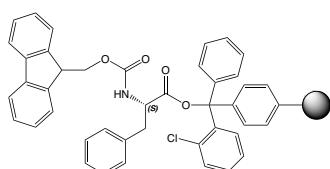
### RAA6102 Fmoc-L-Phe-2CT Resin

Fmoc-L-Phe-2-chlorotriyl resin

Mesh Size 75-100 mesh

Loading > 0.5 mmol/g

DVB 1% DVB



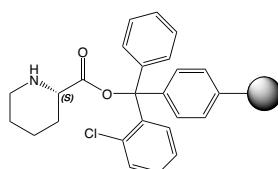
### RAA5962 H-L-Pip-2CT Resin

H-L-Pipeolic acid-2-chlorotriyl resin

Mesh Size 100-200 mesh

Loading > 0.5 mmol/g

DVB 1% DVB

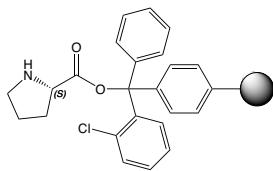


## Product details

**RAA1220 H-L-Pro-2CT Resin**

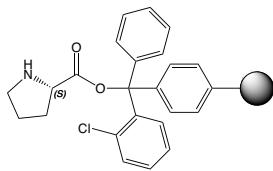
H-L-Pro-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


**RAA1221 H-L-Pro-2CT Resin**

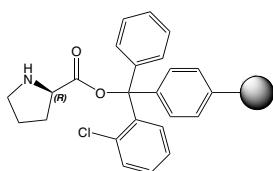
H-L-Pro-2-chlorotriyl resin

Mesh Size	200-400 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


**RAA6225 H-D-Pro-2CT Resin**

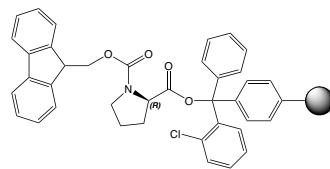
H-D-Pro-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


**RAA1224 Fmoc-D-Pro-2CT Resin**

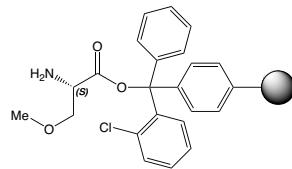
Fmoc-D-Pro-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


**RAA1232 H-L-Ser(Me)-2CT Resin**

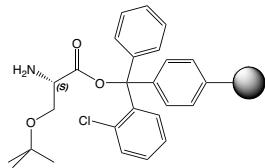
H-L-Ser(Me)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	> 0.5 mmol/g
DVB	1% DVB


**RAA1230 H-L-Ser(tBu)-2CT Resin**

H-L-Ser(tBu)-2-chlorotriyl resin

Mesh Size	100-200 mesh
Loading	0.4-1.2 mmol/g
DVB	1% DVB


[back to content ↑](#)

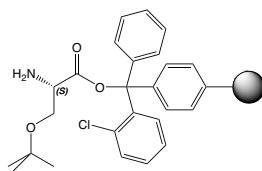
# Resin Guideline

Product details

## RAA1231 H-L-Ser(tBu)-2CT Resin

H-L-Ser(tBu)-2-chlorotriptyl resin

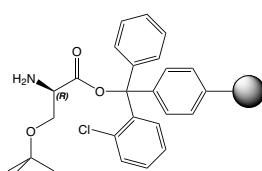
Mesh Size 200-400 mesh  
Loading 0.4-1.2 mmol/g  
DVB 1% DVB



## RAA1229 H-D-Ser(tBu)-2CT Resin

H-D-Ser(tBu)-2-chlorotriptyl resin

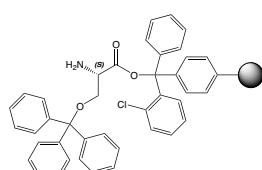
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



## RAA1240 H-L-Ser(Trt)-2CT Resin

H-L-Ser(Trt)-2-chlorotriptyl resin

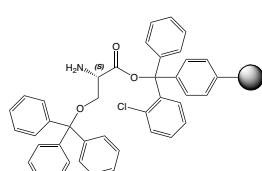
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



## RAA1241 H-L-Ser(Trt)-2CT Resin

H-L-Ser(Trt)-2-chlorotriptyl resin

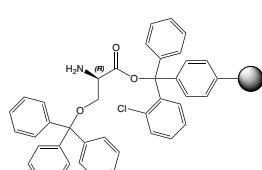
Mesh Size 200-400 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



## RAA1235 H-D-Ser(Trt)-2CT Resin

H-D-Ser(Trt)-2-chlorotriptyl resin

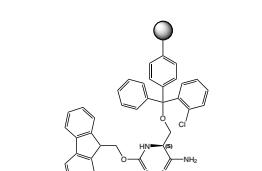
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



## RAA2670 Fmoc-L-Ser(2CT resin)-NH<sub>2</sub>

Fmoc-L-Serine alpha-amide-O-(2-chlorotriptyl resin)

Mesh Size 100-200 mesh  
Loading ca. 0.5 mmol/g  
DVB 1% DVB

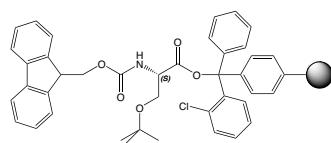


## Product details

**RAA6106 Fmoc-L-Ser(tBu)-2CT Resin**

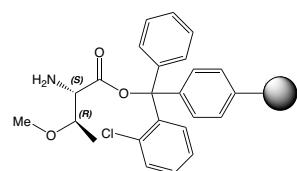
Fmoc-L-Ser(But)-2-chlorotriptyl resin

Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**RAA1252 H-L-Thr(Me)-2CT Resin**

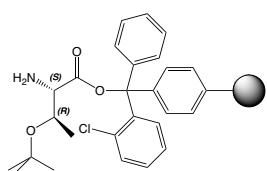
H-L-Thr(Me)-2-chlorotriptyl resin

Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**RAA1250 H-L-Thr(tBu)-2CT Resin**

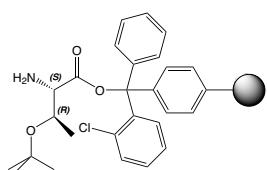
H-L-Thr(tBu)-2-chlorotriptyl resin

Mesh Size      100-200 mesh  
 Loading        0.4-1.2 mmol/g  
 DVB            1% DVB


**RAA1251 H-L-Thr(tBu)-2CT Resin**

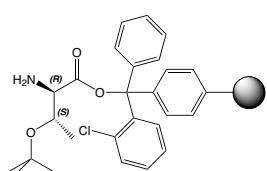
H-L-Thr(tBu)-2-chlorotriptyl resin

Mesh Size      200-400 mesh  
 Loading        0.4-1.2 mmol/g  
 DVB            1% DVB


**RAA1249 H-D-Thr(tBu)-2CT Resin**

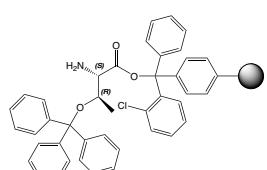
H-D-Thr(tBu)-2-chlorotriptyl resin

Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**RAA1260 H-L-Thr(Trt)-2CT Resin**

H-L-Thr(Trt)-2-chlorotriptyl resin

Mesh Size      100-200 mesh  
 Loading        > 0.4 mmol/g  
 DVB            1% DVB


[back to content ↑](#)

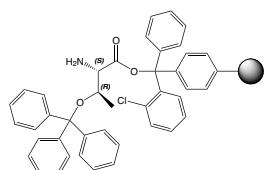
# Resin Guideline

Product details

## RAA1261 H-L-Thr(Trt)-2CT Resin

H-L-Thr(Trt)-2-chlorotriptyl resin

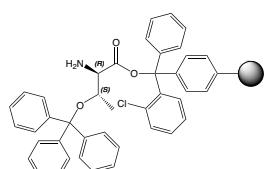
Mesh Size 200-400 mesh  
Loading > 0.4 mmol/g  
DVB 1% DVB



## RAA1255 H-D-Thr(Trt)-2CT Resin

H-D-Thr(Trt)-2-chlorotriptyl resin

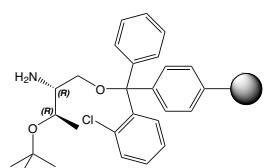
Mesh Size 100-200 mesh  
Loading > 0.4 mmol/g  
DVB 1% DVB



## RAL1114 H-L-Thr(tBu)-ol-2CT Resin

L-Thr(tBu)-ol-2-chlorotriptyl resin

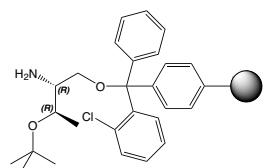
Mesh Size 100-200 mesh  
Loading > 0.5 mmol/g  
DVB 1% DVB



## RAL1115 H-L-Thr(tBu)-ol-2CT Resin

L-Thr(tBu)-ol-2-chlorotriptyl resin

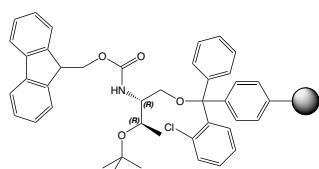
Mesh Size 200-400 mesh  
Loading > 0.4 mmol/g  
DVB 1% DVB



## RAL1126 Fmoc-L-Thr(tBu)-ol-2CT Resin

Fmoc-L-Thr(tBu)-ol-2-chlorotriptyl resin

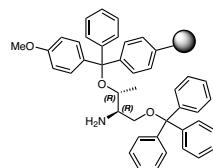
Mesh Size 200-400 mesh  
Loading 0.4-0.8 mmol/g  
DVB 1% DVB



## RAL1190 H-L-Threoninol(Mmt resin)-OTrt

H-L-Threoninol(4-Methoxytrityl resin)-OTrt

Mesh Size 100-200 mesh  
Loading 0.3-0.65 mmol/g  
DVB 1%

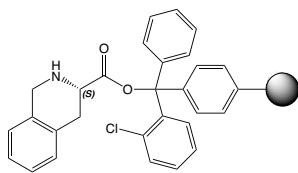


## Product details

**RAA5977 H-L-Tic-2CT Resin**

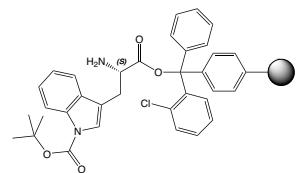
H-L-Tetrahydroisoquinoline-3-carboxylic acid-2-chlorotriyl resin

Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**RAA1305 H-L-Trp(Boc)-2CT Resin**

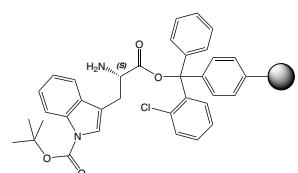
H-L-Trp(Boc)-2-chlorotriyl resin

Mesh Size      100-200 mesh  
 Loading        0.4-1.2 mmol/g  
 DVB            1% DVB


**RAA1306 H-L-Trp(Boc)-2CT Resin**

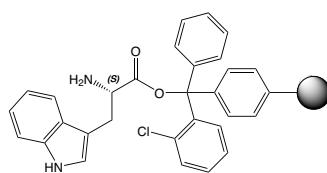
H-L-Trp(Boc)-2-chlorotriyl resin

Mesh Size      200-400 mesh  
 Loading        0.4-1.2 mmol/g  
 DVB            1% DVB


**RAA1270 H-L-Trp-2CT Resin**

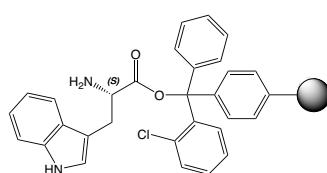
H-L-Trp-2-chlorotriyl resin

Mesh Size      100-200 mesh  
 Loading        0.5-1.0 mmol/g  
 DVB            1% DVB


**RAA1271 H-L-Trp-2CT Resin**

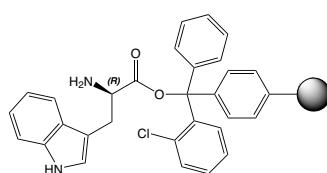
H-L-Trp-2-chlorotriyl resin

Mesh Size      200-400 mesh  
 Loading        0.5-1.0 mmol/g  
 DVB            1% DVB

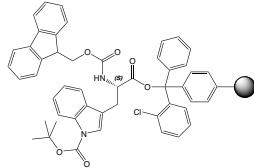
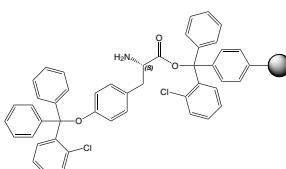
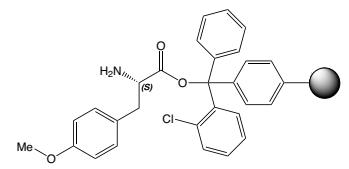
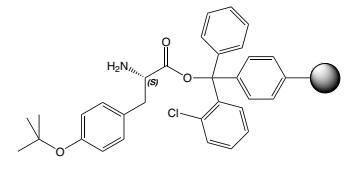
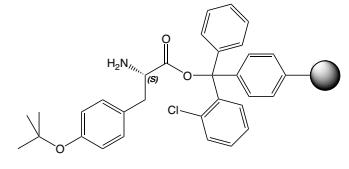
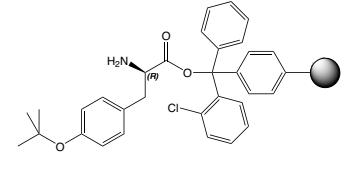

**RAA1265 H-D-Trp-2-CT Resin**

H-D-Trp-2-chlorotriyl resin

Mesh Size      100-200 mesh  
 Loading        0.4-0.8 mmol/g  
 DVB            1% DVB


[back to content ↑](#)

## Resin Guideline

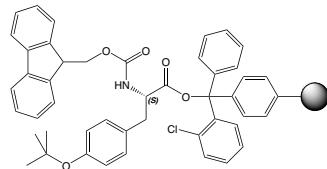
		Product details
<b>RAA5941</b>	<b>Fmoc-L-Trp(Boc)-2CT Resin</b>	 <b>Fmoc-L-Trp(Boc)-2-chlorotriyl resin</b> Mesh Size 100-200 mesh Loading > 0.5 mmol/g DVB 1% DVB
<b>RAA1290</b>	<b>H-L-Tyr(Cl)-2CT Resin</b>	 <b>H-L-Tyr(Cl)-2-chlorotriyl resin</b> Mesh Size 100-200 mesh Loading > 0.4 mmol/g DVB 1% DVB
<b>RAA1292</b>	<b>H-L-Tyr(Me)-2CT Resin</b>	 <b>H-L-Tyr(Me)-2-chlorotriyl resin</b> Mesh Size 100-200 mesh Loading > 0.5 mmol/g DVB 1% DVB
<b>RAA1280</b>	<b>H-L-Tyr(tBu)-2CT Resin</b>	 <b>H-L-Tyr(tBu)-2-chlorotriyl resin</b> Mesh Size 100-200 mesh Loading 0.4-1.2 mmol/g DVB 1% DVB
<b>RAA1281</b>	<b>H-L-Tyr(tBu)-2CT Resin</b>	 <b>H-L-Tyr(tBu)-2-chlorotriyl resin</b> Mesh Size 200-400 mesh Loading 0.4-1.2 mmol/g DVB 1% DVB
<b>RAA1282</b>	<b>H-D-Tyr(tBu)-2CT Resin</b>	 <b>H-D-Tyr(tBu)-2-chlorotriyl resin</b> Mesh Size 200-400 mesh Loading > 0.5 mmol/g DVB 1% DVB

## Product details

**RAA5420 Fmoc-L-Tyr(tBu)-2CT Resin**

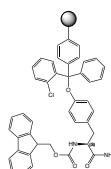
Fmoc-L-Tyr(But)-2-chlorotriyl resin

Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**RAA2690 Fmoc-L-Tyr(2CT resin)-NH<sub>2</sub>**

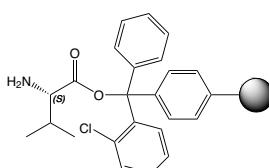
Fmoc-L-Tyrosine alpha-amide-O-(2-chlorotriyl resin)

Mesh Size      100-200 mesh  
 Loading        ca. 0.5 mmol/g  
 DVB            1% DVB


**RAA1300 H-L-Val-2CT Resin**

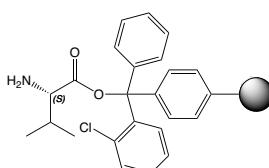
H-L-Val-2-chlorotriyl resin

Mesh Size      100-200 mesh  
 Loading        0.4-1.2 mmol/g  
 DVB            1% DVB


**RAA1301 H-L-Val-2CT Resin**

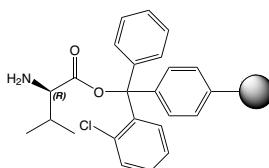
H-L-Val-2-chlorotriyl resin

Mesh Size      200-400 mesh  
 Loading        0.4-1.2 mmol/g  
 DVB            1% DVB


**RAA1299 H-D-Val-2CT Resin**

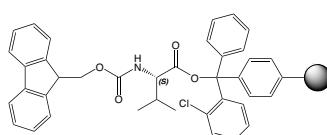
H-D-Val-2-chlorotriyl resin

Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


**RAA5915 Fmoc-L-Val-2-CT Resin**

Fmoc-L-Val-2-chlorotriyl resin

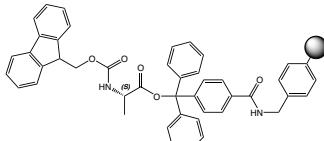
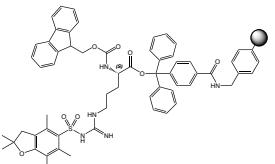
Mesh Size      100-200 mesh  
 Loading        > 0.5 mmol/g  
 DVB            1% DVB


[back to content ↑](#)

## References:

- K. Barlos et al. in "Peptides 1992, Proc. 22<sup>nd</sup> European Peptide Symposium", C.H. Schneider and A. N. Eberle (Eds), ESCOM, Leiden 1993.
- Synthesis of the very acid-sensitive Fmoc-Cys(Mmt)-OH and its application in solid-phase peptide synthesis; K. Barlos, D. Gatos, O. Hatzi, N. Koch, S. Koutsogianni; **Int. J. Pept. Protein Res.** 1996; **47**: 148-53.
- A convenient solid phase synthesis of S-palmitoyl transmembrane peptides; D. T. S. Rijkers, J. A. W. Kruijtzer, J. A. Killian, R. M. J. Liskamp; **Tetrahedron Lett.** 2005; **46**: 3341-3345.  
<https://doi.org/10.1016/j.tetlet.2005.03.079>
- Preparation of the very acid-sensitive Fmoc-Lys(Mtt)-OH. Application in the synthesis of side-chain to side-chain cyclic peptides and oligolysine cores suitable for the solid-phase assembly of MAPs and TASPs; A. Aletras, K. Barlos, D. Gatos, S. Koutsogianni, P. Mamos; **Int. J. Pept. Protein Res.** 1995; **45**: 488-96.  
<https://doi.org/10.1111/j.1399-3011.1995.tb01065.x>
- Application of 2-chlorotriptyl resin in solid phase synthesis of (Leu15)-gastrin I and unsulfated cholecystokinin octapeptide. Selective O-deprotection of tyrosine; K. Barlos, D. Gatos, S. Kapolos, C. Poulos, W. Schafer, W. Q. Yao; **Int. J. Pept. Protein Res.** 1991; **38**: 555-61.  
<https://doi.org/10.1111/j.1399-3011.1991.tb01539.x>
- Sarah L.M. et al. in „Fmoc Solid Phase Synthesis. A practical approach“, Ed.: Chan W.C.; White P.D. Oxford University Press 2000, page 177.
- Preparative scale isolation, purification and derivatization of mimosine, a non-proteinogenic amino acid; K. Nokihara, A. Hirata, T. Sogon, T. Ohyama; **Amino Acids** 2012; **43**: 475-82.  
<https://doi.org/10.1007/s00726-011-1104-y>
- A Non-proteinogenic Amino Acid, Mimosine and Mimosyl Peptides for Cosmeceutical Ingredients; K. Nokihara, A. Hirata, Y. Kodama, T. Sogon, H. Aoyama, T. Ohyama, J. Pang, H. Wei-Jing; **Peptide science: proceedings of the Japanese Peptide Symposium 2011**; **2010**: 282.

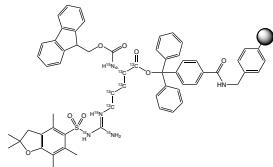
## 9.2.3. Preloaded TCP Resins for the Synthesis of Protected Peptides

		Product details
TCP1000	Fmoc-L-Ala-TCP-Resin	 
	Fmoc-Ala-trityl-carboxyamidomethyl polystyrene	
Mesh Size	200-400 mesh	
Loading	0.3-0.8 mmol/g	
DVB	1% DVB	
TCP1220	Fmoc-L-Arg(Pbf)-TCP-Resin	 
	Fmoc-Arg(Pbf)-trityl-carboxyamidomethyl polystyrene	
Mesh Size	200-400 mesh	
Loading	0.3-0.8 mmol/g	
DVB	1% DVB	

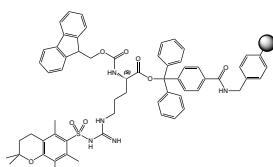
## Product details

**TCP1270 Fmoc-L-Arg(Pbf)-[13C6,15N4]-TCP-Resin**

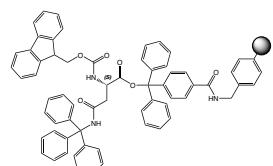
Fmoc-Arg(Pbf)-[13C6,15N4]-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.1-0.3 mmol/g  
DVB            1% DVB

**TCP1210 Fmoc-L-Arg(Pmc)-TCP-Resin**

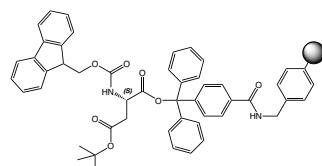
Fmoc-Arg(Pmc)-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.3-0.8 mmol/g  
DVB            1% DVB

**TCP1090 Fmoc-L-Asn(Trt)-TCP-Resin**

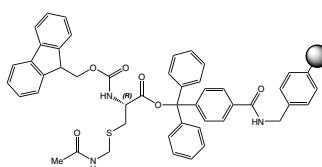
Fmoc-Asn(Trt)-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.3-0.8 mmol/g  
DVB            1% DVB

**TCP1100 Fmoc-L-Asp(OtBu)-TCP-Resin**

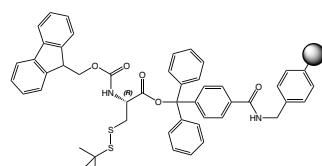
Fmoc-Asp(OtBu)-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.3-0.8 mmol/g  
DVB            1% DVB

**TCP1110 Fmoc-L-Cys(Acm)-TCP-Resin**

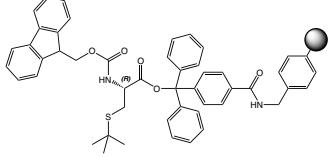
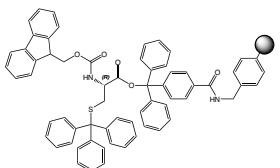
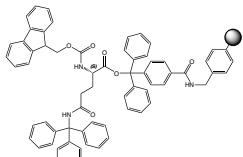
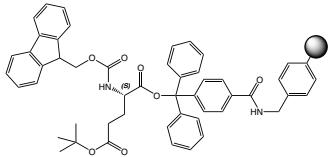
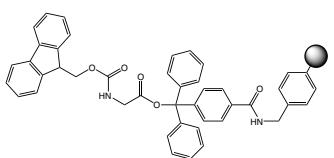
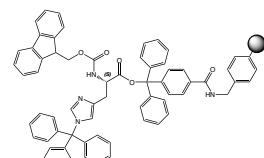
Fmoc-Cys(Acm)-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.3-0.8 mmol/g  
DVB            1% DVB

**TCP1230 Fmoc-L-Cys(StBu)-TCP-Resin**

Fmoc-Cys(StBu)-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.3-0.8 mmol/g  
DVB            1% DVB

[back to content ↑](#)

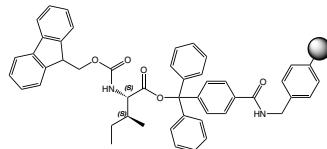
## Resin Guideline

			Product details
TCP1120	Fmoc-L-Cys(tBu)-TCP-Resin	Fmoc-Cys(tBu)-trityl-carboxyamidomethyl polystyrene	 
Mesh Size	200-400 mesh		
Loading	0.3-0.8 mmol/g		
DVB	1% DVB		
TCP1130	Fmoc-L-Cys(Trt)-TCP-Resin	Fmoc-Cys(Trt)-trityl-carboxyamidomethyl polystyrene	 
Mesh Size	200-400 mesh		
Loading	0.3-0.8 mmol/g		
DVB	1% DVB		
TCP1140	Fmoc-L-Gln(Trt)-TCP-Resin	Fmoc-Gln(Trt)-trityl-carboxyamidomethyl polystyrene	 
Mesh Size	200-400 mesh		
Loading	0.3-0.8 mmol/g		
DVB	1% DVB		
TCP1150	Fmoc-L-Glu(OtBu)-TCP-Resin	Fmoc-Glu(OtBu)-trityl-carboxyamidomethyl polystyrene	 
Mesh Size	200-400 mesh		
Loading	0.3-0.8 mmol/g		
DVB	1% DVB		
TCP1010	Fmoc-Gly-TCP-Resin	Fmoc-Gly-trityl-carboxyamidomethyl polystyrene	 
Mesh Size	200-400 mesh		
Loading	0.3-0.8 mmol/g		
DVB	1% DVB		
TCP1160	Fmoc-L-His(Trt)-TCP-Resin	Fmoc-His(Trt)-trityl-carboxyamidomethyl polystyrene	 
Mesh Size	200-400 mesh		
Loading	0.3-0.8 mmol/g		
DVB	1% DVB		

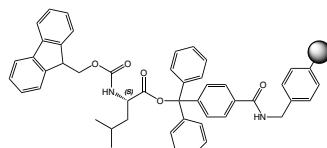
## Product details

**TCP1020 Fmoc-L-Ile-TCP-Resin**

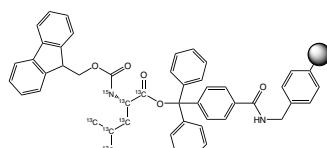
Fmoc-Ile-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.3-0.8 mmol/g  
DVB            1% DVB

**TCP1030 Fmoc-L-Leu-TCP-Resin**

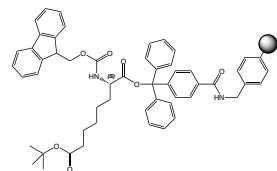
Fmoc-Leu-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.3-0.8 mmol/g  
DVB            1% DVB

**TCP1280 Fmoc-L-Leu-[13C6,15N]-TCP-Resin**

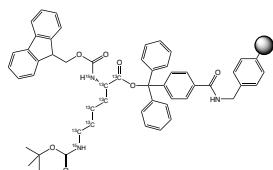
Fmoc-Leu-[13C6,15N]-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.2-0.3 mmol/g  
DVB            1% DVB

**TCP1170 Fmoc-L-Lys(Boc)-TCP-Resin**

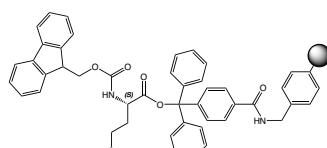
Fmoc-Lys(Boc)-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.3-0.8 mmol/g  
DVB            1% DVB

**TCP1290 Fmoc-L-Lys(Boc)-[13C6,15N2]-TCP-Resin**

Fmoc-Lys(Boc)-[13C6,15N2]-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.1-0.3 mmol/g  
DVB            1% DVB

**TCP1040 Fmoc-L-Met-TCP-Resin**

Fmoc-Met-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
Loading        0.3-0.8 mmol/g  
DVB            1% DVB

[back to content ↑](#)

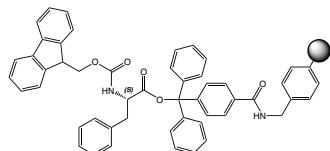
## Resin Guideline

Product details

### TCP1050 Fmoc-L-Phe-TCP-Resin

Fmoc-Phe-trityl-carboxyamidomethyl polystyrene

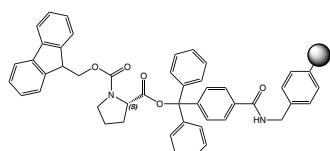
Mesh Size 200-400 mesh  
Loading 0.3-0.8 mmol/g  
DVB 1% DVB



### TCP1060 Fmoc-L-Pro-TCP-Resin

Fmoc-Pro-trityl-carboxyamidomethyl polystyrene

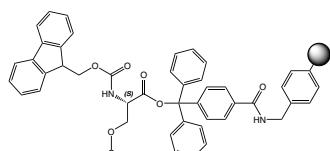
Mesh Size 200-400 mesh  
Loading 0.3-0.8 mmol/g  
DVB 1% DVB



### TCP1180 Fmoc-L-Ser(tBu)-TCP-Resin

Fmoc-Ser(tBu)-trityl-carboxyamidomethyl polystyrene

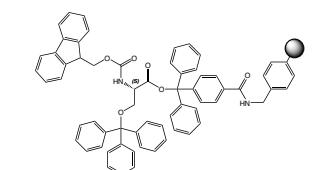
Mesh Size 200-400 mesh  
Loading 0.3-0.8 mmol/g  
DVB 1% DVB



### TCP1240 Fmoc-L-Ser(Trt)-TCP-Resin

Fmoc-Ser(Trt)-trityl-carboxyamidomethyl polystyrene

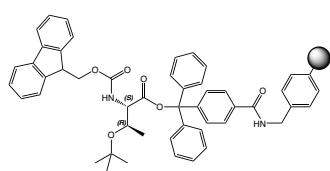
Mesh Size 200-400 mesh  
Loading 0.3-0.8 mmol/g  
DVB 1% DVB



### TCP1190 Fmoc-L-Thr(tBu)-TCP-Resin

Fmoc-Thr(tBu)-trityl-carboxyamidomethyl polystyrene

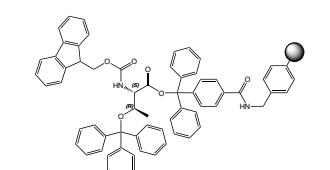
Mesh Size 200-400 mesh  
Loading 0.3-0.8 mmol/g  
DVB 1% DVB



### TCP1250 Fmoc-L-Thr(Trt)-TCP-Resin

Fmoc-Thr(Trt)-trityl-carboxyamidomethyl polystyrene

Mesh Size 200-400 mesh  
Loading 0.3-0.8 mmol/g  
DVB 1% DVB

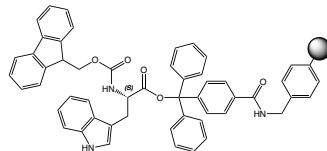


## Product details

**TCP1070 Fmoc-L-Trp-TCP-Resin**

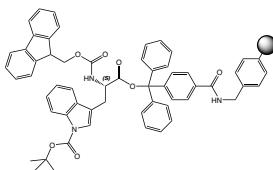
Fmoc-Trp-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
 Loading        0.3-0.8 mmol/g  
 DVB            1% DVB


**TCP1260 Fmoc-L-Trp(Boc)-TCP-Resin**

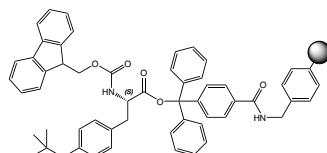
Fmoc-Trp(Boc)-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
 Loading        0.3-0.8 mmol/g  
 DVB            1% DVB


**TCP1200 Fmoc-L-Tyr(tBu)-TCP-Resin**

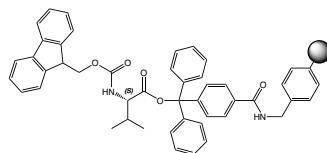
Fmoc-Tyr(tBu)-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
 Loading        0.3-0.8 mmol/g  
 DVB            1% DVB


**TCP1080 Fmoc-L-Val-TCP-Resin**

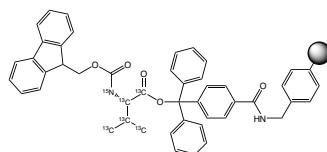
Fmoc-Val-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
 Loading        0.3-0.8 mmol/g  
 DVB            1% DVB


**TCP1300 Fmoc-L-Val-[13C5,15N]-TCP-Resin**

Fmoc-Val-[13C5,15N]-trityl-carboxyamidomethyl polystyrene

Mesh Size      200-400 mesh  
 Loading        0.2-0.3 mmol/g  
 DVB            1% DVB


[back to content ↑](#)

### 9.2.4. Preloaded Trityl-TentaGel® Resins for the Synthesis of Protected Peptides

Product details

#### SAL1201 Fmoc-L-Ala-Trt TG

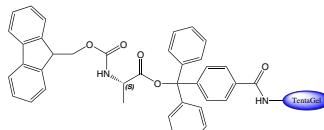
Fmoc-L-Ala-Trityl TentaGel S

Mesh Size

90 µm

Loading

0.18-0.25 mmol/g



#### SAD1201 Fmoc-D-Ala-Trt TG

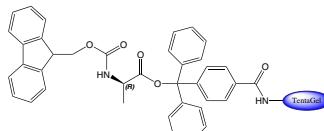
Fmoc-D-Ala-Trityl TentaGel S

Mesh Size

90 µm

Loading

0.18-0.25 mmol/g



#### SAL1202 Fmoc-L-Arg(Pbf)-Trt TG

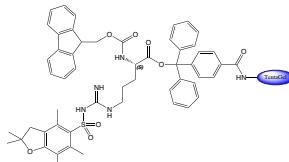
Fmoc-L-Arg(Pbf)-Trityl TentaGel S

Mesh Size

90 µm

Loading

0.16-0.25 mmol/g



#### SAD1202 Fmoc-D-Arg(Pbf)-Trt TG

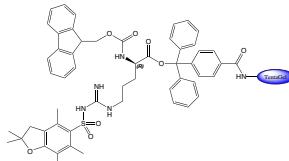
Fmoc-D-Arg(Pbf)-Trityl TentaGel S

Mesh Size

90 µm

Loading

0.16-0.25 mmol/g



#### SAL1203 Fmoc-L-Arg(Pmc)-Trt TG

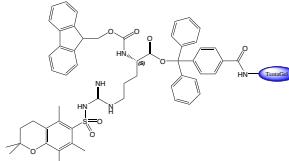
Fmoc-L-Arg(Pmc)-Trityl TentaGel S

Mesh Size

90 µm

Loading

0.16-0.25 mmol/g



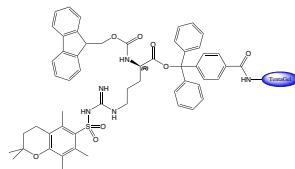
## Product details

**SAD1203 Fmoc-D-Arg(Pmc)-Trt TG**

Fmoc-D-Arg(Pmc)-Trityl TentaGel S

Mesh Size 90 µm

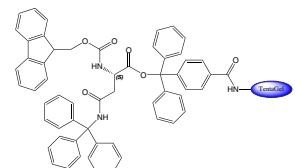
Loading 0.16-0.25 mmol/g


**SAL1204 Fmoc-L-Asn(Trt)-Trt TG**

Fmoc-L-Asn(Trt)-Trityl TentaGel S

Mesh Size 90 µm

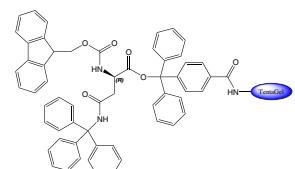
Loading 0.18-0.25 mmol/g


**SAD1204 Fmoc-D-Asn(Trt)-Trt TG**

Fmoc-D-Asn(Trt)-Trityl TentaGel S

Mesh Size 90 µm

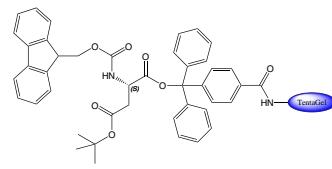
Loading 0.18-0.25 mmol/g


**SAL1205 Fmoc-L-Asp(OtBu)-Trt TG**

Fmoc-L-Asp(OtBu)-Trityl TentaGel S

Mesh Size 90 µm

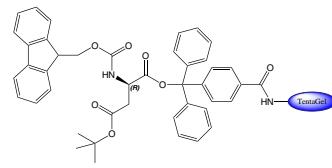
Loading 0.18-0.25 mmol/g


**SAD1205 Fmoc-D-Asp(OtBu)-Trt TG**

Fmoc-D-Asp(OtBu)-Trityl TentaGel S

Mesh Size 90 µm

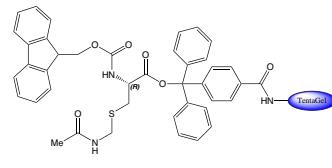
Loading 0.18-0.25 mmol/g


**SAL1207 Fmoc-L-Cys(Acm)-Trt TG**

Fmoc-L-Cys(S-Acm)-Trityl TentaGel S

Mesh Size 90 µm

Loading 0.18-0.25 mmol/g


[back to content ↑](#)

## Resin Guideline

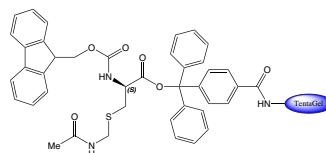
Product details

### SAD1207 Fmoc-D-Cys(Acm)-Trt TG

Fmoc-D-Cys(S-Acm)-Trityl TentaGel S

Mesh Size 90 µm

Loading 0.18-0.25 mmol/g

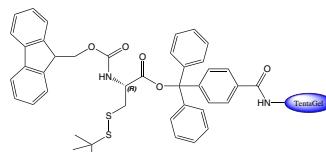


### SAL1209 Fmoc-L-Cys(SS-tBu)-Trt TG

Fmoc-L-Cys(S-S-tBu)-Trityl TentaGel S

Mesh Size 90 µm

Loading 0.18-0.25 mmol/g

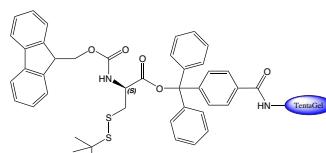


### SAD1209 Fmoc-D-Cys(SS-tBu)-Trt TG

Fmoc-D-Cys(S-S-tBu)-Trityl TentaGel S

Mesh Size 90 µm

Loading 0.18-0.25 mmol/g

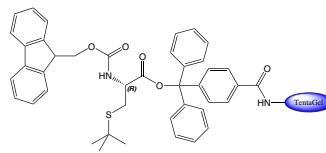


### SAL1208 Fmoc-L-Cys(S-tBu)-Trt TG

Fmoc-L-Cys(S-tBu)-Trityl TentaGel S

Mesh Size 90 µm

Loading 0.18-0.25 mmol/g

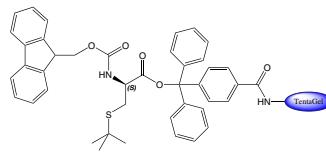


### SAD1208 Fmoc-D-Cys(S-tBu)-Trt TG

Fmoc-D-Cys(S-tBu)-Trityl TentaGel S

Mesh Size 90 µm

Loading 0.18-0.25 mmol/g

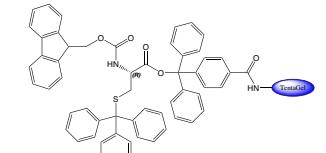


### SAL1206 Fmoc-L-Cys(Trt)-Trt TG

Fmoc-L-Cys(Trt)-Trityl TentaGel S

Mesh Size 90 µm

Loading 0.18-0.25 mmol/g



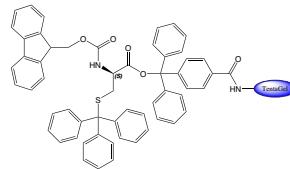
## Product details

**SAD1206 Fmoc-D-Cys(Trt)-Trt TG**

Fmoc-D-Cys(Trt)-Trityl TentaGel S

Mesh Size 90 µm

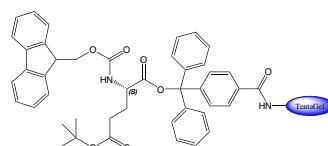
Loading 0.18-0.25 mmol/g


**SAL1212 Fmoc-L-Glu(OtBu)-Trt TG**

Fmoc-L-Glu(OtBu)-Trityl TentaGel S

Mesh Size 90 µm

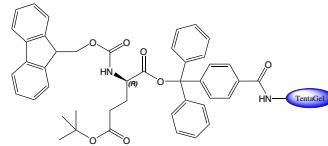
Loading 0.18-0.25 mmol/g


**SAD1212 Fmoc-D-Glu(OtBu)-Trt TG**

Fmoc-D-Glu(OtBu)-Trityl TentaGel S

Mesh Size 90 µm

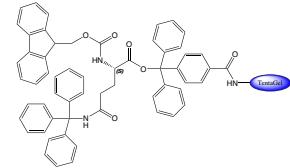
Loading 0.18-0.25 mmol/g


**SAL1210 Fmoc-L-Gln(Trt)-Trt TG**

Fmoc-L-Gln(Trt)-Trityl TentaGel S

Mesh Size 90 µm

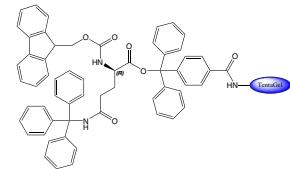
Loading 0.18-0.25 mmol/g


**SAD1210 Fmoc-D-Gln(Trt)-Trt TG**

Fmoc-D-Gln(Trt)-Trityl TentaGel S

Mesh Size 90 µm

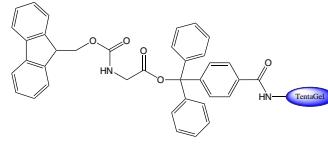
Loading 0.18-0.25 mmol/g


**SAL1213 Fmoc-Gly-Trt TG**

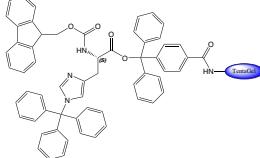
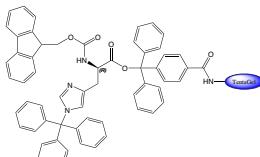
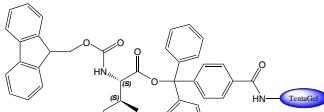
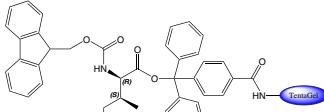
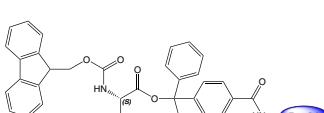
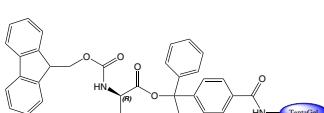
Fmoc-Gly-Trityl TentaGel S

Mesh Size 90 µm

Loading 0.18-0.25 mmol/g


[back to content ↑](#)

## Resin Guideline

		Product details
SAL1214	Fmoc-L-His(Trt)-Trt TG	<p>Fmoc-L-His(Trt)-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAD1214	Fmoc-D-His(Trt)-Trt TG	<p>Fmoc-D-His(Trt)-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAL1215	Fmoc-L-Ile-Trt TG	<p>Fmoc-L-Ile-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAD1215	Fmoc-D-Ile-Trt TG	<p>Fmoc-D-Ile-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAL1216	Fmoc-L-Leu-Trt TG	<p>Fmoc-L-Leu-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAD1216	Fmoc-D-Leu-Trt TG	<p>Fmoc-D-Leu-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  

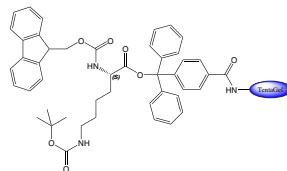
## Product details

**SAL1217 Fmoc-L-Lys(Boc)-Trt TG**

Fmoc-L-Lys(Boc)-Trityl TentaGel S

Mesh Size 90 µm

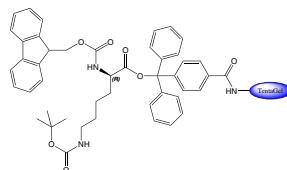
Loading 0.18-0.25 mmol/g


**SAD1217 Fmoc-D-Lys(Boc)-Trt TG**

Fmoc-D-Lys(Boc)-Trityl TentaGel S

Mesh Size 90 µm

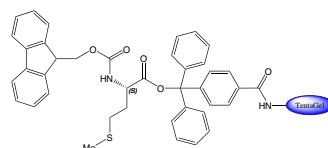
Loading 0.18-0.25 mmol/g


**SAL1218 Fmoc-L-Met-Trt TG**

Fmoc-L-Met-Trityl TentaGel S

Mesh Size 90 µm

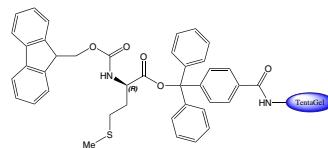
Loading 0.18-0.25 mmol/g


**SAD1218 Fmoc-D-Met-Trt TG**

Fmoc-D-Met-Trityl TentaGel S

Mesh Size 90 µm

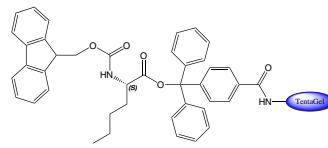
Loading 0.18-0.25 mmol/g


**SAL1219 Fmoc-L-Nle-Trt TG**

Fmoc-L-Nle-Trityl TentaGel S

Mesh Size 90 µm

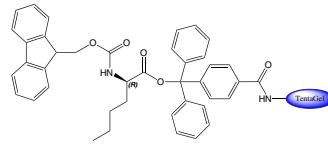
Loading 0.18-0.25 mmol/g


**SAD1219 Fmoc-D-Nle-Trt TG**

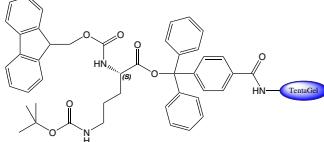
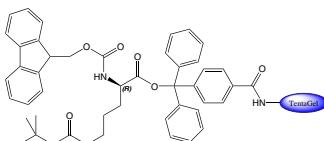
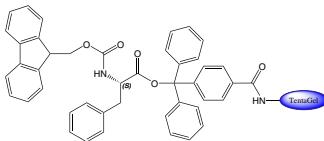
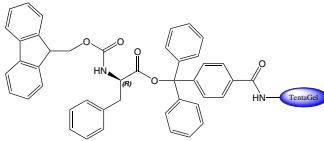
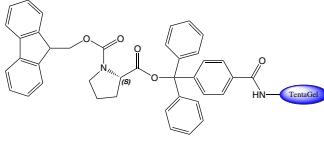
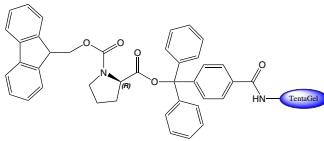
Fmoc-D-Nle-Trityl TentaGel S

Mesh Size 90 µm

Loading 0.18-0.25 mmol/g


[back to content ↑](#)

## Resin Guideline

		Product details
SAL1220	Fmoc-L-Orn(Boc)-Trt TG	<p>Fmoc-L-Orn(Boc)-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAD1220	Fmoc-D-Orn(Boc)-Trt TG	<p>Fmoc-D-Orn(Boc)-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAL1221	Fmoc-L-Phe-Trt TG	<p>Fmoc-L-Phe-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAD1221	Fmoc-D-Phe-Trt TG	<p>Fmoc-D-Phe-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAL1222	Fmoc-L-Pro-Trt TG	<p>Fmoc-L-Pro-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAD1222	Fmoc-D-Pro-Trt TG	<p>Fmoc-D-Pro-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  

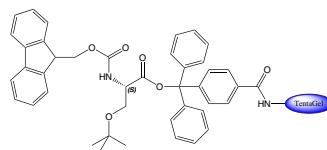
## Product details

**SAL1223 Fmoc-L-Ser(tBu)-Trt TG**

Fmoc-L-Ser(tBu)-Trityl TentaGel S

Mesh Size 90 µm

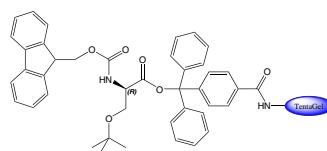
Loading 0.18-0.25 mmol/g


**SAD1223 Fmoc-D-Ser(tBu)-Trt TG**

Fmoc-D-Ser(tBu)-Trityl TentaGel S

Mesh Size 90 µm

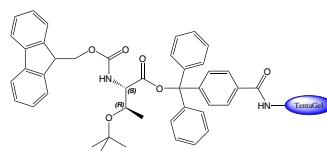
Loading 0.18-0.25 mmol/g


**SAL1224 Fmoc-L-Thr(tBu)-Trt TG**

Fmoc-L-Thr(tBu)-Trityl TentaGel S

Mesh Size 90 µm

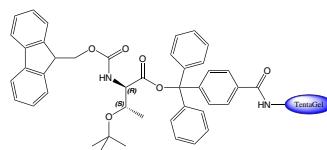
Loading 0.18-0.25 mmol/g


**SAD1224 Fmoc-D-Thr(tBu)-Trt TG**

Fmoc-D-Thr(tBu)-Trityl TentaGel S

Mesh Size 90 µm

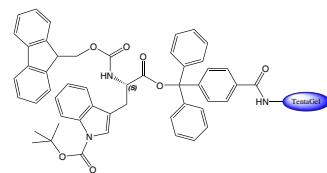
Loading 0.18-0.25 mmol/g


**SAL1228 Fmoc-L-Trp(Boc)-Trt TG**

Fmoc-L-Trp(Boc)-Trityl TentaGel S

Mesh Size 90 µm

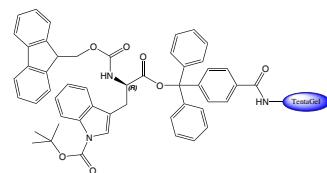
Loading 0.18-0.25 mmol/g


**SAD1228 Fmoc-D-Trp(Boc)-Trt TG**

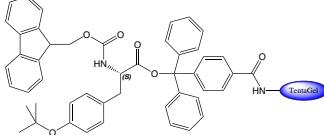
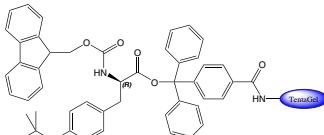
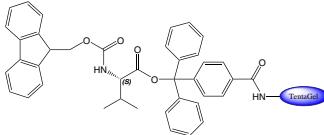
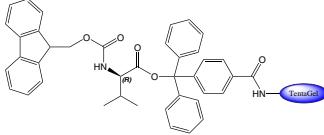
Fmoc-D-Trp(Boc)-Trityl TentaGel S

Mesh Size 90 µm

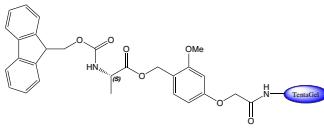
Loading 0.18-0.25 mmol/g


[back to content ↑](#)

## Resin Guideline

		Product details
SAL1226	Fmoc-L-Tyr(tBu)-Trt TG	<p>Fmoc-L-Tyr(tBu)-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAD1226	Fmoc-D-Tyr(tBu)-Trt TG	<p>Fmoc-D-Tyr(tBu)-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAL1227	Fmoc-L-Val-Trt TG	<p>Fmoc-L-Val-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  
SAD1227	Fmoc-D-Val-Trt TG	<p>Fmoc-D-Val-Trityl TentaGel S</p> <p>Mesh Size 90 µm Loading 0.18-0.25 mmol/g</p>  

### 9.2.5. Preloaded AC-TentaGel® Resins for the Synthesis of Protected Peptides

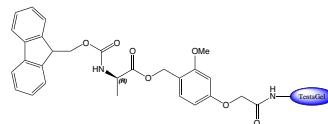
		Product details
SAL1101	Fmoc-L-Ala-AC TG	<p>Fmoc-L-Ala-[3-methoxy-4-hydroxymethyl]phenoxyacetyl] TentaGel S</p> <p>Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  

## Product details

**SAD1101 Fmoc-D-Ala-AC TG**

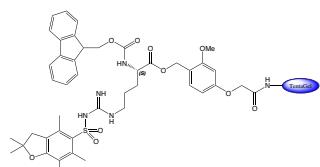
Fmoc-D-Ala-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAL1102 Fmoc-L-Arg(Pbf)-AC TG**

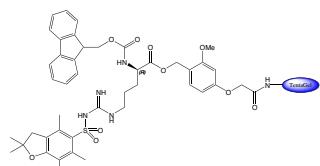
Fmoc-L-Arg(Pbf)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.15-0.25 mmol/g


**SAD1102 Fmoc-D-Arg(Pbf)-AC TG**

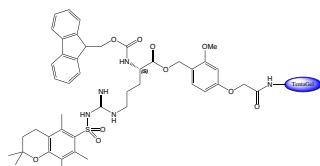
Fmoc-D-Arg(Pbf)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.15-0.25 mmol/g


**SAL1103 Fmoc-L-Arg(Pmc)-AC TG**

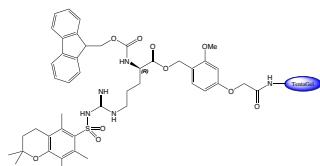
Fmoc-L-Arg(Pmc)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.15-0.25 mmol/g


**SAD1103 Fmoc-D-Arg(Pmc)-AC TG**

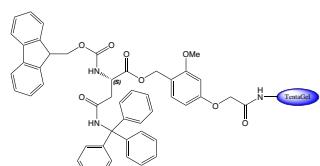
Fmoc-D-Arg(Pmc)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.15-0.25 mmol/g


**SAL1104 Fmoc-L-Asn(Trt)-AC TG**

Fmoc-L-Asn(Trt)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


[back to content ↑](#)

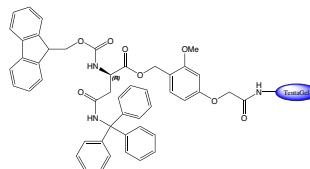
## Resin Guideline

Product details

### SAD1104 Fmoc-D-Asn(Trt)-AC TG

Fmoc-D-Asn(Trt)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

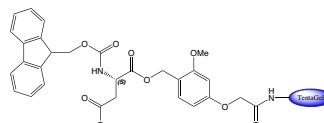
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAL1105 Fmoc-L-Asp(OtBu)-AC TG

Fmoc-L-Asp(OtBu)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

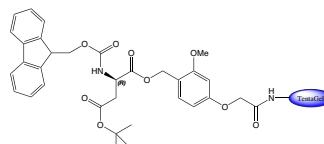
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAD1105 Fmoc-D-Asp(OtBu)-AC TG

Fmoc-D-Asp(OtBu)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

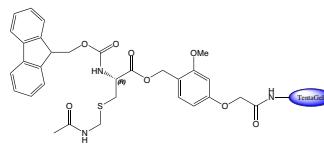
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAL1107 Fmoc-L-Cys(Acm)-AC TG

Fmoc-L-Cys(S-Acm)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

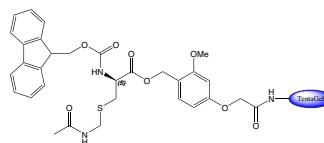
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAD1107 Fmoc-D-Cys(Acm)-AC TG

Fmoc-D-Cys(S-Acm)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

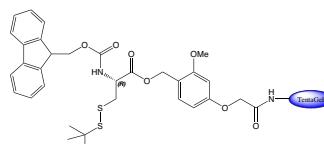
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAL1109 Fmoc-L-Cys(SS-tBu)-AC TG

Fmoc-L-Cys(S-S-tBu)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g

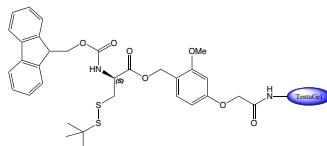


## Product details

**SAD1109 Fmoc-D-Cys(SS-tBu)-AC TG**

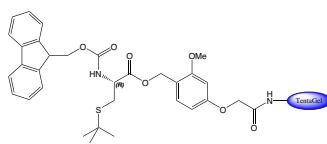
Fmoc-D-Cys(S-S-tBu)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAL1108 Fmoc-L-Cys(S-tBu)-AC TG**

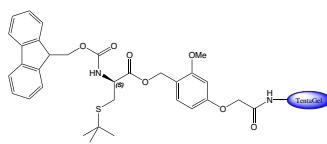
Fmoc-L-Cys(S-tBu)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAD1108 Fmoc-D-Cys(S-tBu)-AC TG**

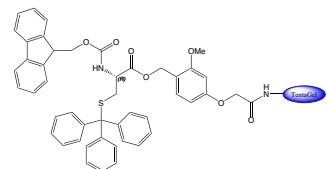
Fmoc-D-Cys(S-tBu)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAL1106 Fmoc-L-Cys(Trt)-AC TG**

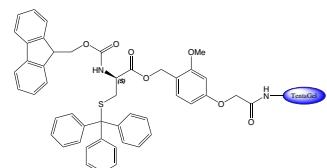
Fmoc-L-Cys(Trt)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAD1106 Fmoc-D-Cys(Trt)-AC TG**

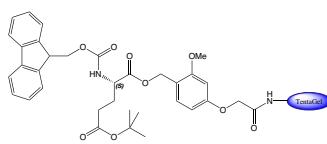
Fmoc-D-Cys(Trt)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAL1112 Fmoc-L-Glu(OtBu)-AC TG**

Fmoc-L-Glu(OtBu)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


[back to content ↑](#)

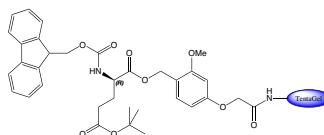
## Resin Guideline

Product details

### SAD1112 Fmoc-D-Glu(OtBu)-AC TG

Fmoc-D-Glu(OtBu)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

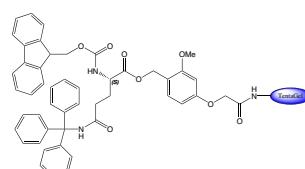
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAL1110 Fmoc-L-Gln(Trt)-AC TG

Fmoc-L-Gln(Trt)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

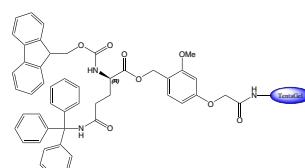
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAD1110 Fmoc-D-Gln(Trt)-AC TG

Fmoc-D-Gln(Trt)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

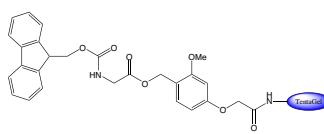
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAL1113 Fmoc-Gly-AC TG

Fmoc-Gly-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

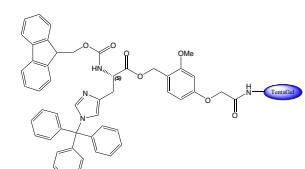
Mesh Size 90 µm  
Loading 0.2-0.22 mmol/g



### SAL1114 Fmoc-L-His(Trt)-AC TG

Fmoc-L-His(Trt)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

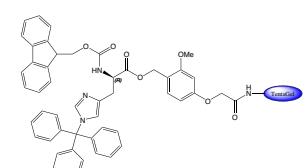
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAD1114 Fmoc-D-His(Trt)-AC TG

Fmoc-D-His(Trt)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g

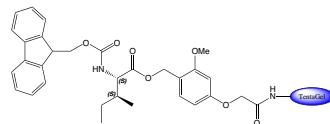


## Product details

**SAL1115 Fmoc-L-Ile-AC TG**

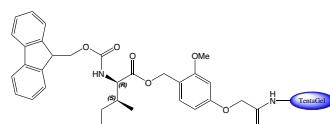
Fmoc-L-Ile-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAD1115 Fmoc-D-Ile-AC TG**

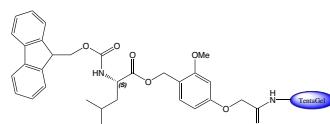
Fmoc-D-Ile-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAL1116 Fmoc-L-Leu-AC TG**

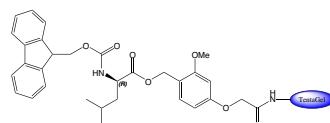
Fmoc-L-Leu-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAD1116 Fmoc-D-Leu-AC TG**

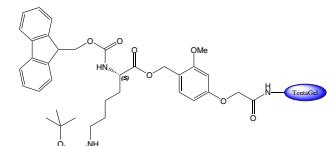
Fmoc-D-Leu-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAL1117 Fmoc-L-Lys(Boc)-AC TG**

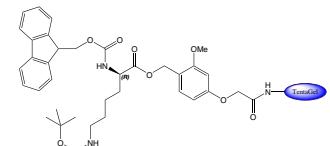
Fmoc-L-Lys(Boc)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.22 mmol/g


**SAD1117 Fmoc-D-Lys(Boc)-AC TG**

Fmoc-D-Lys(Boc)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


[back to content ↑](#)

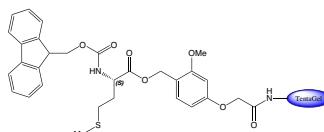
## Resin Guideline

Product details

### SAL1118 Fmoc-L-Met-AC TG

Fmoc-L-Met-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

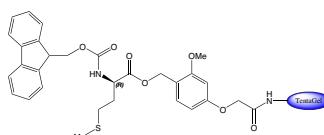
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAD1118 Fmoc-D-Met-AC TG

Fmoc-D-Met-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

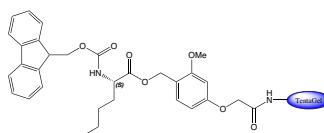
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAL1119 Fmoc-L-Nle-AC TG

Fmoc-L-Nle-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

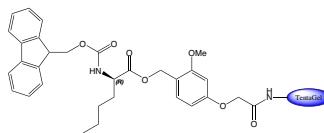
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAD1119 Fmoc-D-Nle-AC TG

Fmoc-D-Nle-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

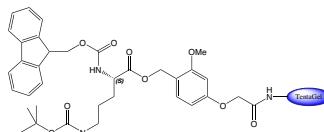
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAL1120 Fmoc-L-Orn(Boc)-AC TG

Fmoc-L-Orn(Boc)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

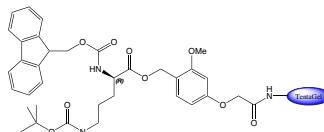
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAD1120 Fmoc-D-Orn(Boc)-AC TG

Fmoc-D-Orn(Boc)-[3-methoxy-4-hydroxymethyl)phenoxyacetyl amid] TentaGel S

Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g

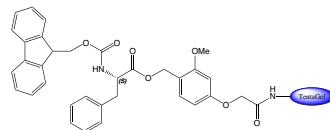


## Product details

**SAL1121 Fmoc-L-Phe-AC TG**

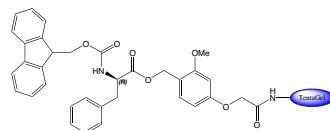
Fmoc-L-Phe-[3-methoxy-4-hydroxymethyl)phenoxyacetamid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAD1121 Fmoc-D-Phe-AC TG**

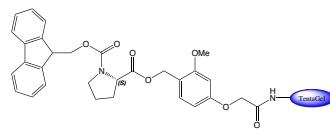
Fmoc-D-Phe-[3-methoxy-4-hydroxymethyl)phenoxyacetamid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAL1122 Fmoc-L-Pro-AC TG**

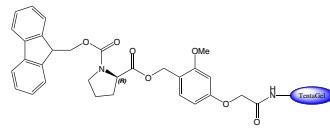
Fmoc-L-Pro-[3-methoxy-4-hydroxymethyl)phenoxyacetamid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAD1122 Fmoc-D-Pro-AC TG**

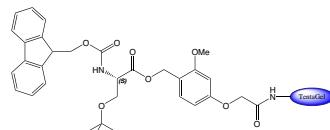
Fmoc-D-Pro-[3-methoxy-4-hydroxymethyl)phenoxyacetamid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAL1123 Fmoc-L-Ser(tBu)-AC TG**

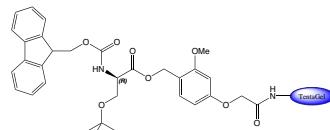
Fmoc-L-Ser(tBu)-[3-methoxy-4-hydroxymethyl)phenoxyacetamid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


**SAD1123 Fmoc-D-Ser(tBu)-AC TG**

Fmoc-D-Ser(tBu)-[3-methoxy-4-hydroxymethyl)phenoxyacetamid] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g


[back to content ↑](#)

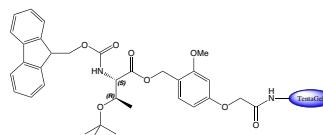
## Resin Guideline

Product details

### SAL1124 Fmoc-L-Thr(*t*Bu)-AC TG

Fmoc-L-Thr(*t*Bu)-[3-methoxy-4-hydroxymethyl)phenoxycetyl]amid] TentaGel S

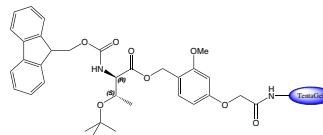
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAD1124 Fmoc-D-Thr(*t*Bu)-AC TG

Fmoc-D-Thr(*t*Bu)-[3-methoxy-4-hydroxymethyl)phenoxycetyl]amid] TentaGel S

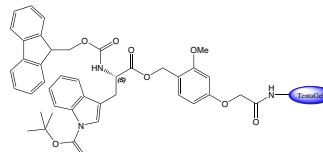
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAL1128 Fmoc-L-Trp(Boc)-AC TG

Fmoc-L-Trp(Boc)-[3-methoxy-4-hydroxymethyl)phenoxycetyl]amid] TentaGel S

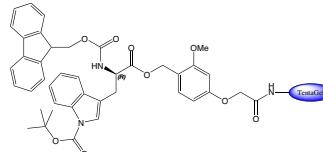
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAD1128 Fmoc-D-Trp(Boc)-AC TG

Fmoc-D-Trp(Boc)-[3-methoxy-4-hydroxymethyl)phenoxycetyl]amid] TentaGel S

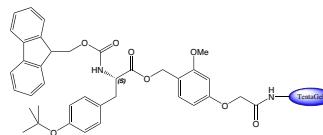
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAL1126 Fmoc-L-Tyr(*t*Bu)-AC TG

Fmoc-L-Tyr(*t*Bu)-[3-methoxy-4-hydroxymethyl)phenoxycetyl]amid] TentaGel S

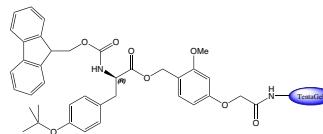
Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g



### SAD1126 Fmoc-D-Tyr(*t*Bu)-AC TG

Fmoc-D-Tyr(*t*Bu)-[3-methoxy-4-hydroxymethyl)phenoxycetyl]amid] TentaGel S

Mesh Size 90 µm  
Loading 0.2-0.25 mmol/g

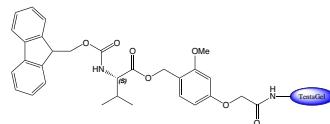


## Product details

**SAL1127 Fmoc-L-Val-AC TG**

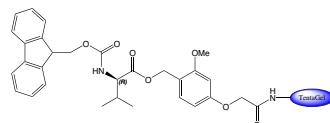
Fmoc-L-Val-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g

**SAD1127 Fmoc-D-Val-AC TG**

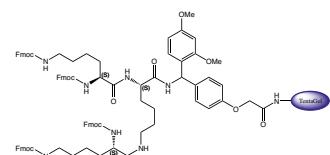
Fmoc-D-Val-[3-methoxy-4-hydroxymethyl)phenoxyacetyl] TentaGel S

Mesh Size      90 µm  
Loading        0.2-0.25 mmol/g

**SAL2023 (Fmoc)<sub>4</sub>-Lys<sub>2</sub>-Lys-Rink TG**

(Fmoc)<sub>4</sub>-Lys<sub>2</sub>-Lys-Rink TG

Loading        0.3-0.6 mmole/g



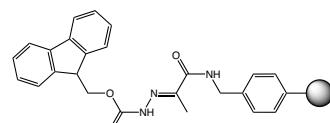
## 9.2.6. Hydrazone Resins for the Synthesis of Peptide Thio Esters and Native Chemical Ligation

## Product details

**PYV1000 Fmoc-NHN=Pyv Resin**

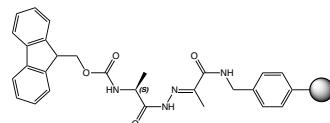
Fmoc-hydrazoneo-pyruvyl-aminomethylpolystyrene resin

Mesh Size      100-200 mesh  
Loading        > 0.3 mmol/g  
DVB            1% DVB

**PYV1100 Fmoc-L-Ala-NHN=Pyv Resin**

Fmoc-L-alanyl-hydrazoneo-pyruvyl-aminomethylpolystyrene resin

Mesh Size      100-200 mesh  
Loading        > 0.3 mmol/g  
DVB            1% DVB


[back to content ↑](#)

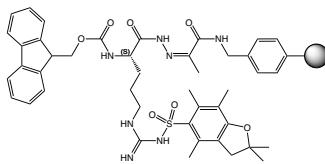
## Resin Guideline

Product details

### PYV1110 Fmoc-L-Arg(Pbf)-NHN=Pyv Resin

Fmoc-N'-2,2,4,6,7-pentamethyldihydrobenzo-furan-5-sulfonyl-L-arginyl-hydrazono-pyruvyl-amino-methylpolystyrene resin

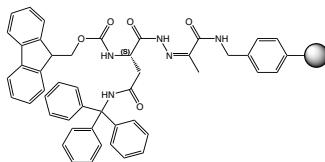
Mesh Size      100-200 mesh  
Loading        > 0.3 mmol/g  
DVB            1% DVB



### PYV1120 Fmoc-L-Asn(Trt)-NHN=Pyv Resin

Fmoc-N-beta-trityl-L-asparaginyl-hydrazono-pyruvyl-aminomethylpolystyrene resin

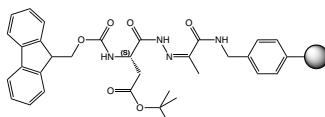
Mesh Size      100-200 mesh  
Loading        > 0.3 mmol/g  
DVB            1% DVB



### PYV1130 Fmoc-L-Asp(OtBu)-NHN=Pyv Resin

Fmoc-L-aspartyl-beta-t-butyl ester-alpha-hydrazono-pyruvyl-aminomethylpolystyrene resin

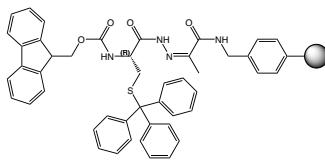
Mesh Size      100-200 mesh  
Loading        > 0.3 mmol/g  
DVB            1% DVB



### PYV1140 Fmoc-L-Cys(Trt)-NHN=Pyv Resin

Fmoc-S-trityl-L-cysteinyl-hydrazono-pyruvyl-aminomethylpolystyrene resin

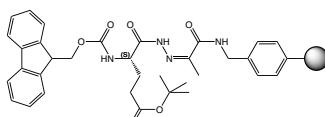
Mesh Size      100-200 mesh  
Loading        > 0.3 mmol/g  
DVB            1% DVB



### PYV1150 Fmoc-L-Glu(tBu)-NHN=Pyv Resin

Fmoc-L-glutamyl-gamma-t-butyl ester-alpha-hydrazono-pyruvyl-aminomethylpolystyrene resin

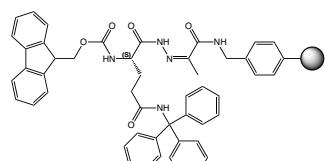
Mesh Size      100-200 mesh  
Loading        > 0.3 mmol/g  
DVB            1% DVB



### PYV1160 Fmoc-L-Gln(Trt)-NHN=Pyv Resin

Fmoc-N-gamma-trityl-L-glutaminyl-hydrazono-pyruvyl-aminomethylpolystyrene resin

Mesh Size      100-200 mesh  
Loading        > 0.3 mmol/g  
DVB            1% DVB

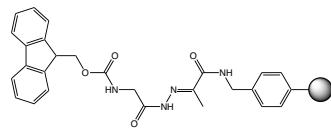


## Product details

**PYV1170 Fmoc-Gly-NHN=Pyv Resin**

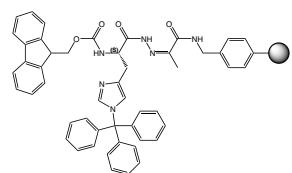
Fmoc-glycyl-hydrazone-pyruvyl-aminomethylpolystyrene resin

Mesh Size      100-200 mesh  
 Loading          > 0.3 mmol/g  
 DVB              1% DVB


**PYV1180 Fmoc-L-His(Trt)-NHN=Pyv Resin**

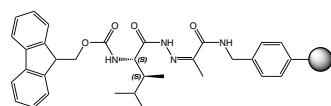
Fmoc-N-trityl-L-histidyl-hydrazone-pyruvyl-aminomethylpolystyrene resin

Mesh Size      100-200 mesh  
 Loading          > 0.3 mmol/g  
 DVB              1% DVB


**PYV1190 Fmoc-L-Ile-NHN=Pyv Resin**

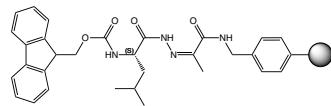
Fmoc-L-isoleucyl-hydrazone-pyruvyl-aminomethylpolystyrene resin

Mesh Size      100-200 mesh  
 Loading          > 0.3 mmol/g  
 DVB              1% DVB


**PYV1200 Fmoc-L-Leu-NHN=Pyv Resin**

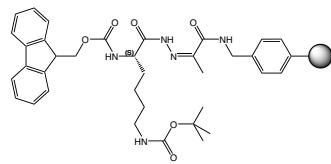
Fmoc-L-leucyl-hydrazone-pyruvyl-aminomethylpolystyrene resin

Mesh Size      100-200 mesh  
 Loading          > 0.3 mmol/g  
 DVB              1% DVB


**PYV1210 Fmoc-L-Lys(Boc)-NHN=Pyv Resin**

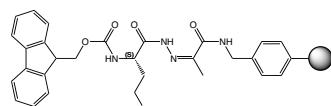
Fmoc-N-epsilon-t-butyloxycarbonyl-L-lysyl-hydrazone-pyruvyl-aminomethylpolystyrene resin

Mesh Size      100-200 mesh  
 Loading          > 0.3 mmol/g  
 DVB              1% DVB


**PYV1220 Fmoc-L-Met-NHN=Pyv Resin**

Fmoc-L-methionyl-hydrazone-pyruvyl-aminomethylpolystyrene resin

Mesh Size      100-200 mesh  
 Loading          > 0.3 mmol/g  
 DVB              1% DVB


[back to content ↑](#)

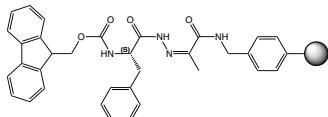
## Resin Guideline

Product details

### PYV1230 Fmoc-L-Phe-NHN=Pyv Resin

Fmoc-L-phenylalanyl-hydrazone-pyruvyl-aminomethylpolystyrene resin

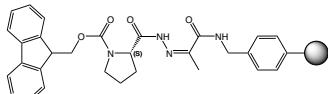
Mesh Size 100-200 mesh  
Loading > 0.3 mmol/g  
DVB 1% DVB



### PYV1240 Fmoc-L-Pro-NHN=Pyv Resin

Fmoc-L-prolinyl-hydrazone-pyruvyl-aminomethylpolystyrene resin

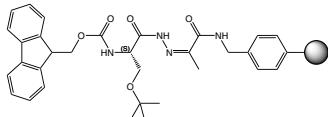
Mesh Size 100-200 mesh  
Loading > 0.3 mmol/g  
DVB 1% DVB



### PYV1250 Fmoc-L-Ser(tBu)-NHN=Pyv Resin

Fmoc-O-t-butyl-L-seryl-hydrazone-pyruvyl-aminomethylpolystyrene resin

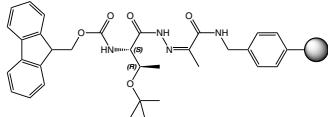
Mesh Size 100-200 mesh  
Loading > 0.3 mmol/g  
DVB 1% DVB



### PYV1260 Fmoc-L-Thr(tBu)-NHN=Pyv Resin

Fmoc-O-t-butyl-L-threonyl-hydrazone-pyruvyl-aminomethylpolystyrene resin

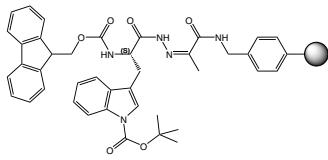
Mesh Size 100-200 mesh  
Loading > 0.3 mmol/g  
DVB 1% DVB



### PYV1270 Fmoc-L-Trp(Boc)-NHN=Pyv Resin

Fmoc-N-t-butyloxycarbonyl-L-tryptophyl-hydrazono-pyruvyl-aminomethylpolystyrene resin

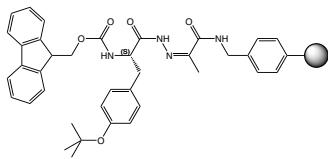
Mesh Size 100-200 mesh  
Loading > 0.3 mmol/g  
DVB 1% DVB



### PYV1280 Fmoc-L-Tyr(tBu)-NHN=Pyv Resin

Fmoc-O-t-butyl-L-tyrosyl-hydrazone-pyruvyl-aminomethylpolystyrene resin

Mesh Size 100-200 mesh  
Loading > 0.3 mmol/g  
DVB 1% DVB

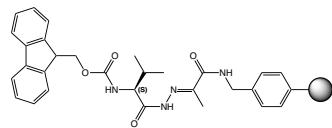


Product details

### PYV1290 Fmoc-L-Val-NHN=Pyv Resin

Fmoc-L-valyl-hydrazone-pyruvyl-aminomethylpolystyrene resin

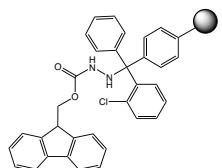
Mesh Size 100-200 mesh  
Loading > 0.3 mmol/g  
DVB 1% DVB



### BR-5279 Fmoc-NHNH-2CT Resin

Fmoc-hydrazine-2-chlorotriptyl resin

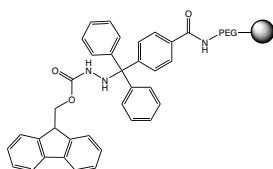
Mesh Size 100-200 mesh  
Loading 0,4-1,4 mmol/g  
DVB 1%



### BR-5280 Fmoc-NHNH-Trt-PEG Resin

Fmoc-hydrazine-trityl polyethyleneglycol resin

Loading 0,10-0,30 mmol/g  
DVB 1% DVB



#### References:

- Convenient method of peptide hydrazone synthesis using a new hydrazone resin; Pavel S. Chelushkin, Ksenia V. Polyanichko, Maria V. Leko, Marina Yu. Dorosh, Thomas Bruckdorfer, Sergey V. Burov; **Tetrahedron Lett.** 2015; **56**: 619–622. <https://doi.org/10.1016/j.tetlet.2014.12.056>
- A shelf stable Fmoc hydrazine resin for the synthesis of peptide hydrazides; M. J. Bird, P. E. Dawson; **Pept. Sci.** 2022; **114(5)**: e24268. <https://doi.org/10.1002/pep2.24268>

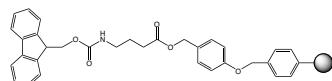
## 9.2.7. Preloaded Wang Resins and Wang-type Linkers

Product details

### WAA2630 Fmoc-4-Abu-Wang Resin

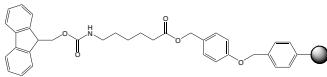
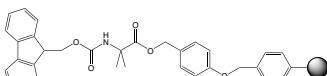
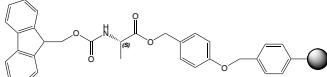
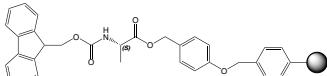
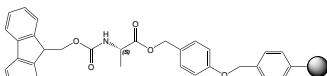
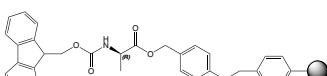
Fmoc-4-Aminobutyric acid-Wang Resin

Mesh Size 100-200 mesh  
DVB 1% DVB



**back to content ↑**

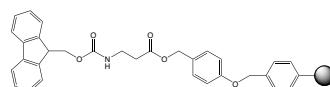
# Resin Guideline

		Product details
<b>WAA5129 Fmoc-Ahx Wang Resin</b>  Fmoc-6-Aminohexanoic acid-Wang Resin Mesh Size      100-200 mesh DVB            1% DVB		
<b>WAA5139 Fmoc-Aib-Wang Resin</b>  Fmoc-Aminoisobutyric acid-Wang Resin Mesh Size      100-200 mesh DVB            1% DVB		
<b>WAA11301 Fmoc-L-Ala-Wang Resin</b>  Fmoc-L-alanin-4-benzyloxybenzylester polymer Mesh Size      100-200 mesh Loading        0.35 - 1.3 mmol/g DVB            1% DVB		
<b>WAA11301LL Fmoc-L-Ala-Wang Resin</b>  Fmoc-L-alanin-4-benzyloxybenzylester polymer Mesh Size      100-200 mesh Loading        0.2 - 0.35 mmol/g DVB            1% DVB		
<b>WAA41301 Fmoc-L-Ala-Wang Resin</b>  Mesh Size      200-400 mesh DVB            1% DVB		
<b>RAA2001 Fmoc-D-Ala-Wang Resin</b>  Mesh Size      100-200 mesh DVB            1% DVB		

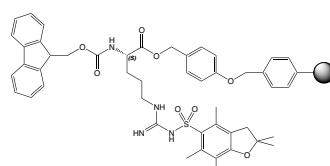
## Product details

**WAA5101 Fmoc-beta-Ala-Wang Resin**

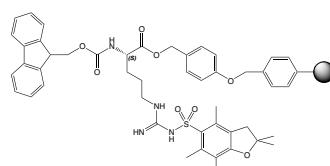
Mesh Size      100-200 mesh  
DVB            1% DVB


**WAA11302 Fmoc-L-Arg(Pbf)-Wang Resin**

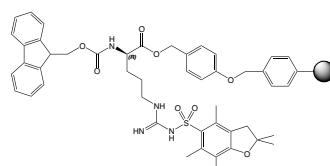
Mesh Size      100-200 mesh  
DVB            1% DVB


**WAA41302 Fmoc-L-Arg(Pbf)-Wang Resin**

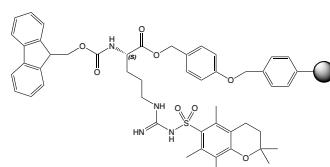
Mesh Size      200-400 mesh  
DVB            1% DVB


**WAA6109 Fmoc-D-Arg(Pbf)-Wang Resin**

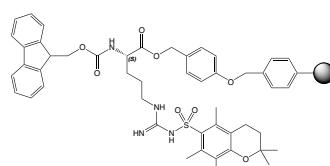
Mesh Size      100-200 mesh  
DVB            1% DVB


**WAA11303 Fmoc-L-Arg(Pmc)-Wang resin**

Mesh Size      100-200 mesh  
DVB            1% DVB


**WAA41303 Fmoc-L-Arg(Pmc)-Wang Resin**

Mesh Size      200-400 mesh  
DVB            1% DVB

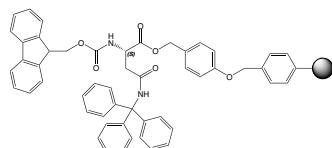

[back to content ↑](#)

# Resin Guideline

Product details

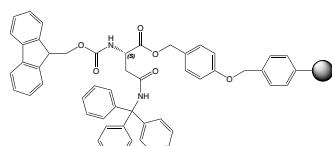
## WAA11304 Fmoc-L-Asn(Trt)-Wang Resin

Mesh Size      100-200 mesh  
DVB            1% DVB



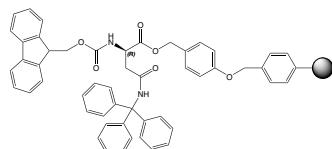
## WAA41304 Fmoc-L-Asn(Trt)-Wang Resin

Mesh Size      200-400 mesh  
DVB            1% DVB



## WAA6108 Fmoc-D-Asn(Trt)-Wang Resin

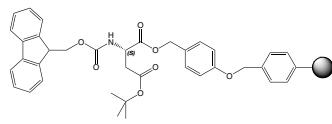
Mesh Size      100-200 mesh  
DVB            1% DVB



## WAA11305 Fmoc-L-Asp(OtBu)-Wang Resin

### Fmoc-L-Asp(OtBu)-Wang Resin

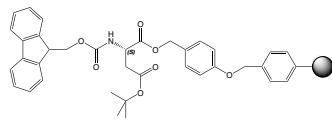
Mesh Size      100-200 mesh  
DVB            1% DVB



## WAA41305 Fmoc-L-Asp(OtBu)-Wang Resin

### Fmoc-L-Asp(OtBu)-Wang Resin

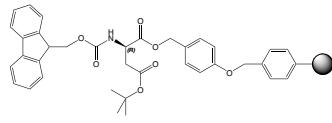
Mesh Size      200-400 mesh  
DVB            1% DVB



## WAA6110 Fmoc-D-Asp(tBu)-Wang Resin

### Fmoc-D-Asp(OBut)-Wang Resin

Mesh Size      100-200 mesh  
DVB            1% DVB

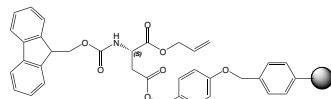


## Product details

**CAA1002 Fmoc-L-Asp(Wang-Resin)-OAll**

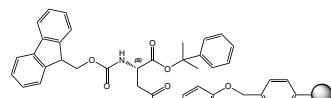
N-alpha-(9-Fluorenylmethyloxycarbonyl)-L-Asp(Wang-Resin)-OAll

Mesh Size      100-200 mesh  
 Loading        0.15-0.5 mmol/g  
 DVB            1% DVB

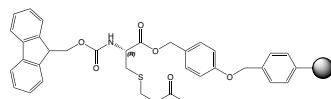

**CAA1010 Fmoc-Asp(Wang Resin)-OPP**

N-alpha-(9-Fluorenylmethyloxycarbonyl)-L-aspartic acid-beta-(Wang-Resin)-alpha-2-phenylisopropyl ester

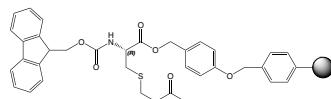
Mesh Size      100-200 mesh


**WAA11307 Fmoc-L-Cys(Acm)-Wang Resin**

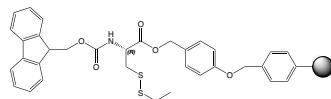
Fmoc-L-Cys(S-Acm)-Wang Resin  
 Mesh Size      100-200 mesh  
 DVB            1% DVB


**WAA41307 Fmoc-L-Cys(Acm)-Wang Resin**

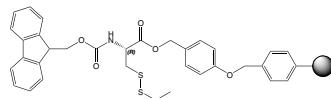
Fmoc-L-Cys(S-Acm)-Wang Resin  
 Mesh Size      200-400 mesh  
 DVB            1% DVB


**WAA11309 Fmoc-L-Cys(SS-tBu)-Wang Resin**

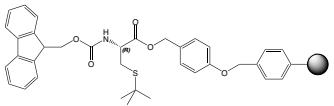
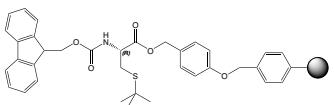
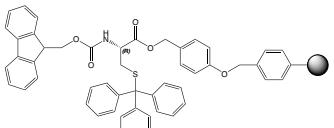
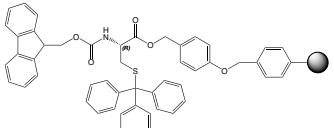
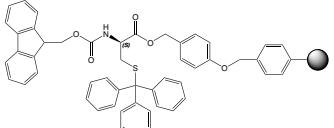
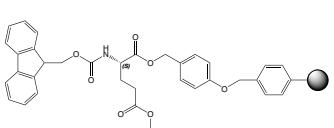
Fmoc-L-Cys(S-S-tBu)-Wang Resin  
 Mesh Size      100-200 mesh  
 DVB            1% DVB


**WAA41309 Fmoc-L-Cys(SS-tBu)-Wang Resin**

Fmoc-L-Cys(S-S-tBu)-Wang Resin  
 Mesh Size      200-400 mesh  
 DVB            1% DVB


[back to content ↑](#)

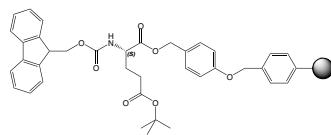
## Resin Guideline

		Product details
<b>WAA11308 Fmoc-L-Cys(S-tBu)-Wang Resin</b>	Mesh Size DVB	100-200 mesh 1% DVB
		 A chemical structure diagram showing a resin bead (black sphere) attached via a linker to a cysteine residue. The cysteine side chain is substituted with a tert-butyl group (S-tBu). The linker consists of a Wang resin support (4-hydroxyphenyl ring), a methylene group, and a carbamate linkage (-NH-CO-O-CO-NH-) to a trityl group (tritylphenyl ring).
		
<b>WAA41308 Fmoc-L-Cys(S-tBu)-Wang Resin</b>	Mesh Size DVB	200-400 mesh 1% DVB
		 A chemical structure diagram showing a resin bead (black sphere) attached via a linker to a cysteine residue. The cysteine side chain is substituted with a tert-butyl group (S-tBu). The linker consists of a Wang resin support (4-hydroxyphenyl ring), a methylene group, and a carbamate linkage (-NH-CO-O-CO-NH-) to a trityl group (tritylphenyl ring).
		
<b>WAA11306 Fmoc-L-Cys(Trt)-Wang Resin</b>	Mesh Size DVB	100-200 mesh 1% DVB
		 A chemical structure diagram showing a resin bead (black sphere) attached via a linker to a cysteine residue. The cysteine side chain is substituted with a trityl group (Trt). The linker consists of a Wang resin support (4-hydroxyphenyl ring), a methylene group, and a carbamate linkage (-NH-CO-O-CO-NH-) to a trityl group (tritylphenyl ring).
		
<b>WAA41306 Fmoc-L-Cys(Trt)-Wang Resin</b>	Mesh Size DVB	200-400 mesh 1% DVB
		 A chemical structure diagram showing a resin bead (black sphere) attached via a linker to a cysteine residue. The cysteine side chain is substituted with a trityl group (Trt). The linker consists of a Wang resin support (4-hydroxyphenyl ring), a methylene group, and a carbamate linkage (-NH-CO-O-CO-NH-) to a trityl group (tritylphenyl ring).
		
<b>WAA6118 Fmoc-D-Cys(Trt)-Wang Resin</b>	Mesh Size DVB	100-200 mesh 1% DVB
		 A chemical structure diagram showing a resin bead (black sphere) attached via a linker to a cysteine residue. The cysteine side chain is substituted with a trityl group (Trt). The linker consists of a Wang resin support (4-hydroxyphenyl ring), a methylene group, and a carbamate linkage (-NH-CO-O-CO-NH-) to a trityl group (tritylphenyl ring).
		
<b>WAA11312 Fmoc-L-Glu(OtBu)-Wang Resin</b>	Mesh Size DVB	100-200 mesh 1% DVB
		 A chemical structure diagram showing a resin bead (black sphere) attached via a linker to a glutamic acid residue. The glutamic acid side chain is substituted with a tert-butyl group (OtBu). The linker consists of a Wang resin support (4-hydroxyphenyl ring), a methylene group, and a carbamate linkage (-NH-CO-O-CO-NH-) to a trityl group (tritylphenyl ring).
		

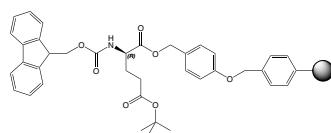
## Product details

**WAA41312 Fmoc-L-Glu(OtBu)-Wang Resin**

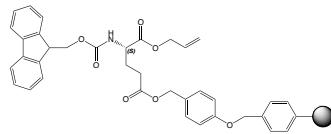
Mesh Size      200-400 mesh  
DVB            1% DVB


**WAA6120 Fmoc-D-Glu(OtBu)-Wang Resin**

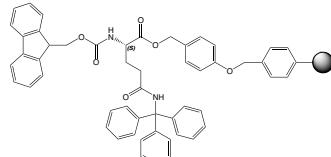
Fmoc-D-Glu(OtBu)-Wang Resin  
Mesh Size      100-200 mesh  
DVB            1% DVB


**CAA1004 Fmoc-L-Glu(Wang-Resin)-OAll**

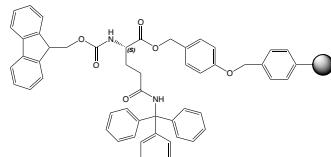
Mesh Size      100-200 mesh  
Loading        0.15-0.5 mmol/g  
DVB            1% DVB


**WAA11310 Fmoc-L-Gln(Trt)-Wang Resin**

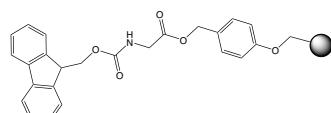
Mesh Size      100-200 mesh  
DVB            1% DVB


**WAA41310 Fmoc-L-Gln(Trt)-Wang Resin**

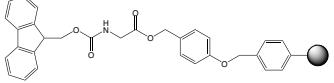
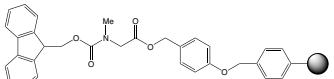
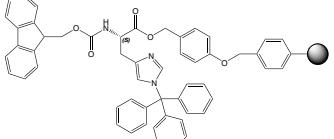
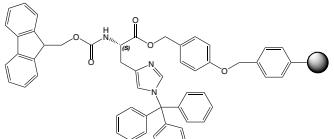
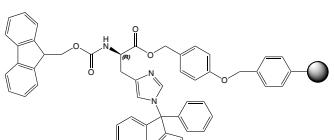
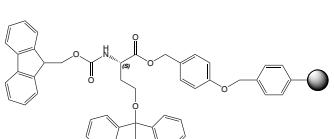
Mesh Size      200-400 mesh  
DVB            1% DVB


**WAA11313 Fmoc-Gly-Wang Resin**

Mesh Size      100-200 mesh  
DVB            1% DVB


[back to content ↑](#)

## Resin Guideline

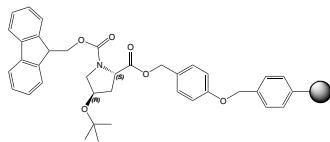
		Product details
<b>WAA41313 Fmoc-Gly-Wang Resin</b>	Mesh Size DVB	200-400 mesh 1% DVB
		 
<b>WAA5132 Fmoc-Sar-Wang Resin</b>	Mesh Size DVB	100-200 mesh 1% DVB
		 
<b>WAA11314 Fmoc-L-His(Trt)-Wang Resin</b>	Mesh Size DVB	100-200 mesh 1% DVB
		 
<b>WAA41314 Fmoc-L-His(Trt)-Wang Resin</b>	Mesh Size DVB	200-400 mesh 1% DVB
		 
<b>WAA6136 Fmoc-D-His(Trt)-Wang Resin</b>	Mesh Size DVB	100-200 mesh 1% DVB
		 
<b>WAA2445 Fmoc-L-Hse(Trt)-Wang Resin</b>	Mesh Size DVB	100-200 mesh 1% DVB
		 

## Product details

**WAA5167 Fmoc-L-Hyp(tBu)-Wang Resin**

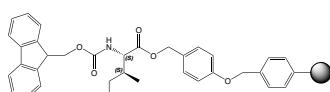
Mesh Size  
DVB

100-200 mesh  
1% DVB


**WAA11315 Fmoc-L-Ile-Wang Resin**

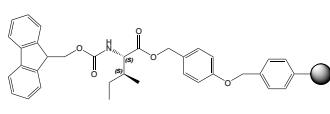
Mesh Size  
DVB

100-200 mesh  
1% DVB


**WAA41315 Fmoc-L-Ile-Wang Resin**

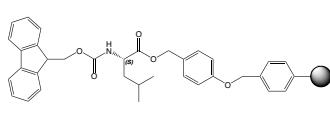
Mesh Size  
DVB

200-400 mesh  
1% DVB


**WAA11316 Fmoc-L-Leu-Wang Resin**

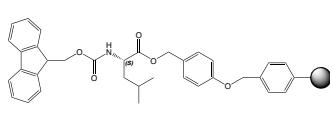
Mesh Size  
DVB

100-200 mesh  
1% DVB


**WAA41316 Fmoc-L-Leu-Wang Resin**

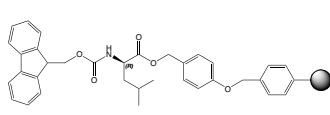
Mesh Size  
DVB

200-400 mesh  
1% DVB

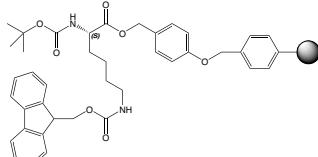
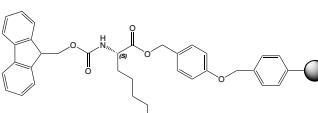
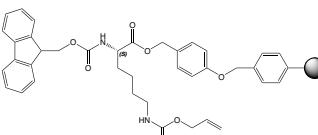
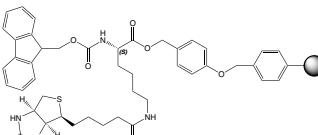
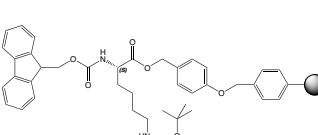
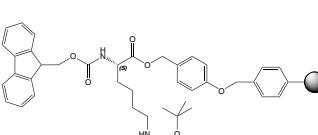

**WAA6145 Fmoc-D-Leu-Wang Resin**

Mesh Size  
DVB

100-200 mesh  
1% DVB


[back to content ↑](#)

## Resin Guideline

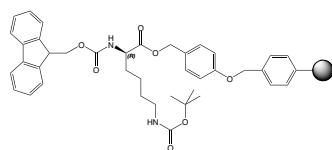
		Product details
<b>WAA5151</b>	<b>Boc-L-Lys(Fmoc)-Wang Resin</b>	 
Mesh Size DVB	100-200 mesh 1% DVB	
<b>WAA5155</b>	<b>Fmoc-L-Lys-Wang Resin</b>	 
Mesh Size DVB	100-200 mesh 1% DVB	
<b>WAA5153</b>	<b>Fmoc-L-Lys(Aloc)-Wang Resin</b>	 
Mesh Size DVB	100-200 mesh 1% DVB	
<b>WAA5154</b>	<b>Fmoc-L-Lys(Biotin)-Wang Resin</b>	 
Mesh Size DVB	100-200 mesh 1% DVB	
<b>WAA11317</b>	<b>Fmoc-L-Lys(Boc)-Wang Resin</b>	 
Mesh Size DVB	100-200 mesh 1% DVB	
<b>WAA41317</b>	<b>Fmoc-L-Lys(Boc)-Wang Resin</b>	 
Mesh Size DVB	200-400 mesh 1% DVB	

## Product details

**WAA6150 Fmoc-D-Lys(Boc)-Wang Resin**

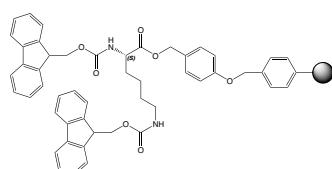
Mesh Size  
DVB

100-200 mesh  
1% DVB


**WAA5156 Fmoc-L-Lys(Fmoc) Wang Resin**

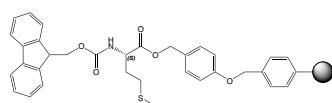
Mesh Size  
DVB

100-200 mesh  
1% DVB


**WAA11318 Fmoc-L-Met-Wang Resin**

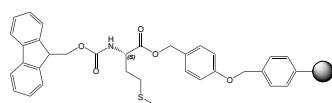
Mesh Size  
DVB

100-200 mesh  
1% DVB


**WAA41318 Fmoc-L-Met-Wang Resin**

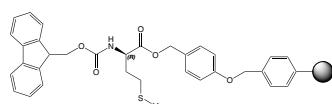
Mesh Size  
DVB

200-400 mesh  
1% DVB


**WAA6155 Fmoc-D-Met-Wang Resin**

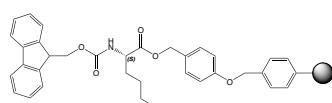
Mesh Size  
DVB

100-200 mesh  
1% DVB

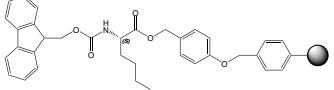
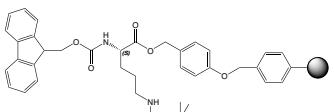
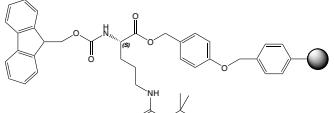
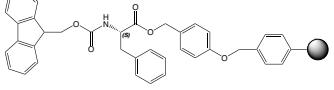
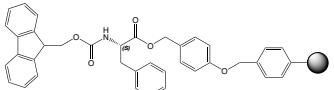
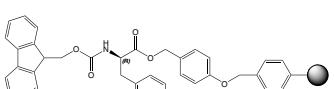

**WAA11319 Fmoc-L-Nle-Wang Resin**

Mesh Size  
DVB

100-200 mesh  
1% DVB


[back to content ↑](#)

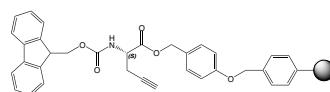
## Resin Guideline

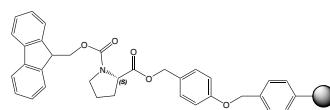
		Product details
<b>WAA41319 Fmoc-L-Nle-Wang Resin</b>	Mesh Size DVB	200-400 mesh 1% DVB
		 
<b>WAA11320 Fmoc-L-Orn(Boc)-Wang Resin</b>	Mesh Size DVB	100-200 mesh 1% DVB
		 
<b>WAA41320 Fmoc-L-Orn(Boc)-Wang Resin</b>	Mesh Size DVB	200-400 mesh 1% DVB
		 
<b>WAA11321 Fmoc-L-Phe-Wang Resin</b>	Mesh Size DVB	100-200 mesh 1% DVB
		 
<b>WAA41321 Fmoc-L-Phe-Wang Resin</b>	Mesh Size DVB	200-400 mesh 1% DVB
		 
<b>WAA6160 Fmoc-D-Phe-Wang Resin</b>	Mesh Size DVB	100-200 mesh 1% DVB
		 

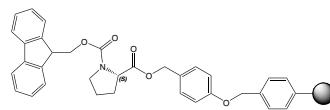
## Product details

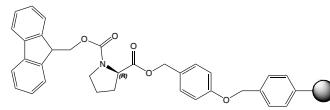
**WAA6025 Fmoc-L-Pra-Wang Resin**

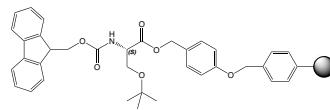
Fmoc-L-Propargylglycine-Wang Resin

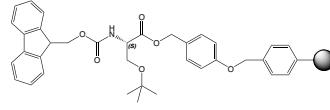
 Mesh Size      100-200 mesh  
 DVB            1% DVB

**WAA11322 Fmoc-L-Pro-Wang Resin**

 Mesh Size      100-200 mesh  
 DVB            1% DVB

**WAA41322 Fmoc-L-Pro-Wang Resin**

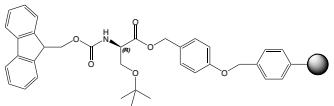
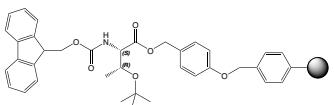
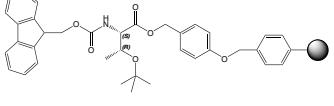
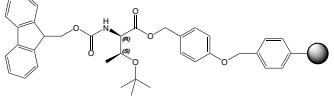
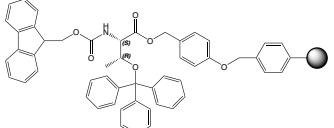
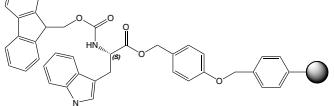
 Mesh Size      200-400 mesh  
 DVB            1% DVB

**WAA6165 Fmoc-D-Pro-Wang Resin**

 Mesh Size      100-200 mesh  
 DVB            1% DVB

**WAA11323 Fmoc-L-Ser(tBu)-Wang Resin**

 Mesh Size      100-200 mesh  
 DVB            1% DVB

**WAA41323 Fmoc-L-Ser(tBu)-Wang Resin**

 Mesh Size      200-400 mesh  
 DVB            1% DVB

[back to content ↑](#)

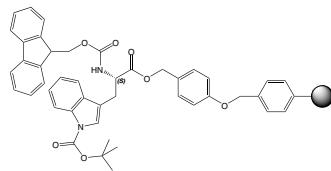
## Resin Guideline

		Product details
<b>WAA6170</b>	<b>Fmoc-D-Ser(tBu)-Wang Resin</b>	 
Mesh Size DVB	100-200 mesh 1% DVB	
<b>WAA11324</b>	<b>Fmoc-L-Thr(tBu)-Wang Resin</b>	 
Mesh Size DVB	100-200 mesh 1% DVB	
<b>WAA41324</b>	<b>Fmoc-L-Thr(tBu)-Wang Resin</b>	 
Mesh Size DVB	200-400 mesh 1% DVB	
<b>WAA6175</b>	<b>Fmoc-D-Thr(tBu)-Wang Resin</b>	 
Mesh Size DVB	100-200 mesh 1% DVB	
<b>WAA6220</b>	<b>Fmoc-L-Thr(Trt)-Wang Resin</b> Fmoc-L-Threonine(Trityl)-Wang Resin	 
Mesh Size DVB	100-200 1%	
<b>WAA11328</b>	<b>Fmoc-L-Trp(Boc)-Wang Resin</b>	 
Mesh Size DVB	100-200 mesh 1% DVB	

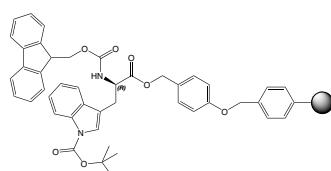
## Product details

**WAA41328 Fmoc-L-Trp(Boc)-Wang Resin**

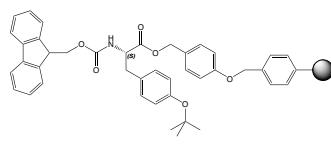
Mesh Size      200-400 mesh  
 DVB            1% DVB


**WAA6181 Fmoc-D-Trp(Boc)-Wang Resin**

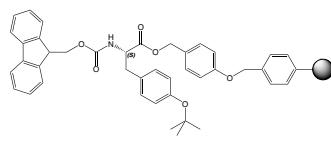
Mesh Size      100-200 mesh  
 DVB            1% DVB


**WAA11326 Fmoc-L-Tyr(tBu)-Wang Resin**

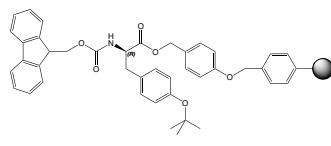
Mesh Size      100-200 mesh  
 DVB            1% DVB


**WAA41326 Fmoc-L-Tyr(tBu)-Wang Resin**

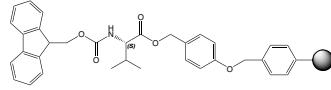
Mesh Size      200-400 mesh  
 DVB            1% DVB


**WAA6185 Fmoc-D-Tyr(tBu)-Wang Resin**

Mesh Size      100-200 mesh  
 DVB            1% DVB


**WAA11327 Fmoc-L-Val-Wang Resin**

Mesh Size      100-200 mesh  
 DVB            1% DVB

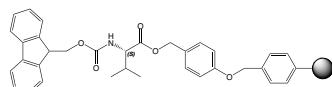

[back to content ↑](#)

# Resin Guideline

Product details

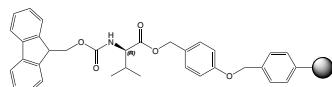
## WAA41327 Fmoc-L-Val-Wang Resin

Mesh Size      200-400 mesh  
DVB            1% DVB



## WAA6190 Fmoc-D-Val-Wang Resin

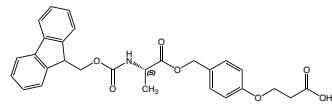
Mesh Size      100-200 mesh  
DVB            1% DVB



## LW00102 Fmoc-L-Ala-MPPA

N-alpha-(9-Fluorenylmethyloxycarbonyl)-L-alanine-3-(4-oxymethylphenoxy)propionic acid

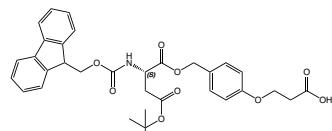
CAS-No.        864876-89-1  
Formula         C<sub>28</sub>H<sub>27</sub>NO<sub>7</sub>  
Mol. weight    489,52 g/mol



## LW00402 Fmoc-L-Asp(OtBu)-MPPA

N-alpha-(9-Fluorenylmethyloxycarbonyl)-L-aspartic acid beta-t-butyl ester-3-(4-oxymethylphenoxy)propionic acid

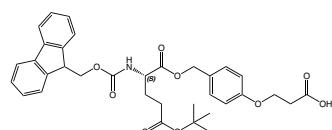
CAS-No.        864876-94-8  
Formula         C<sub>33</sub>H<sub>35</sub>NO<sub>9</sub>  
Mol. weight    589,64 g/mol



## LW00602 Fmoc-L-Glu(OtBu)-MPPA

N-alpha-(9-Fluorenylmethyloxycarbonyl)-L-glutamic-acid-gamma-t-butyl ester-3-(4-oxymethylphenoxy)propionic acid

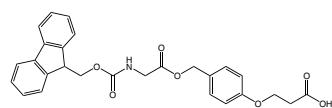
CAS-No.        864876-95-9  
Formula         C<sub>34</sub>H<sub>37</sub>NO<sub>9</sub>  
Mol. weight    603,67 g/mol



## LW00802 Fmoc-Gly-MPPA

N-alpha-(9-Fluorenylmethyloxycarbonyl)-glycine-3-(4-oxymethylphenoxy)propionic acid

CAS-No.        130914-04-4  
Formula         C<sub>27</sub>H<sub>25</sub>NO<sub>7</sub>  
Mol. weight    475,50 g/mol

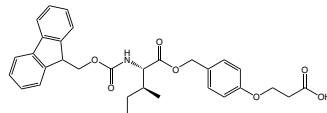


## Product details

**LW01002 Fmoc-L-Ile-MPPA**

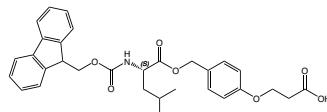
N-alpha-(9-Fluorenylmethyloxycarbonyl)-L-isoleucine-3-(4-oxyethylphenoxy)propionic acid

CAS-No. 864876-91-5  
 Formula C<sub>31</sub>H<sub>33</sub>NO<sub>7</sub>  
 Mol. weight 531,61 g/mol


**LW01102 Fmoc-L-Leu-MPPA**

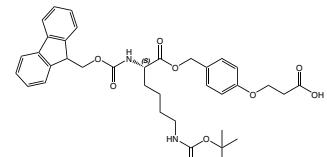
N-alpha-(9-Fluorenylmethyloxycarbonyl)-L-leucine-3-(4-oxyethylphenoxy)propionic acid

CAS-No. 864876-90-4  
 Formula C<sub>31</sub>H<sub>33</sub>NO<sub>7</sub>  
 Mol. weight 531,61 g/mol


**LW01202 Fmoc-L-Lys(Boc)-MPPA**

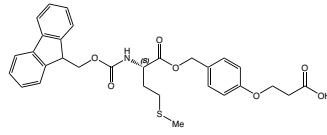
N-alpha-(9-Fluorenylmethyloxycarbonyl)-N-epsilon-t-butyloxycarbonyl-L-lysine-3-(4-oxyethylphenoxy)propionic acid

CAS-No. 1356004-85-7  
 Formula C<sub>36</sub>H<sub>42</sub>N<sub>2</sub>O<sub>9</sub>  
 Mol. weight 646,74 g/mol


**LW01302 Fmoc-L-Met-MPPA**

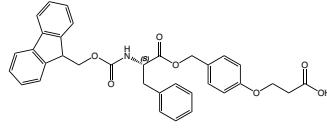
N-alpha-(9-Fluorenylmethyloxycarbonyl)-L-methionine-3-(4-oxyethylphenoxy)propionic acid

CAS-No. 864876-93-7  
 Formula C<sub>30</sub>H<sub>31</sub>NO<sub>5</sub>S  
 Mol. weight 549,64 g/mol


**LW01402 Fmoc-L-Phe-MPPA**

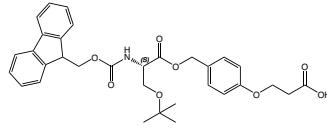
N-alpha-(9-Fluorenylmethyloxycarbonyl)-L-phenylalanine-3-(4-oxyethylphenoxy)propionic acid

CAS-No. 864876-92-6  
 Formula C<sub>34</sub>H<sub>31</sub>NO<sub>7</sub>  
 Mol. weight 565,62 g/mol

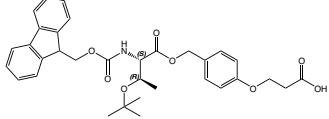
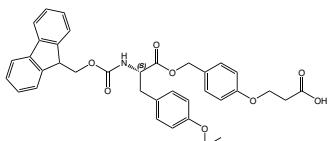
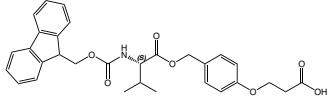

**LW01602 Fmoc-L-Ser(tBu)-MPPA**

N-alpha-(9-Fluorenylmethyloxycarbonyl)-O-t-butyl-L-serine-3-(4-oxyethylphenoxy)propionic acid

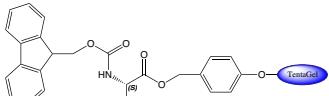
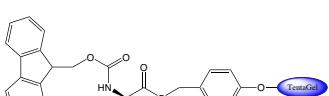
CAS-No. 864876-96-0  
 Formula C<sub>32</sub>H<sub>35</sub>NO<sub>8</sub>  
 Mol. weight 561,63 g/mol


[back to content ↑](#)

## Resin Guideline

		Product details
LW01702	Fmoc-L-Thr( <i>t</i> Bu)-MPPA	<p>N-alpha-(9-Fluorenylmethyloxycarbonyl)-O-<i>t</i>-butyl-L-threonine-3-(4-oxymethylphenoxy)propionic acid</p> <p>CAS-No. 864876-97-1 Formula C<sub>33</sub>H<sub>37</sub>NO<sub>8</sub> Mol. weight 575,66 g/mol</p>  
LW01902	Fmoc-L-Tyr( <i>t</i> Bu)-MPPA	<p>N-alpha-(9-Fluorenylmethyloxycarbonyl)-O-<i>t</i>-butyl-L-tyrosine-3-(4-oxymethylphenoxy)propionic acid</p> <p>CAS-No. 864876-98-2 Formula C<sub>38</sub>H<sub>41</sub>NO<sub>8</sub> Mol. weight 637,73 g/mol</p>  
LW02002	Fmoc-L-Val-MPPA	<p>N-alpha-(9-Fluorenylmethyloxycarbonyl)-L-valine-3-(4-oxymethylphenoxy)propionic acid</p> <p>CAS-No. 864876-78-8 Formula C<sub>30</sub>H<sub>31</sub>NO<sub>7</sub> Mol. weight 517,58 g/mol</p>  

### 9.2.8. Preloaded Wang-TentaGel® Resins

		Product details
SAL1301	Fmoc-L-Ala-Wang TG	<p>Fmoc-L-Ala-Wang TentaGel S</p> <p>Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  
SAD1301	Fmoc-D-Ala-Wang TG	<p>Fmoc-D-Ala-Wang TentaGel S</p> <p>Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  

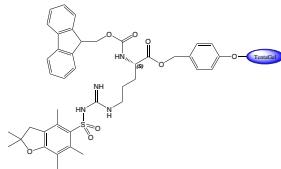
## Product details

**SAL1302 Fmoc-L-Arg(Pbf)-Wang TG**

Fmoc-L-Arg(Pbf)-Wang TentaGel S

Mesh Size 90 µm

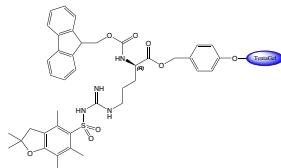
Loading 0.15-0.25 mmol/g


**SAD1302 Fmoc-D-Arg(Pbf)-Wang TG**

Fmoc-D-Arg(Pbf)-Wang TentaGel S

Mesh Size 90 µm

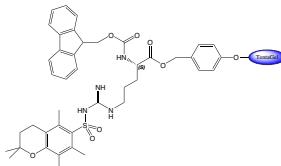
Loading 0.15-0.25 mmol/g


**SAL1303 Fmoc-L-Arg(Pmc)-Wang TG**

Fmoc-L-Arg(Pmc)-Wang TentaGel S

Mesh Size 90 µm

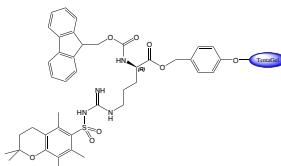
Loading 0.15-0.25 mmol/g


**SAD1303 Fmoc-D-Arg(Pmc)-Wang TG**

Fmoc-D-Arg(Pmc)-Wang TentaGel S

Mesh Size 90 µm

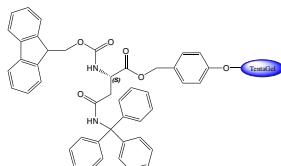
Loading 0.15-0.25 mmol/g


**SAL1304 Fmoc-L-Asn(Trt)-Wang TG**

Fmoc-L-Asn(Trt)-Wang TentaGel S

Mesh Size 90 µm

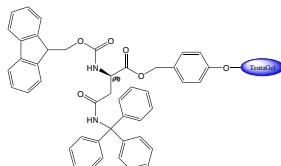
Loading 0.2-0.25 mmol/g


**SAD1304 Fmoc-D-Asn(Trt)-Wang TG**

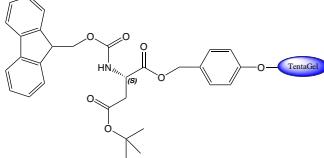
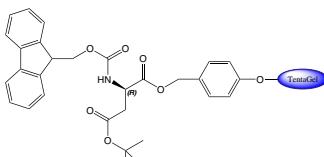
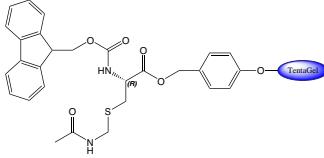
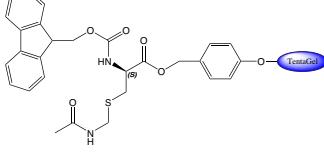
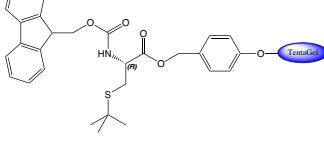
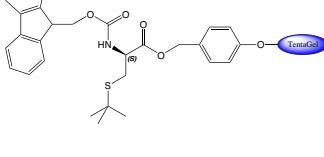
Fmoc-D-Asn(Trt)-Wang TentaGel S

Mesh Size 90 µm

Loading 0.2-0.25 mmol/g


[back to content ↑](#)

## Resin Guideline

		Product details
SAL1305	Fmoc-L-Asp(OtBu)-Wang TG	 
	Fmoc-L-Asp(OtBu)-Wang TentaGel S	
Mesh Size	90 µm	
Loading	0.2-0.25 mmol/g	
SAD1305	Fmoc-D-Asp(OtBu)-Wang TG	 
	Fmoc-D-Asp(OtBu)-Wang TentaGel S	
Mesh Size	90 µm	
Loading	0.2-0.25 mmol/g	
SAL1307	Fmoc-L-Cys(Acm)-Wang TG	 
	Fmoc-L-Cys(S-Acm)-Wang TentaGel S	
Mesh Size	90 µm	
Loading	0.2-0.25 mmol/g	
SAD1307	Fmoc-D-Cys(Acm)-Wang TG	 
	Fmoc-D-Cys(S-Acm)-Wang TentaGel S	
Mesh Size	90 µm	
Loading	0.2-0.25 mmol/g	
SAL1308	Fmoc-L-Cys(S-tBu)-Wang TG	 
	Fmoc-L-Cys(S-tBu)-Wang TentaGel S	
Mesh Size	90 µm	
Loading	0.2-0.25 mmol/g	
SAD1308	Fmoc-D-Cys(S-tBu)-Wang TG	 
	Fmoc-D-Cys(S-tBu)-Wang TentaGel S	
Mesh Size	90 µm	
Loading	0.2-0.25 mmol/g	

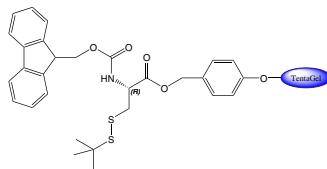
## Product details

**SAL1309 Fmoc-L-Cys(SS-tBu)-Wang TG**

Fmoc-L-Cys(S-S-tBu)-Wang TentaGel S

Mesh Size 90 µm

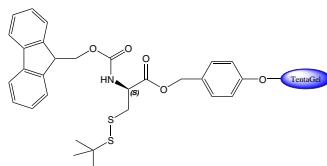
Loading 0.2-0.25 mmol/g


**SAD1309 Fmoc-D-Cys(SS-tBu)-Wang TG**

Fmoc-D-Cys(S-S-tBu)-Wang TentaGel S

Mesh Size 90 µm

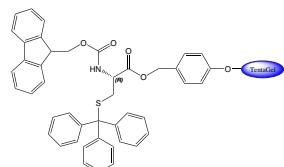
Loading 0.2-0.25 mmol/g


**SAL1306 Fmoc-L-Cys(Trt)-Wang TG**

Fmoc-L-Cys(Trt)-Wang TentaGel S

Mesh Size 90 µm

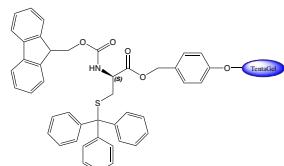
Loading 0.2-0.25 mmol/g


**SAD1306 Fmoc-D-Cys(Trt)-Wang TG**

Fmoc-D-Cys(Trt)-Wang TentaGel S

Mesh Size 90 µm

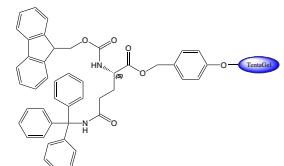
Loading 0.2-0.25 mmol/g


**SAL1310 Fmoc-L-Gln(Trt)-Wang TG**

Fmoc-L-Gln(Trt)-Wang TentaGel S

Mesh Size 90 µm

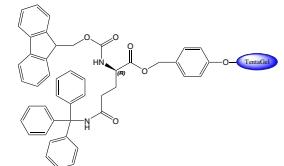
Loading 0.2-0.25 mmol/g


**SAD1310 Fmoc-D-Gln(Trt)-Wang TG**

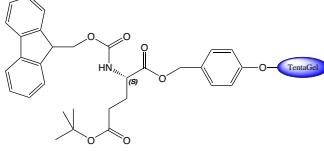
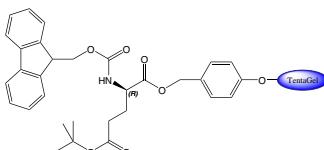
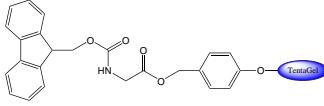
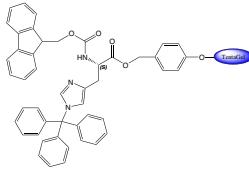
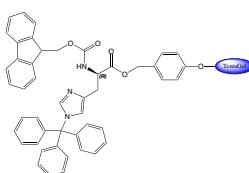
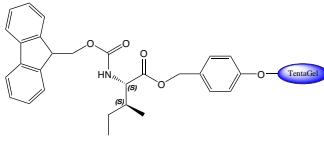
Fmoc-D-Gln(Trt)-Wang TentaGel S

Mesh Size 90 µm

Loading 0.2-0.25 mmol/g


[back to content ↑](#)

## Resin Guideline

		Product details
SAL1312	Fmoc-L-Glu(OtBu)-Wang TG	<p>Fmoc-L-Glu(OtBu)-Wang TentaGel S Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  
SAD1312	Fmoc-D-Glu(OtBu)-Wang TG	<p>Fmoc-D-Glu(OtBu)-Wang TentaGel S Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  
SAL1313	Fmoc-Gly-Wang TG	<p>Fmoc-Gly-Wang TentaGel S Mesh Size 90 µm</p>  
SAL1314	Fmoc-L-His(Trt)-Wang TG	<p>Fmoc-L-His(Trt)-Wang TentaGel S Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  
SAD1314	Fmoc-D-His(Trt)-Wang TG	<p>Fmoc-D-His(Trt)-Wang TentaGel S Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  
SAL1315	Fmoc-L-Ile-Wang TG	<p>Fmoc-L-Ile-Wang TentaGel S Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  

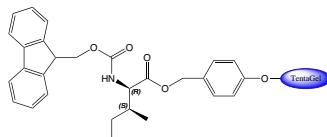
## Product details

**SAD1315 Fmoc-D-Ile-Wang TG**

Fmoc-D-Ile-Wang TentaGel S

Mesh Size 90 µm

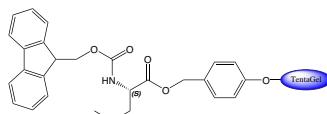
Loading 0.2-0.25 mmol/g


**SAL1316 Fmoc-L-Leu-Wang TG**

Fmoc-L-Leu-Wang TentaGel S

Mesh Size 90 µm

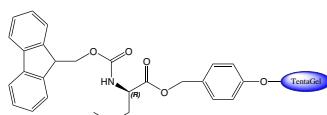
Loading 0.2-0.25 mmol/g


**SAD1316 Fmoc-D-Leu-Wang TG**

Fmoc-D-Leu-Wang TentaGel S

Mesh Size 90 µm

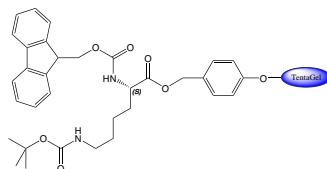
Loading 0.2-0.25 mmol/g


**SAL1317 Fmoc-L-Lys(Boc)-Wang TG**

Fmoc-L-Lys(Boc)-Wang TentaGel S

Mesh Size 90 µm

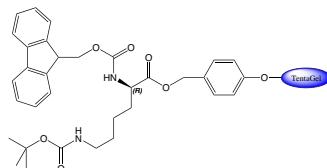
Loading 0.2-0.22 mmol/g


**SAD1317 Fmoc-D-Lys(Boc)-Wang TG**

Fmoc-D-Lys(Boc)-Wang TentaGel S

Mesh Size 90 µm

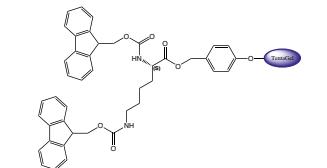
Loading 0.2-0.25 mmol/g


**SAL2000 Fmoc-L-Lys(Fmoc)-Wang TG**

Fmoc-L-Lys(Fmoc)-Wang TentaGel S

Mesh Size 90 µm

Loading 0.2-0.22 mmol/g


[back to content ↑](#)

## Resin Guideline

		Product details
SAL2013	(Fmoc)4-Lys2-Lys-beta-Ala-Wang TG (Fmoc)4-Lys2-Lys-beta-Ala-Wang TentaGel	 
SAL1318	Fmoc-L-Met-Wang TG Fmoc-L-Met-Wang TentaGel S Mesh Size 90 µm Loading 0.2-0.25 mmol/g	 
SAD1318	Fmoc-D-Met-Wang TG Fmoc-D-Met-Wang TentaGel S Mesh Size 90 µm Loading 0.2-0.25 mmol/g	 
SAL1319	Fmoc-L-Nle-Wang TG Fmoc-L-Nle-Wang TentaGel S Mesh Size 90 µm Loading 0.2-0.25 mmol/g	 
SAD1319	Fmoc-D-Nle-Wang TG Fmoc-D-Nle-Wang TentaGel S Mesh Size 90 µm Loading 0.2-0.25 mmol/g	 
SAL1320	Fmoc-L-Orn(Boc)-Wang TG Fmoc-L-Orn(Boc)-Wang TentaGel S Mesh Size 90 µm Loading 0.2-0.25 mmol/g	 

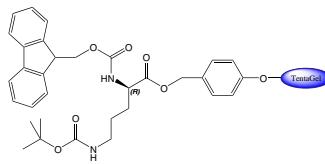
## Product details

**SAD1320 Fmoc-D-Orn(Boc)-Wang TG**

Fmoc-D-Orn(Boc)-Wang TentaGel S

Mesh Size 90 µm

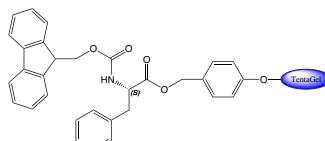
Loading 0.2-0.25 mmol/g


**SAL1321 Fmoc-L-Phe-Wang TG**

Fmoc-L-Phe-Wang TentaGel S

Mesh Size 90 µm

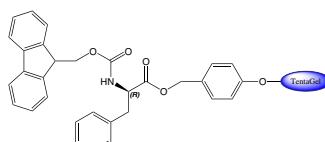
Loading 0.2-0.25 mmol/g


**SAD1321 Fmoc-D-Phe-Wang TG**

Fmoc-D-Phe-Wang TentaGel S

Mesh Size 90 µm

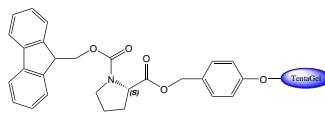
Loading 0.2-0.25 mmol/g


**SAL1322 Fmoc-L-Pro-Wang TG**

Fmoc-L-Pro-Wang TentaGel S

Mesh Size 90 µm

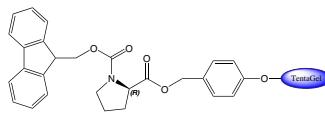
Loading 0.2-0.25 mmol/g


**SAD1322 Fmoc-D-Pro-Wang TG**

Fmoc-D-Pro-Wang TentaGel S

Mesh Size 90 µm

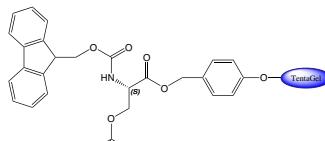
Loading 0.2-0.25 mmol/g


**SAL1323 Fmoc-L-Ser(tBu)-Wang TG**

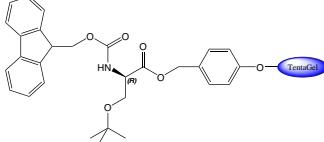
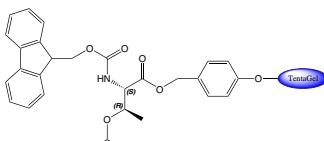
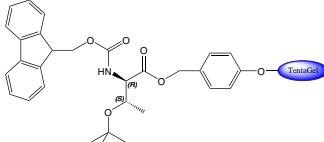
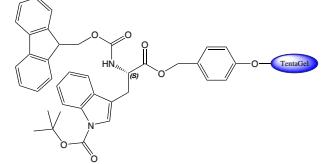
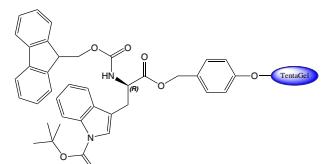
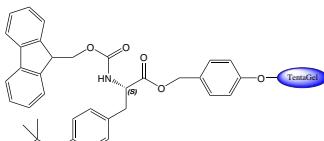
Fmoc-L-Ser(tBu)-Wang TentaGel S

Mesh Size 90 µm

Loading 0.2-0.25 mmol/g


[back to content ↑](#)

## Resin Guideline

		Product details
SAD1323	Fmoc-D-Ser(tBu)-Wang TG	<p>Fmoc-D-Ser(tBu)-Wang TentaGel S</p> <p>Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  
SAL1324	Fmoc-L-Thr(tBu)-Wang TG	<p>Fmoc-L-Thr(tBu)-Wang TentaGel S</p> <p>Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  
SAD1324	Fmoc-D-Thr(tBu)-Wang TG	<p>Fmoc-D-Thr(tBu)-Wang TentaGel S</p> <p>Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  
SAL1328	Fmoc-L-Trp(Boc)-Wang TG	<p>Fmoc-L-Trp(Boc)-Wang TentaGel S</p> <p>Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  
SAD1328	Fmoc-D-Trp(Boc)-Wang TG	<p>Fmoc-D-Trp(Boc)-Wang TentaGel S</p> <p>Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  
SAL1326	Fmoc-L-Tyr(tBu)-Wang TG	<p>Fmoc-L-Tyr(tBu)-Wang TentaGel S</p> <p>Mesh Size 90 µm Loading 0.2-0.25 mmol/g</p>  

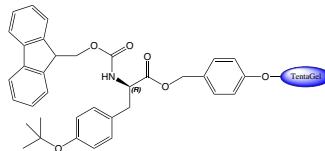
## Product details

**SAD1326 Fmoc-D-Tyr(tBu)-Wang TG**

Fmoc-D-Tyr(tBu)-Wang TentaGel S

Mesh Size 90 µm

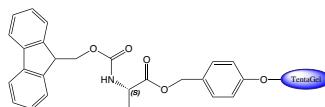
Loading 0.2-0.25 mmol/g


**SAL1327 Fmoc-L-Val-Wang TG**

Fmoc-L-Val-Wang TentaGel S

Mesh Size 90 µm

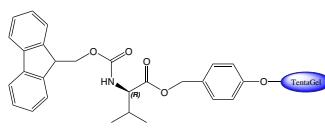
Loading 0.2-0.25 mmol/g


**SAD1327 Fmoc-D-Val-Wang TG**

Fmoc-D-Val-Wang TentaGel S

Mesh Size 90 µm

Loading 0.2-0.25 mmol/g



### 9.3. Scavenger Resins

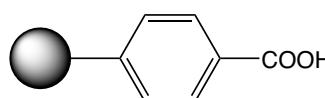
## Product details

**SR-1130 Polystyrene-COOH**

Benzoic acid polystyrene (rigid, macroporous)

Mesh Size 200-400µm

Loading 0.5-2.0 mmol/g

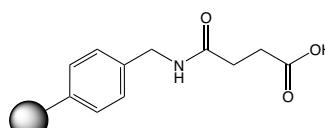

**BR-5258 Polystyrene-AM-COOH**

Aminomethyl-succinamic acid polystyrene

Mesh Size 400-450 µm

Loading 0.7-1.2 mmol/g

DVB 1% DVB


[back to content ↑](#)

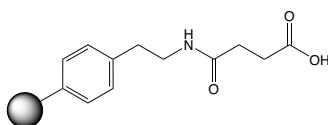
# Resin Guideline

Product details

## BR-5253 Polystyrene-AE-COOH

Aminoethyl-succinamic acid polystyrene

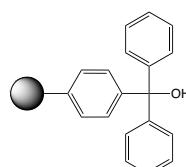
Mesh Size 400-450 µm  
Loading 0.7-1.2 mmol/g  
DVB 1% DVB



## BR-5243 Trt-OH Resin

Trityl alcohol resin

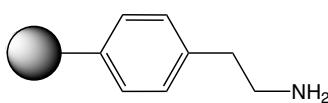
Mesh Size 100-200 mesh  
Loading 2.1-4.0 mmol/g  
DVB 1% DVB



## BR-5267 Polystyrene-Et-NH<sub>2</sub>

Aminoethyl polystyrene

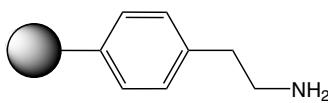
Mesh Size 160-200 µm  
Loading 0.8-1.3 mmol/g  
DVB 1% DVB



## BR-5269 Polystyrene-Et-NH<sub>2</sub>

Aminoethyl polystyrene

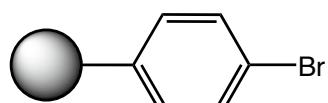
Mesh Size 400-450 µm  
Loading 0.8-1.2 mmol/g  
DVB 1% DVB



## BR-5081 Polystyrene-Br

Bromo polystyrene

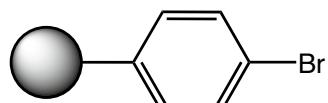
Mesh Size 100-200 mesh  
Loading 2-4 mmol/g  
DVB 1% DVB



## BR-5110 Polystyrene-Br

Bromo polystyrene

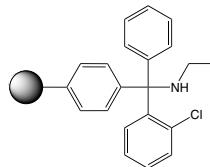
Mesh Size 200-400 mesh  
Loading 2-4 mmol/g  
DVB 1% DVB



[Product details](#)
**SR-1113 Et-NH-2CT Resin**

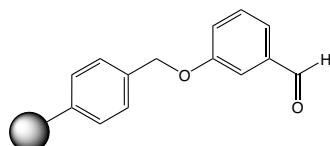
Ethylamino-2-chlorotriptyl resin

Mesh Size	100-200 mesh
Loading	0.8-1.5 mmol/g
DVB	1% DVB


**SR-1111 Polystyrene-3-CHO**

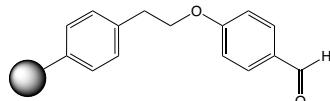
3-Benzylbenzaldehyde polystyrene

Mesh Size	100-200 mesh
Loading	0.5-1.5 mmol/g
DVB	1% DVB


**SR-1129 Polystyrene-4-CHO**

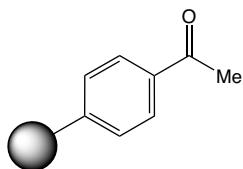
4-(Phenethoxy)benzaldehyde polystyrene (rigid, macroporous)

Mesh Size	200-400 µm
Loading	0.5-1.2 mmol/g


**SR-1108 Polystyrene-Ac**

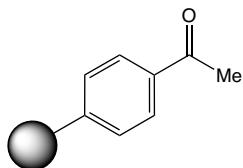
Acetylpolystyrene

Mesh Size	100-200 mesh
Loading	1.0-1.5 mmol/g
DVB	1% DVB


**SR-1004 Polystyrene-Ac**

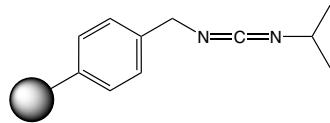
Acetylpolystyrene

Mesh Size	100-200 mesh
Loading	2.0-6.0 mmol/g
DVB	1% DVB


**SR-1012 Polystyrene-DIC**

N-Isopropyl-N'-methyl-carbodiimide polystyrene

Mesh Size	100-200 mesh
Loading	1.0-1.5 mmol
DVB	1% DVB


[back to content ↑](#)

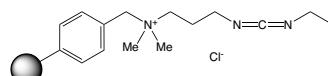
# Resin Guideline

Product details

## SR-1014 Polystyrene-EDC

N-Ethyl-N'-(3-dimethylaminopropyl)carbodiimide hydrochloride

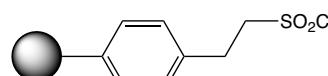
Mesh Size 100-200 mesh  
Loading 1.0-2.0 mmol/g  
DVB 1% DVB



## SR-1073 Polystyrene-Et-SO<sub>2</sub>Cl

Polystyrene ethyl sulfonyl chloride

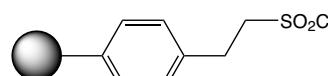
Mesh Size 100-200 mesh  
Loading 0.5-1.5 mmol/g  
DVB 1% DVB



## SR-1119 Polystyrene-Et-SO<sub>2</sub>Cl

Polystyrene ethyl sulfonyl chloride

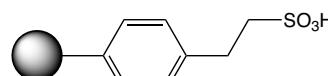
Mesh Size 200-400 mesh  
Loading 0.8-1.5 mmol/g  
DVB 1% DVB



## SR-1120 Polystyrene-Et-SO<sub>3</sub>H

Polystyrene ethyl sulfonic acid

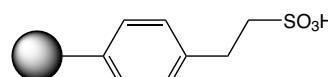
Mesh Size 100-200 mesh  
Loading 0.8-1.5 mmol/g  
DVB 1% DVB



## SR-1121 Polystyrene-Et-SO<sub>3</sub>H

Polystyrene ethyl sulfonic acid

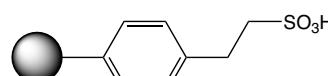
Mesh Size 200-400 mesh  
Loading 0.7-1.5 mmol/g  
DVB 1% DVB



## SR-1122 Polystyrene-Et-SO<sub>3</sub>H

Polystyrene ethyl sulfonic acid

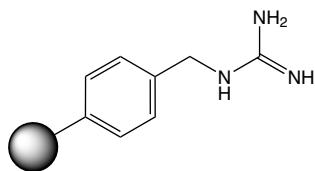
Mesh Size 400-450µm  
Loading 0.7-1.5 mmol/g  
DVB 1% DVB



[Product details](#)
**SR-1114 Guanidinomethyl polystyrene**

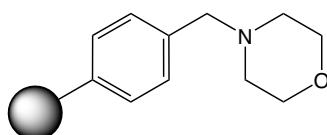
Guanidino polystyrene (100-200 mesh)

Mesh Size	100-200 mesh
Loading	0.5-1.5 mmol/g
DVB	1% DVB


**SR-1109 Polystyrene-Morpholine**

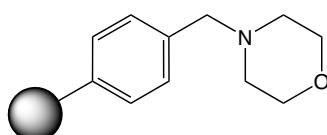
Morpholinomethyl polystyrene

Mesh Size	100-200 mesh
Loading	0.8-1.5 mmol/g
DVB	1% DVB


**SR-1123 Polystyrene-Morpholine**

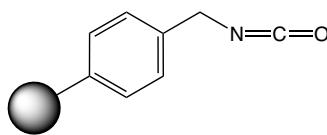
Morpholinomethyl polystyrene (rigid, macroporous)

Mesh Size	200-400 µm
Loading	0.5-1.2 mmol/g


**SR-1021 Polystyrene-NCO**

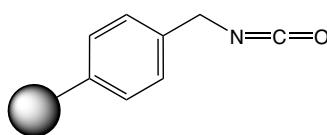
Isocyanatomethyl polystyrene

Mesh Size	100-200 mesh
Loading	2.1-2.5 mmol/g
DVB	1% DVB


**SR-1124 Polystyrene-NCO**

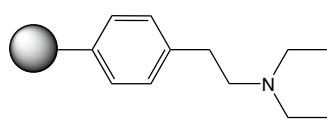
Isocyanatomethyl polystyrene (rigid, macroporous)

Mesh Size	200-400µm
Loading	0.5-1.1 mmol/g


**SR-1093 Polystyrene-NEt<sub>2</sub>**

Diethylaminoethyl polystyrene (rigid, macroporous)

Mesh Size	200-400 µm
Loading	0.5-1.5 mmol/g


[back to content ↑](#)

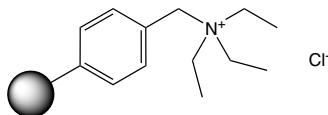
## Resin Guideline

Product details

### SR-1131 Polystyrene- $\text{NEt}_3\text{Cl}$

N,N,N-Triethyl-aminomethyl polystyrene chloride (rigid, macroporous)

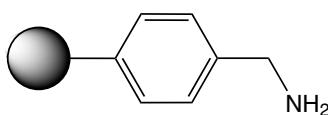
Mesh Size 200-400  $\mu\text{m}$   
Loading 0.5-1 mmol/g



### SR-1132 Polystyrene- $\text{NH}_2$

Aminomethyl polystyrene (rigid, macroporous)

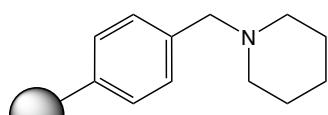
Mesh Size 200-400  $\mu\text{m}$   
Loading 2-3.5 mmol/g



### SR-1116 Polystyrene-Pip

Piperidinomethyl polystyrene

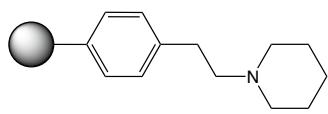
Mesh Size 100-200 mesh  
Loading 2.0-3.0 mmol/g  
DVB 1% DVB



### SR-1133 Polystyrene-Pip

Piperidinoethyl polystyrene (rigid, macroporous)

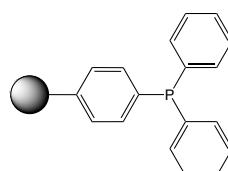
Mesh Size 200-400  $\mu\text{m}$   
Loading 0.5-1.2 mmol/g



### SR-1032 Polystyrene- $\text{PPh}_2$

Triphenylphosphine on polystyrene

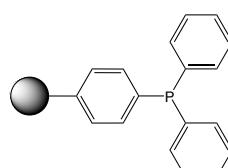
CAS-No. 39319-11-4  
Mesh Size 100-200 mesh  
Loading 0.8-1.6 mmol/g  
DVB 1% DVB



### SR-1125 Polystyrene- $\text{PPh}_2$

Triphenylphosphine on polystyrene

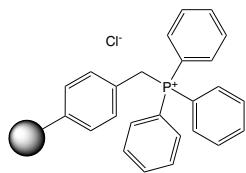
CAS-No. 39319-11-4  
Mesh Size 200-400 mesh  
Loading 1.0-1.5 mmol/g  
DVB 1% DVB



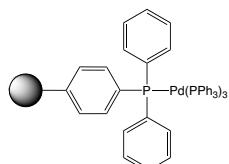
## Product details

**SR-1008 Polystyrene-CH<sub>2</sub>PPh<sub>3</sub> Cl**

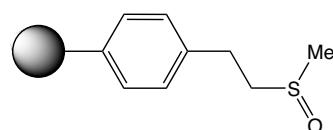
Triphenylmethylphosphonium polystyrene chloride

Mesh Size      100-200 mesh  
Loading        0.7-1.3 mmol/g  
DVB            1% DVB

**SR-1134 Polystyrene-PPh<sub>2</sub>-Pd(PPh<sub>3</sub>)<sub>3</sub>**

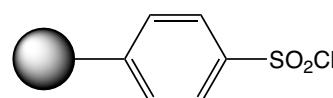
Tris(triphenylphosphine)-palladium(0)-triphenylphosphine polystyrene

Mesh Size      100-200 mesh  
Loading        0.1-0.15 mmol/g  
DVB            1% DVB

**SR-1112 DMSO Resin**

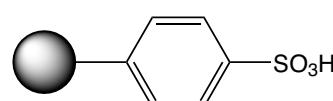
S-Methyl-sulfoxyethyl polystyrene

Mesh Size      100-200 mesh  
DVB            1% DVB

**SR-1034 Polystyrene-SO<sub>2</sub>Cl**

Sulfonylchloride polystyrene

Mesh Size      100-200 mesh  
Loading        0.5-2.0 mmol/g  
DVB            1% DVB

**SR-1126 Polystyrene-SO<sub>3</sub>H**

Polystyrene sulfonic acid (rigid, macroporous)

Mesh Size      200-400 µm  
Loading        2-5 mmol/g


Sulfonic Acid Resin, polystyrene resin functionalized with a *p*-toluenesulfonic acid end group. It is a strong cation exchange resin and is capable of scavenging heterocyclic bases in addition to primary, secondary and tertiary amines. MP-TsOH can also be utilized in many acid catalyzed reactions such as acetal and ketal formation. It is an excellent choice for the 'catch and release' purification of amines resulting from a variety of reactions including reductive aminations. This resin is also quite effective in solid-phase extraction (SPE) of amine bases in sample preparation of bio-analytes such as blood, urine, etc.

[back to content ↑](#)

## Resin Guideline

Product details

### SR-1127 Polystyrene-SO<sub>3</sub>Na

Polystyrene sulfonic acid Na form (rigid, macroporous)

Mesh Size 200-400 µm

Loading 1-2 mmol/g



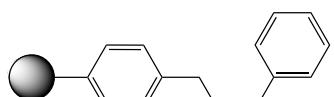
### SR-1037 Traceless Arene Resin

N-Benzyl-aminomethyl polystyrene

Mesh Size 100-200 mesh

Loading 0.5-1.3 mmol/g

DVB 1% DVB



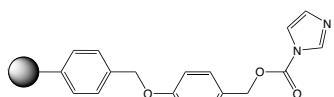
### SR-1023 Wang-OC-Imidazole

Imidazoyl carbonate benzyloxymethyl polystyrene

Mesh Size 100-200 mesh

Loading 0.7-1.5 mmol/g

DVB 1% DVB



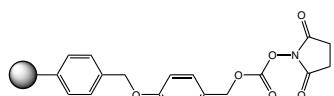
### SR-1025 Wang-OCO-Su

Succinimidyl carbonate benzyloxymethyl polystyrene

Mesh Size 100-200 mesh

Loading 0.7-2.0 mmol/g

DVB 1% DVB



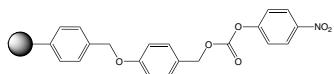
### SR-1024 Wang-pNPC

4-Nitrophenyl carbonate benzyloxymethyl polystyrene

Mesh Size 100-200 mesh

Loading 0.3-1.5 mmol/g

DVB 1% DVB



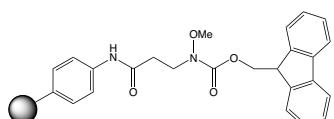
### SR-1039 Weinreb Amide Resin

3-(N-Fmoc-N-methoxy)propyl-amidomethyl polystyrene

Mesh Size 100-200 mesh

Loading 0.5-1.3 mmol/g

DVB 1% DVB



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[back to content ↑](#)

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## Notes

**back to content** ↑

# Code of Conduct

As business activity of Iris Biotech GmbH impacts people's lives and health, it must be operated in ethical and correct manner and act with integrity and responsibility. To ensure high ethical standards and fair business practices, Iris Biotech GmbH applies an integrated policy known as its Code of Conduct.

In 2001 Iris Biotech GmbH was founded just at the beginning of the Biotech movement and the first remarkable breakthrough of biotech pharma products. Although the biotech field is rather young compared to other industries we believe on long-term business, a good partnership between our business partners and Iris Biotech GmbH and a good reputation. It is our duty as well as our responsibility to maintain and to extend this over the next generations – based on the principles of an honourable and prudent tradesman which based upon the concept of honourable entrepreneurship.

This Code of Conduct has been developed following the "Voluntary Guidelines for Manufacturers of Fine Chemical Intermediates and Active Ingredients" issued by AIME (Agrochemical & Intermediates Manufacturers in Europe) and the requirements of some of our business associates.

Iris Biotech GmbH commits to hold this Code of Conduct and to include and apply its principles in the management system and the company policies.

## Ethics

Iris Biotech GmbH undertakes business in an ethical manner and acts with integrity. All corruption, extortion and embezzlement are prohibited. We do not pay or accept bribes or participate in other illegal inducements in business or government relationships. We conduct our business in compliance with all applicable anti-trust laws. Employees are encouraged to report concerns or illegal activities in the workplace, without threat of reprisal, intimidation or harassment.

## Labour

Iris Biotech GmbH is committed to uphold the human rights of workers and to treat them with dignity and respect. Child labour, workplace harassment, discrimination, and harsh and inhumane treatment are prohibited. Iris Biotech GmbH respects the rights of the employees to associate freely, join or not join labour unions, seek representation and join workers' councils. Employees are paid and their working timetable is established according to applicable wage and labour laws. Employees are able to communicate openly with management regarding working conditions without threat of reprisal, intimidation or harassment.

## General Policies

Contracts and Secrecy Agreements are binding and the confidential information received is only used for intended purposes. Clear management and organizational structures exist to provide efficient normal working and to address problems quickly. Know-how is protected and intellectual property is respected.

## Health and Safety

Iris Biotech GmbH provides a safe and healthy working environment to the employees and protects them from overexposure to chemical and physical hazards. Products are produced, stored and shipped under the guidelines of the relevant chemical and safety legislation. Risks and emergency scenarios are identified and evaluated, and their possible impact is minimized by implementing emergency plans and written procedures. Safety information regarding hazardous materials is available to educate, train and protect workers from hazards. Preventive equipment and facilities maintenance is performed at suitable periods to reduce potential hazards. Employees are regularly trained in health and safety matters and are informed about product properties and risk classification when it is required.

## Environment

Iris Biotech GmbH operates in an environmentally responsible and efficient manner, minimizing adverse impacts on the environment. Waste streams are managed to ensure a safe handling, movement, storage, recycling and reuse, before and after being generated. Systems to prevent and mitigate accidental spills and releases to the environment are in place. All required environmental permits and licenses are obtained and their operational and reporting requirements are complied with.

## Production and Quality Management

A quality management system following the Good Distribution Practices (GDP rules) of Active Pharmaceutical Ingredients is established covering all the aspects of the worldwide distribution of products. Regular audits are performed to evaluate the efficiency and fulfilling of the quality system. Process controls to provide reproducible product quality are established. There are preventive maintenance procedures to ensure plant reliability and the lowest risk of failure. Staff is trained periodically about GMP and GDP rules. Procedures are established and installations are designed to avoid cross contamination. Batch and analytical records are kept for inspection and audit purposes for suitable periods according guidelines.

## Research and Development

Research and development staff education is appropriate to their functional activity and they are trained to develop, optimize and scale-up the processes. Intellectual property is respected and know-how protected. Development of manufacturing processes reflects the principles of the Green Chemistry according to the American Chemical Society Green Chemistry Institute. Animal testing is not used unless alternatives are not scientifically valid or accepted by regulators. If animal testing is carried out, animals are treated so that pain and stress are minimized.

**back to content ↑**

# Terms and Conditions of Sales

All orders placed by a buyer are accepted and all contracts are made subject to the terms which shall prevail and be effective notwithstanding any variations or additions contained in any order or other document submitted by the buyer. No modification of these terms shall be binding upon Iris Biotech GmbH unless made in writing by an authorised representative of Iris Biotech GmbH.

## Placing of Orders

Every order made by the buyer shall be deemed an offer by the buyer to purchase products from Iris Biotech GmbH and will not be binding on Iris Biotech GmbH until a duly authorised representative of Iris Biotech GmbH has accepted the offer made by the buyer. Iris Biotech GmbH may accept orders from commercial, educational or government organisations, but not from private individuals and Iris Biotech GmbH reserves the right to insist on a written order and/or references from the buyer before proceeding.

There is no minimum order value. At the time of acceptance of an order Iris Biotech GmbH will either arrange prompt despatch from stock or the manufacture/acquisition of material to satisfy the order. In the event of the latter Iris Biotech GmbH will indicate an estimated delivery date. In addition to all its other rights Iris Biotech GmbH reserves the right to refuse the subsequent cancellation of the order if Iris Biotech GmbH expects to deliver the product on or prior to the estimated delivery date. Time shall not be of the essence in respect of delivery of the products. If Iris Biotech GmbH is unable to deliver any products by reason of any circumstances beyond its reasonable control („Force Majeure“) then the period for delivery shall be extended by the time lost due to such Force Majeure. Details of Force Majeure will be forwarded by Iris Biotech GmbH to the buyer as soon as reasonably practicable.

## Prices, Quotations and Payments

Prices are subject to change. For the avoidance of doubt, the price advised by Iris Biotech GmbH at the time of the buyer placing the order shall supersede any previous price indications. The buyer must contact the local office of Iris Biotech GmbH before ordering if further information is required. Unless otherwise agreed by the buyer and Iris Biotech GmbH, the price shall be for delivery ex-works. In the event that the buyer requires delivery of the products otherwise than ex-works the buyer should contact the local office of Iris Biotech GmbH in order to detail its requirements. Iris Biotech GmbH shall, at its discretion, arrange the buyer's delivery requirements including, without limitation, transit insurance, the mode of transit (Iris Biotech GmbH reserves the right to vary the mode of transit if any regulations or other relevant considerations so require) and any special packaging requirements (including cylinders). For the avoidance of doubt all costs of delivery and packaging in accordance with the buyer's requests over and above that of delivery in standard packaging ex-works shall be for the buyer's account unless otherwise agreed by both parties. Incoterms 2020 shall apply. Any tax, duty or charge imposed by governmental authority or otherwise and any other applicable taxes, duties or charges shall be for the buyer's account. Iris Biotech GmbH may, on request and where possible, provide quotations for multiple packs or bulk quantities, and non-listed items. Irrespective of the type of request or means of response all quotations must be accepted by the buyer without condition and in writing before an order will be accepted by Iris Biotech GmbH. Unless agreed in writing on different terms, quotations are valid for 30 days from the date thereof. Payment terms are net 30 days from invoice date unless otherwise agreed in writing. Iris Biotech GmbH reserves the right to request advance payment at its discretion. For overseas transactions the buyer shall pay all the banking charges of Iris Biotech GmbH. The buyer shall not be entitled to withhold or set-off payment for the products for any reason whatsoever. Government/

Corporate Visa and MasterCard (and other such credit cards) may be accepted on approved accounts for payment of the products. Personal credit cards are not acceptable. Failure to comply with the terms of payment of Iris Biotech GmbH shall constitute default without reminder. In these circumstances Iris Biotech GmbH may (without prejudice to any other of its rights under these terms) charge interest to accrue on a daily basis at the rate of 2% per month from the date upon which payment falls due to the actual date of payment (such interest shall be paid monthly). If the buyer shall fail to fulfil the payment terms in respect of any invoice of Iris Biotech GmbH Iris Biotech GmbH may demand payment of all outstanding balances from the buyer whether due or not and/or cancel all outstanding orders and/or decline to make further deliveries or provision of services except upon receipt of cash or satisfactory securities. Until payment by the buyer in full of the price and any other monies due to Iris Biotech GmbH in respect of all other products or services supplied or agreed to be supplied by Iris Biotech GmbH to the buyer (including but without limitation any costs of delivery) the property in the products shall remain vested in Iris Biotech GmbH.

## **Shipping, Packaging and Returns**

The buyer shall inspect goods immediately on receipt and inform Iris Biotech GmbH of any shortage or damage within five days. Quality problems must be notified within ten days of receipt. Goods must not be returned without prior written authorisation of Iris Biotech GmbH. Iris Biotech GmbH shall at its sole discretion replace the defective products (or parts thereof) free of charge or refund the price (or proportionate price) to buyer. Opened or damaged containers cannot be returned by the buyer without the written prior agreement of Iris Biotech GmbH. In the case of agreed damaged containers which cannot be so returned, the buyer assumes responsibility for the safe disposal of such containers in accordance with all applicable laws.

## **Product Quality, Specifications and Technical Information**

Products are analysed in the Quality Control laboratories of Iris Biotech GmbH's production partners by methods and procedures which Iris Biotech GmbH considers appropriate. In the event of any dispute concerning reported discrepancies arising from the buyer's analytical results, determined by the buyer's own analytical procedures, Iris Biotech GmbH reserves the right to rely on the results of own analytical methods of Iris Biotech GmbH. Certificates of Analysis or Certificates of Conformity are available at the discretion of Iris Biotech GmbH for bulk orders but not normally for prepack orders. Iris Biotech GmbH reserves the right to make a charge for such certification. Specifications may change and reasonable variation from any value listed should not form the basis of a dispute. Any supply by Iris Biotech GmbH of bespoke or custom product for a buyer shall be to a specification agreed by both parties in writing. Technical information, provided orally, in writing, or by electronic means by or on behalf of Iris Biotech GmbH, including any descriptions, references, illustrations or diagrams in any catalogue or brochure, is provided for guidance purposes only and is subject to change.

## **Safety**

All chemicals should be handled only by competent, suitably trained persons, familiar with laboratory procedures and potential chemical hazards. The burden of safe use of the products of Iris Biotech GmbH vests in the buyer. The buyer assumes all responsibility for warning his employees, and any persons who might reasonably be expected to come into contact with the products, of all risks to person and property in any way connected with the products and for instructing them in their safe handling and use. The buyer also assumes the responsibility for the safe disposal of all products in accordance with all applicable laws.

**back to content ↑**

## Uses, Warranties and Liabilities

All products of Iris Biotech GmbH are intended for laboratory research purposes and unless otherwise stated on product labels, in the catalogue and product information sheet of Iris Biotech GmbH or in other literature furnished to the buyer, are not to be used for any other purposes, including but not limited to use as or as components in drugs for human or animal use, medical devices, cosmetics, food additives, household chemicals, agricultural or horticultural products or pesticides. Iris Biotech GmbH offers no warranty regarding the fitness of any product for a particular purpose and shall not be responsible for any loss or damage whatsoever arising there from. No warranty or representation is given by Iris Biotech GmbH that the products do not infringe any letters patent, trademarks, registered designs or other industrial rights. The buyer further warrants to Iris Biotech GmbH that any use of the products in the United States of America shall not result in the products becoming adulterated or misbranded within the meaning of the Federal Food, Drug and Cosmetic Act (or such equivalent legislation in force in the buyer's jurisdiction) and shall not be materials which may not, under sections 404, 505 or 512 of the Act, be introduced into interstate commerce. The buyer acknowledges that, since the products of Iris Biotech GmbH are intended for research purposes, they may not be on the Toxic Substances Control Act 1976 („TSCA“) inventory. The buyer warrants that it shall ensure that the products are approved for use under the TSCA (or such other equivalent legislation in force in the buyer's jurisdiction), if applicable. The buyer shall be responsible for complying with any legislation or regulations governing the use of the products and their importation into the country of destination (for the avoidance of doubt to include, without limitation, the TSCA and all its amendments, all EINECS, ELINCS and NONS regulations). If any licence or consent of any government or other authority shall be required for the acquisition, carriage or use of the products by the buyer the buyer shall obtain the same at its own expense and if necessary produce evidence of the same to Iris Biotech GmbH on demand. Failure to do so shall not entitle the buyer to withhold or delay payment. Any additional expenses or charges incurred by Iris Biotech GmbH resulting from such failure shall be for the buyer's account. Save for death or personal injury caused by negligence of Iris Biotech GmbH, sole obligation of Iris Biotech GmbH and buyer's exclusive remedy with respect to the products proved to the satisfaction of Iris Biotech GmbH to be defective or products incorrectly supplied shall be to accept the return of said products to Iris Biotech GmbH for refund of the actual purchase price paid by the buyer (or proportionate part thereof), or replacement of the defective product (or part thereof) with alternative product. Iris Biotech GmbH shall have no liability to the buyer under or arising directly or indirectly out of or otherwise in connection with the supply of products by Iris Biotech GmbH to the buyer and/or their re-sale or use by the buyer or for any product, process or services of the buyer which in any way comprises the product in contract tort (including negligence or breach of statutory duty) or otherwise for pure economic loss, loss of profit, business, reputation, depletion of brand, contracts, revenues or anticipated savings or for any special indirect or consequential damage or loss of any nature except as may otherwise be expressly provided for in these terms. All implied warranties, terms and representations in respect of the products (whether implied by statute or otherwise) are excluded to the fullest extent permitted by law. The buyer shall indemnify Iris Biotech GmbH for and against any and all losses, damages and expenses, including legal fees and other costs of defending any action, that Iris Biotech GmbH may sustain or incur as a result of any act or omission by the buyer, its officers, agents or employees, its successors or assignees, its customers or all other third parties, whether direct or indirect, in connection with the use of any product. For the avoidance of doubt and in the event that Iris Biotech GmbH supplies bespoke or custom product to the buyer's design or specification, this indemnity shall extend to include any claim by a third party that the manufacture of the product for the buyer or the use of the product by the buyer infringes the intellectual property rights of any third party.

## General

Iris Biotech GmbH shall be entitled to assign or sub-contract all or any of its rights and obligations hereunder. The buyer shall not be entitled to assign, transfer, sub-contract or otherwise delegate any of its rights or obligations hereunder. Any delay or forbearance by Iris Biotech GmbH in exercising any right or remedy under these terms shall not constitute a waiver of such right or remedy. If any provision of these terms is held by any competent authority to be invalid or unenforceable in whole or in part the validity of the other provisions of these terms and the remainder of the provision in question shall not be affected. These terms shall be governed by German Law and the German Courts shall have exclusive jurisdiction for the hearing of any dispute between the parties save in relation to enforcement where the jurisdiction of the German Courts shall be non-exclusive.

## Notes

## Index

Product code	Product name	Page	Product code	Product name	Page
WAA2014	(Fmoc)4-Lys2-Lys-beta-Ala-Wang PS	78	BR-5230	BHA-Resin	36
SAL2013	(Fmoc)4-Lys2-Lys-beta-Ala-Wang TG	78, 167	PAM5601	Boc-beta-Ala-PAM Resin	89
SAL2023	(Fmoc)4-Lys2-Lys-Rink TG	140	MAA5300	Boc-D-Ala-Merrifield Resin	85
BR-5246	1,10-Diaminodecane-trityl resin	99	MAA5305	Boc-D-Arg(Tos)-Merrifield Resin	85
RDA1020	1,2-Diaminoethane-trityl resin	99	MAA5310	Boc-D-Asn-Merrifield Resin	85
BR-5247	1,3-Bis-(aminomethyl)-benzene-trityl resin	52	MAA5315	Boc-D-Asp(Bzl)-Merrifield Resin	86
BR-5206	1-Diol Resin	61	MAA5321	Boc-D-Cys(4-MeBzl)-Merrifield Resin	86
BR-5061	2-Bromoacetal Resin	72	MAA5325	Boc-D-Gln-Merrifield Resin	86
BR-1200	2-Cl-Benzophenon Resin	41	MAA5330	Boc-D-Glu(Bzl)-Merrifield Resin	86
BR-1205	2-Cl-Benzophenon Resin	41	MAA5348	Boc-D-His(Tos)-Merrifield Resin	86
BR-5200	2-Cl-BH-OH Resin	40	MAA5345	Boc-D-Leu-Merrifield Resin	86
BR-5222	2-Cl-BH-OH Resin	40	MAA5350	Boc-D-Lys(2-Cl-Z)-Merrifield Resin	87
BR-5224	2-Diol Resin	62	MAA5355	Boc-D-Met-Merrifield Resin	87
BR-1170	2CT-OH Resin	44	MAA5360	Boc-D-Phe-Merrifield Resin	87
BR-1175	2CT-OH Resin	44	MAA5365	Boc-D-Pro-Merrifield Resin	87
BR-1060	2CTC Resin	45	MAA5375	Boc-D-Thr(Bzl)-Merrifield Resin	87
BR-1065	2CTC Resin	45	MAA5380	Boc-D-Trp-Merrifield Resin	87
BR-1055	2CTC Resin	44	MAA5386	Boc-D-Tyr(2-Br-Z)-Merrifield Resin	88
BR-1060LL	2CTC Resin	44	MAA5390	Boc-D-Val-Merrifield Resin	88
BR-5225	4-Bromoacetal Resin	72	MAA5239	Boc-Gly-Merrifield Resin	81
BR-1215	4-Me-Benzophenon Resin	40	PAM5635	Boc-Gly-PAM Resin	89
BR-1220	4-Me-Benzophenon Resin	40	MAA5200	Boc-L-Ala-Merrifield Resin	79
BR-1195	4-Me-BH-OH Resin	39	PAM5600	Boc-L-Ala-PAM Resin	88
BR-1190	4-Me-BH-OH Resin	38	MAA5207	Boc-L-Arg(NO <sub>2</sub> )-Merrifield Resin	79
BR-1225	4-MeO-Benzophenon Resin	41	MAA5205	Boc-L-Arg(Tos)-Merrifield Resin	79
BR-1230	4-MeO-Benzophenon Resin	41	PAM5605	Boc-L-Arg(Tos)-PAM Resin	88
BR-1030	4-MeO-BH-Br Resin	39	MAA5210	Boc-L-Asn-Merrifield Resin	80
BR-1035	4-MeO-BH-Br Resin	39	PAM5610	Boc-L-Asn-PAM Resin	88
BR-1010	4-MeO-BH-NH <sub>2</sub> Resin	39	MAA5215	Boc-L-Asp(Bzl)-Merrifield Resin	80
BR-1015	4-MeO-BH-NH <sub>2</sub> Resin	39	PAM5615	Boc-L-Asp(Bzl)-PAM Resin	88
BR-5054	ANP-AM Resin	70	MAA5216	Boc-L-Asp(cHx)-Merrifield Resin	80
BR-5201	BAL Resin	49	MAA5221	Boc-L-Cys(4-MeBzl)-Merrifield Resin	80
BR-1245	Benzophenon Resin	40	PAM5621	Boc-L-Cys(4-MeOBzl)-PAM Resin	89
BR-5202	BH-OH Resin	37	MAA5222	Boc-L-Cys(Acm)-Merrifield Resin	80
BR-5203	BH-OH Resin	37	PAM5622	Boc-L-Cys(Acm)-PAM Resin	89
BR-5226	BHA-Resin	36	MAA5220	Boc-L-Cys(Mob)-Merrifield Resin	80
BR-5227	BHA-Resin	36	MAA5225	Boc-L-Gln-Merrifield Resin	81
BR-5228	BHA-Resin	36	PAM5625	Boc-L-Gln-PAM Resin	89
BR-5229	BHA-Resin	36	MAA5230	Boc-L-Glu(Bzl)-Merrifield Resin	81

Product code	Product name	Page	Product code	Product name	Page
PAM5630	Boc-L-Glu(Bzl)-PAM Resin	89	CAA1010	Fmoc-Asp(Wang Resin)-OPP	148
MAA5231	Boc-L-Glu(cHx)-Merrifield Resin	81	WAA5101	Fmoc-beta-Ala-Wang Resin	146
MAA5238	Boc-L-His(Dnp)-Merrifield Resin	81	SAD1101	Fmoc-D-Ala-AC TG	132
MAA5237	Boc-L-His(Tos)-Merrifield Resin	81	SAD1201	Fmoc-D-Ala-Trt TG	123
PAM5637	Boc-L-His(Tos)-PAM Resin	90	RAA2001	Fmoc-D-Ala-Wang Resin	145
MAA5240	Boc-L-Ile-Merrifield Resin	82	SAD1301	Fmoc-D-Ala-Wang TG	161
PAM5640	Boc-L-Ile-PAM Resin	90	SAD1102	Fmoc-D-Arg(Pbf)-AC TG	132
MAA5245	Boc-L-Leu-Merrifield Resin	82	SAD1202	Fmoc-D-Arg(Pbf)-Trt TG	123
PAM5645	Boc-L-Leu-PAM Resin	90	WAA6109	Fmoc-D-Arg(Pbf)-Wang Resin	146
MAA5250	Boc-L-Lys(2-Cl-Z)-Merrifield Resin	82	SAD1302	Fmoc-D-Arg(Pbf)-Wang TG	162
PAM5650	Boc-L-Lys(2-Cl-Z)-PAM Resin	90	SAD1103	Fmoc-D-Arg(Pmc)-AC TG	132
MAA5252	Boc-L-Lys(Fmoc)-Merrifield Resin	82	SAD1203	Fmoc-D-Arg(Pmc)-Trt TG	124
PAM5651	Boc-L-Lys(Fmoc)-PAM Resin	90	SAD1303	Fmoc-D-Arg(Pmc)-Wang TG	162
WAA5151	Boc-L-Lys(Fmoc)-Wang Resin	153	SAD1104	Fmoc-D-Asn(Trt)-AC TG	133
MAA5255	Boc-L-Met-Merrifield Resin	82	SAD1204	Fmoc-D-Asn(Trt)-Trt TG	124
PAM5655	Boc-L-Met-PAM Resin	90	WAA6108	Fmoc-D-Asn(Trt)-Wang Resin	147
MAA5260	Boc-L-Phe-Merrifield Resin	82	SAD1304	Fmoc-D-Asn(Trt)-Wang TG	162
PAM5660	Boc-L-Phe-PAM Resin	91	SAD1105	Fmoc-D-Asp(OtBu)-AC TG	133
MAA5265	Boc-L-Pro-Merrifield Resin	83	SAD1205	Fmoc-D-Asp(OtBu)-Trt TG	124
PAM5665	Boc-L-Pro-PAM Resin	91	SAD1305	Fmoc-D-Asp(OtBu)-Wang TG	163
MAA5270	Boc-L-Ser(Bzl)-Merrifield Resin	83	WAA6110	Fmoc-D-Asp(tBu)-Wang Resin	147
PAM5670	Boc-L-Ser(Bzl)-PAM Resin	91	SAD1107	Fmoc-D-Cys(Acm)-AC TG	133
MAA5275	Boc-L-Thr(Bzl)-Merrifield Resin	83	SAD1207	Fmoc-D-Cys(Acm)-Trt TG	125
PAM5675	Boc-L-Thr(Bzl)-PAM Resin	91	SAD1307	Fmoc-D-Cys(Acm)-Wang TG	163
MAA5395	Boc-L-Tic-Merrifield Resin	83	SAD1108	Fmoc-D-Cys(S-tBu)-AC TG	134
MAA5281	Boc-L-Trp(CHO)-Merrifield Resin	83	SAD1208	Fmoc-D-Cys(S-tBu)-Trt TG	125
PAM5681	Boc-L-Trp(CHO)-PAM Resin	91	SAD1308	Fmoc-D-Cys(S-tBu)-Wang TG	163
MAA5280	Boc-L-Trp-Merrifield Resin	83	SAD1109	Fmoc-D-Cys(SS-tBu)-AC TG	134
MAA5285	Boc-L-Tyr(2,6-Cl <sub>2</sub> -Bzl)-Merrifield Resin	84	SAD1209	Fmoc-D-Cys(SS-tBu)-Trt TG	125
MAA5286	Boc-L-Tyr(2-Br-Z)-Merrifield Resin	84	SAD1309	Fmoc-D-Cys(SS-tBu)-Wang TG	164
PAM5686	Boc-L-Tyr(2-Br-Z)-PAM Resin	91	SAD1106	Fmoc-D-Cys(Trt)-AC TG	134
MAA5290	Boc-L-Val-Merrifield Resin	84	SAD1206	Fmoc-D-Cys(Trt)-Trt TG	126
PAM5690	Boc-L-Val-PAM Resin	92	WAA6118	Fmoc-D-Cys(Trt)-Wang Resin	149
BR-5060	Brominated Wang Resin	51	SAD1306	Fmoc-D-Cys(Trt)-Wang TG	164
BR-5231	Brominated Wang Resin	51	SAD1110	Fmoc-D-Gln(Trt)-AC TG	135
SR-1112	DMSO Resin	176	SAD1210	Fmoc-D-Gln(Trt)-Trt TG	126
BR-5063	Dmt-OH Resin	46	SAD1310	Fmoc-D-Gln(Trt)-Wang TG	164
SR-1113	Et-NH-2CT Resin	172	SAD1112	Fmoc-D-Glu(OtBu)-AC TG	135
WAA2630	Fmoc-4-Abu-Wang Resin	144	SAD1212	Fmoc-D-Glu(OtBu)-Trt TG	126
WAA5129	Fmoc-Ahx Wang Resin	145	WAA6120	Fmoc-D-Glu(OtBu)-Wang Resin	150
WAA5139	Fmoc-Aib-Wang Resin	145	SAD1312	Fmoc-D-Glu(OtBu)-Wang TG	165

**back to content ↑**

# Resin Guideline

Product code	Product name	Page	Product code	Product name	Page
SAD1114	Fmoc-D-His(Trt)-AC TG	135	SAD1324	Fmoc-D-Thr(tBu)-Wang TG	169
SAD1214	Fmoc-D-His(Trt)-Trt TG	127	SAD1128	Fmoc-D-Trp(Boc)-AC TG	139
WAA6136	Fmoc-D-His(Trt)-Wang Resin	151	SAD1228	Fmoc-D-Trp(Boc)-Trt TG	130
SAD1314	Fmoc-D-His(Trt)-Wang TG	165	WAA6181	Fmoc-D-Trp(Boc)-Wang Resin	158
SAD1115	Fmoc-D-Ile-AC TG	136	SAD1328	Fmoc-D-Trp(Boc)-Wang TG	169
SAD1215	Fmoc-D-Ile-Trt TG	127	SAD1126	Fmoc-D-Tyr(tBu)-AC TG	139
SAD1315	Fmoc-D-Ile-Wang TG	166	SAD1226	Fmoc-D-Tyr(tBu)-Trt TG	131
SAD1116	Fmoc-D-Leu-AC TG	136	WAA6185	Fmoc-D-Tyr(tBu)-Wang Resin	158
SAD1216	Fmoc-D-Leu-Trt TG	127	SAD1326	Fmoc-D-Tyr(tBu)-Wang TG	170
WAA6145	Fmoc-D-Leu-Wang Resin	152	SAD1127	Fmoc-D-Val-AC TG	140
SAD1316	Fmoc-D-Leu-Wang TG	166	SAD1227	Fmoc-D-Val-Trt TG	131
SAD1117	Fmoc-D-Lys(Boc)-AC TG	136	WAA6190	Fmoc-D-Val-Wang Resin	159
SAD1217	Fmoc-D-Lys(Boc)-Trt TG	128	SAD1327	Fmoc-D-Val-Wang TG	170
WAA6150	Fmoc-D-Lys(Boc)-Wang Resin	154	RAA1039	Fmoc-Gly-2CT Resin	102
SAD1317	Fmoc-D-Lys(Boc)-Wang TG	166	SAL1113	Fmoc-Gly-AC TG	135
SAD1118	Fmoc-D-Met-AC TG	137	LW00802	Fmoc-Gly-MPPA	159
SAD1218	Fmoc-D-Met-Trt TG	128	PYV1170	Fmoc-Gly-NHN=Pyv Resin	142
WAA6155	Fmoc-D-Met-Wang Resin	154	TCP1010	Fmoc-Gly-TCP-Resin	119
SAD1318	Fmoc-D-Met-Wang TG	167	SAL1213	Fmoc-Gly-Trt TG	126
SAD1119	Fmoc-D-Nle-AC TG	137	WAA41313	Fmoc-Gly-Wang Resin	151
SAD1219	Fmoc-D-Nle-Trt TG	128	WAA11313	Fmoc-Gly-Wang Resin	150
SAD1319	Fmoc-D-Nle-Wang TG	167	SAL1313	Fmoc-Gly-Wang TG	165
SAD1120	Fmoc-D-Orn(Boc)-AC TG	137	RAA5910	Fmoc-L-Ala-2CT Resin	94
SAD1220	Fmoc-D-Orn(Boc)-Trt TG	129	SAL1101	Fmoc-L-Ala-AC TG	131
SAD1320	Fmoc-D-Orn(Boc)-Wang TG	168	LW00102	Fmoc-L-Ala-MPPA	159
SAD1121	Fmoc-D-Phe-AC TG	138	PYV1100	Fmoc-L-Ala-NHN=Pyv Resin	140
SAD1221	Fmoc-D-Phe-Trt TG	129	TCP1000	Fmoc-L-Ala-TCP-Resin	117
WAA6160	Fmoc-D-Phe-Wang Resin	155	SAL1201	Fmoc-L-Ala-Trt TG	123
SAD1321	Fmoc-D-Phe-Wang TG	168	WAA11301	Fmoc-L-Ala-Wang Resin	145
RAA1224	Fmoc-D-Pro-2CT Resin	110	WAA41301	Fmoc-L-Ala-Wang Resin	145
SAD1122	Fmoc-D-Pro-AC TG	138	WAA11301LL	Fmoc-L-Ala-Wang Resin	145
SAD1222	Fmoc-D-Pro-Trt TG	129	SAL1301	Fmoc-L-Ala-Wang TG	161
WAA6165	Fmoc-D-Pro-Wang Resin	156	RAA6136	Fmoc-L-Arg(Pbf)-2CT Resin	94
SAD1322	Fmoc-D-Pro-Wang TG	168	TCP1270	Fmoc-L-Arg(Pbf)-[13C6,15N4]-TCP-Resin	118
SAD1123	Fmoc-D-Ser(tBu)-AC TG	138	SAL1102	Fmoc-L-Arg(Pbf)-AC TG	132
SAD1223	Fmoc-D-Ser(tBu)-Trt TG	130	MAA5110	Fmoc-L-Arg(Pbf)-Merrifield Resin	84
WAA6170	Fmoc-D-Ser(tBu)-Wang Resin	157	PYV1110	Fmoc-L-Arg(Pbf)-NHN=Pyv Resin	141
SAD1323	Fmoc-D-Ser(tBu)-Wang TG	169	TCP1220	Fmoc-L-Arg(Pbf)-TCP-Resin	117
SAD1124	Fmoc-D-Thr(tBu)-AC TG	139	SAL1202	Fmoc-L-Arg(Pbf)-Trt TG	123
SAD1224	Fmoc-D-Thr(tBu)-Trt TG	130	WAA11302	Fmoc-L-Arg(Pbf)-Wang Resin	146
WAA6175	Fmoc-D-Thr(tBu)-Wang Resin	157	WAA41302	Fmoc-L-Arg(Pbf)-Wang Resin	146

Product code	Product name	Page
SAL1302	Fmoc-L-Arg(Pbf)-Wang TG	162
RAA6135	Fmoc-L-Arg(Pmc)-2Ct Resin	95
SAL1103	Fmoc-L-Arg(Pmc)-AC TG	132
TCP1210	Fmoc-L-Arg(Pmc)-TCP-Resin	118
SAL1203	Fmoc-L-Arg(Pmc)-Trt TG	123
WAA11303	Fmoc-L-Arg(Pmc)-Wang resin	146
WAA41303	Fmoc-L-Arg(Pmc)-Wang Resin	146
SAL1303	Fmoc-L-Arg(Pmc)-Wang TG	162
CAA1000	Fmoc-L-Asn(Rink-Resin)-OAll	78
RAA6208	Fmoc-L-Asn(Trt)-2CT Resin	96
SAL1104	Fmoc-L-Asn(Trt)-AC TG	132
MAA5111	Fmoc-L-Asn(Trt)-Merrifield Resin	84
PYV1120	Fmoc-L-Asn(Trt)-NHN=Pyv Resin	141
TCP1090	Fmoc-L-Asn(Trt)-TCP-Resin	118
SAL1204	Fmoc-L-Asn(Trt)-Trt TG	124
WAA11304	Fmoc-L-Asn(Trt)-Wang Resin	147
WAA41304	Fmoc-L-Asn(Trt)-Wang Resin	147
SAL1304	Fmoc-L-Asn(Trt)-Wang TG	162
RAA1315	Fmoc-L-Asn-2CT Resin	96
RAA2610	Fmoc-L-Asp(2CT resin)-NH <sub>2</sub>	96
RAA5193	Fmoc-L-Asp(OBzl)-2CT Resin	97
SAL1105	Fmoc-L-Asp(OtBu)-AC TG	133
MAA5115	Fmoc-L-Asp(OtBu)-Merrifield Resin	85
LW00402	Fmoc-L-Asp(OtBu)-MPPA	159
PYV1130	Fmoc-L-Asp(OtBu)-NHN=Pyv Resin	141
TCP1100	Fmoc-L-Asp(OtBu)-TCP-Resin	118
SAL1205	Fmoc-L-Asp(OtBu)-Trt TG	124
WAA41305	Fmoc-L-Asp(OtBu)-Wang Resin	147
WAA11305	Fmoc-L-Asp(OtBu)-Wang Resin	147
SAL1305	Fmoc-L-Asp(OtBu)-Wang TG	163
CAA1002	Fmoc-L-Asp(Wang-Resin)-OAll	148
SAL1107	Fmoc-L-Cys(Acm)-AC TG	133
TCP1110	Fmoc-L-Cys(Acm)-TCP-Resin	118
SAL1207	Fmoc-L-Cys(Acm)-Trt TG	124
WAA41307	Fmoc-L-Cys(Acm)-Wang Resin	148
WAA11307	Fmoc-L-Cys(Acm)-Wang Resin	148
SAL1307	Fmoc-L-Cys(Acm)-Wang TG	163
RAA2620	Fmoc-L-Cys(Mmt resin)-NH <sub>2</sub>	98
SAL1108	Fmoc-L-Cys(S-tBu)-AC TG	134
SAL1208	Fmoc-L-Cys(S-tBu)-Trt TG	125
WAA41308	Fmoc-L-Cys(S-tBu)-Wang Resin	149

Product code	Product name	Page
WAA11308	Fmoc-L-Cys(S-tBu)-Wang Resin	149
SAL1308	Fmoc-L-Cys(S-tBu)-Wang TG	163
SAL1109	Fmoc-L-Cys(SS-tBu)-AC TG	133
SAL1209	Fmoc-L-Cys(SS-tBu)-Trt TG	125
WAA11309	Fmoc-L-Cys(SS-tBu)-Wang Resin	148
WAA41309	Fmoc-L-Cys(SS-tBu)-Wang Resin	148
SAL1309	Fmoc-L-Cys(SS-tBu)-Wang TG	164
TCP1230	Fmoc-L-Cys(StBu)-TCP-Resin	118
TCP1120	Fmoc-L-Cys(tBu)-TCP-Resin	119
SAL1106	Fmoc-L-Cys(Trt)-AC TG	134
PYV1140	Fmoc-L-Cys(Trt)-NHN=Pyv Resin	141
TCP1130	Fmoc-L-Cys(Trt)-TCP-Resin	119
SAL1206	Fmoc-L-Cys(Trt)-Trt TG	125
WAA41306	Fmoc-L-Cys(Trt)-Wang Resin	149
WAA11306	Fmoc-L-Cys(Trt)-Wang Resin	149
SAL1306	Fmoc-L-Cys(Trt)-Wang TG	164
RAA1077	Fmoc-L-Gln(Rink-Resin)-OAll	78
RAA5951	Fmoc-L-Gln(Trt)-2CT Resin	101
SAL1110	Fmoc-L-Gln(Trt)-AC TG	135
PYV1160	Fmoc-L-Gln(Trt)-NHN=Pyv Resin	141
TCP1140	Fmoc-L-Gln(Trt)-TCP-Resin	119
SAL1210	Fmoc-L-Gln(Trt)-Trt TG	126
WAA11310	Fmoc-L-Gln(Trt)-Wang Resin	150
WAA41310	Fmoc-L-Gln(Trt)-Wang Resin	150
SAL1310	Fmoc-L-Gln(Trt)-Wang TG	164
RAA1310	Fmoc-L-Gln-2CT Resin	101
RAA2630	Fmoc-L-Glu(2CT resin)-NH <sub>2</sub>	100
RAA5935	Fmoc-L-Glu(OBzl)-2CT Resin	101
RAA6125	Fmoc-L-Glu(OtBu)-2CT Resin	101
SAL1112	Fmoc-L-Glu(OtBu)-AC TG	134
LW00602	Fmoc-L-Glu(OtBu)-MPPA	159
TCP1150	Fmoc-L-Glu(OtBu)-TCP-Resin	119
SAL1212	Fmoc-L-Glu(OtBu)-Trt TG	126
WAA41312	Fmoc-L-Glu(OtBu)-Wang Resin	150
WAA11312	Fmoc-L-Glu(OtBu)-Wang Resin	149
SAL1312	Fmoc-L-Glu(OtBu)-Wang TG	165
PYV1150	Fmoc-L-Glu(tBu)-NHN=Pyv Resin	141
CAA1004	Fmoc-L-Glu(Wang-Resin)-OAll	150
RAA2640	Fmoc-L-His(Mmt resin)-NH <sub>2</sub>	103
RAA5960	Fmoc-L-His(Trt)-2CT Resin	103
SAL1114	Fmoc-L-His(Trt)-AC TG	135

**back to content ↑**

# Resin Guideline

Product code	Product name	Page	Product code	Product name	Page
PYV1180	Fmoc-L-His(Trt)-NHN=Pyv Resin	142	WAA5156	Fmoc-L-Lys(Fmoc) Wang Resin	154
TCP1160	Fmoc-L-His(Trt)-TCP-Resin	119	SAL2000	Fmoc-L-Lys(Fmoc)-Wang TG	166
SAL1214	Fmoc-L-His(Trt)-Trt TG	127	CAA1008	Fmoc-L-Lys(Trt-Resin)-OAll	107
WAA11314	Fmoc-L-His(Trt)-Wang Resin	151	WAA5155	Fmoc-L-Lys-Wang Resin	153
WAA41314	Fmoc-L-His(Trt)-Wang Resin	151	RAA5980	Fmoc-L-Met-2CT Resin	107
SAL1314	Fmoc-L-His(Trt)-Wang TG	165	SAL1118	Fmoc-L-Met-AC TG	137
WAA2445	Fmoc-L-Hse(Trt)-Wang Resin	151	LW01302	Fmoc-L-Met-MPPA	160
RAA6167	Fmoc-L-Hyp(tBu)-2CT Resin	104	PYV1220	Fmoc-L-Met-NHN=Pyv Resin	142
WAA5167	Fmoc-L-Hyp(tBu)-Wang Resin	152	TCP1040	Fmoc-L-Met-TCP-Resin	120
RAA6140	Fmoc-L-Ile-2CT Resin	105	SAL1218	Fmoc-L-Met-Trt TG	128
SAL1115	Fmoc-L-Ile-AC TG	136	WAA41318	Fmoc-L-Met-Wang Resin	154
LW01002	Fmoc-L-Ile-MPPA	160	WAA11318	Fmoc-L-Met-Wang Resin	154
PYV1190	Fmoc-L-Ile-NHN=Pyv Resin	142	SAL1318	Fmoc-L-Met-Wang TG	167
TCP1020	Fmoc-L-Ile-TCP-Resin	120	RAA6220	Fmoc-L-Nle-2CT Resin	108
SAL1215	Fmoc-L-Ile-Trt TG	127	SAL1119	Fmoc-L-Nle-AC TG	137
WAA11315	Fmoc-L-Ile-Wang Resin	152	SAL1219	Fmoc-L-Nle-Trt TG	128
WAA41315	Fmoc-L-Ile-Wang Resin	152	WAA11319	Fmoc-L-Nle-Wang Resin	154
SAL1315	Fmoc-L-Ile-Wang TG	165	WAA41319	Fmoc-L-Nle-Wang Resin	155
RAA5940	Fmoc-L-Leu-2CT Resin	105	SAL1319	Fmoc-L-Nle-Wang TG	167
TCP1280	Fmoc-L-Leu-[13C6,15N]-TCP-Resin	120	SAL1120	Fmoc-L-Orn(Boc)-AC TG	137
SAL1116	Fmoc-L-Leu-AC TG	136	SAL1220	Fmoc-L-Orn(Boc)-Trt TG	129
LW01102	Fmoc-L-Leu-MPPA	160	WAA11320	Fmoc-L-Orn(Boc)-Wang Resin	155
PYV1200	Fmoc-L-Leu-NHN=Pyv Resin	142	WAA41320	Fmoc-L-Orn(Boc)-Wang Resin	155
TCP1030	Fmoc-L-Leu-TCP-Resin	120	SAL1320	Fmoc-L-Orn(Boc)-Wang TG	167
SAL1216	Fmoc-L-Leu-Trt TG	127	RAA6102	Fmoc-L-Phe-2CT Resin	109
WAA41316	Fmoc-L-Leu-Wang Resin	152	SAL1121	Fmoc-L-Phe-AC TG	138
WAA11316	Fmoc-L-Leu-Wang Resin	152	LW01402	Fmoc-L-Phe-MPPA	160
SAL1316	Fmoc-L-Leu-Wang TG	166	PYV1230	Fmoc-L-Phe-NHN=Pyv Resin	143
RAA1325	Fmoc-L-Lys(2CT-Resin)-OAll	107	TCP1050	Fmoc-L-Phe-TCP-Resin	121
WAA5153	Fmoc-L-Lys(Aloc)-Wang Resin	153	SAL1221	Fmoc-L-Phe-Trt TG	129
WAA5154	Fmoc-L-Lys(Biotin)-Wang Resin	153	WAA41321	Fmoc-L-Phe-Wang Resin	155
TCP1290	Fmoc-L-Lys(Boc)-[13C6,15N2]-TCP-Resin	120	WAA11321	Fmoc-L-Phe-Wang Resin	155
SAL1117	Fmoc-L-Lys(Boc)-AC TG	136	SAL1321	Fmoc-L-Phe-Wang TG	168
MAA5112	Fmoc-L-Lys(Boc)-Merrifield Resin	84	WAA6025	Fmoc-L-Pra-Wang Resin	156
LW01202	Fmoc-L-Lys(Boc)-MPPA	160	SAL1122	Fmoc-L-Pro-AC TG	138
PYV1210	Fmoc-L-Lys(Boc)-NHN=Pyv Resin	142	PYV1240	Fmoc-L-Pro-NHN=Pyv Resin	143
TCP1170	Fmoc-L-Lys(Boc)-TCP-Resin	120	TCP1060	Fmoc-L-Pro-TCP-Resin	121
SAL1217	Fmoc-L-Lys(Boc)-Trt TG	128	SAL1222	Fmoc-L-Pro-Trt TG	129
WAA11317	Fmoc-L-Lys(Boc)-Wang Resin	153	WAA11322	Fmoc-L-Pro-Wang Resin	156
WAA41317	Fmoc-L-Lys(Boc)-Wang Resin	153	WAA41322	Fmoc-L-Pro-Wang Resin	156
SAL1317	Fmoc-L-Lys(Boc)-Wang TG	166	SAL1322	Fmoc-L-Pro-Wang TG	168

Product code	Product name	Page	Product code	Product name	Page
RAA2670	Fmoc-L-Ser(2CT resin)-NH <sub>2</sub>	111	WAA11326	Fmoc-L-Tyr(tBu)-Wang Resin	158
RAA6106	Fmoc-L-Ser(tBu)-2CT Resin	112	WAA41326	Fmoc-L-Tyr(tBu)-Wang Resin	158
SAL1123	Fmoc-L-Ser(tBu)-AC TG	138	SAL1326	Fmoc-L-Tyr(tBu)-Wang TG	169
MAA5113	Fmoc-L-Ser(tBu)-Merrifield Resin	85	RAA5915	Fmoc-L-Val-2-CT Resin	116
LW01602	Fmoc-L-Ser(tBu)-MPPA	160	TCP1300	Fmoc-L-Val-[13C5,15N]-TCP-Resin	122
PYV1250	Fmoc-L-Ser(tBu)-NHN=Pyv Resin	143	SAL1127	Fmoc-L-Val-AC TG	140
TCP1180	Fmoc-L-Ser(tBu)-TCP-Resin	121	LW02002	Fmoc-L-Val-MPPA	161
SAL1223	Fmoc-L-Ser(tBu)-Trt TG	130	PYV1290	Fmoc-L-Val-NHN=Pyv Resin	144
WAA11323	Fmoc-L-Ser(tBu)-Wang Resin	156	TCP1080	Fmoc-L-Val-TCP-Resin	122
WAA41323	Fmoc-L-Ser(tBu)-Wang Resin	156	SAL1227	Fmoc-L-Val-Trt TG	131
SAL1323	Fmoc-L-Ser(tBu)-Wang TG	168	WAA41327	Fmoc-L-Val-Wang Resin	159
TCP1240	Fmoc-L-Ser(Trt)-TCP-Resin	121	WAA11327	Fmoc-L-Val-Wang Resin	158
RAA2680	Fmoc-L-Thr(MeO-BH resin)-NH <sub>2</sub>	39	SAL1327	Fmoc-L-Val-Wang TG	170
SAL1124	Fmoc-L-Thr(tBu)-AC TG	139	RL-2260	Fmoc-NH-MsbH-COOH	92
LW01702	Fmoc-L-Thr(tBu)-MPPA	161	RAL1155	Fmoc-NH-O-2CT Resin	71
PYV1260	Fmoc-L-Thr(tBu)-NHN=Pyv Resin	143	BR-5219	Fmoc-NH-O-2CT Resin	70
RAL1126	Fmoc-L-Thr(tBu)-ol-2CT Resin	113	PYV1000	Fmoc-NHN=Pyv Resin	140
TCP1190	Fmoc-L-Thr(tBu)-TCP-Resin	121	BR-5279	Fmoc-NHHN-2CT Resin	144
SAL1224	Fmoc-L-Thr(tBu)-Trt TG	130	BR-5280	Fmoc-NHHN-Trt-PEG Resin	144
WAA11324	Fmoc-L-Thr(tBu)-Wang Resin	157	BR-5209	Fmoc-PAL-MBHA Resin	55
WAA41324	Fmoc-L-Thr(tBu)-Wang Resin	157	BR-5205	Fmoc-Photolabile Resin	56
SAL1324	Fmoc-L-Thr(tBu)-Wang TG	169	BR-1330	Fmoc-Rink Amide AM resin	52
TCP1250	Fmoc-L-Thr(Trt)-TCP-Resin	121	RL-1027	Fmoc-Rink Amide-Linker	51
WAA6220	Fmoc-L-Thr(Trt)-Wang Resin	157	BR-1300	Fmoc-Rink-Amid MBHA resin	53
RAA5941	Fmoc-L-Trp(Boc)-2CT Resin	115	BR-1305	Fmoc-Rink-Amid-MBHA resin	53
SAL1128	Fmoc-L-Trp(Boc)-AC TG	139	BR-1340	Fmoc-Rink-Amide AM resin	52
PYV1270	Fmoc-L-Trp(Boc)-NHN=Pyv Resin	143	BR-1320	Fmoc-Rink-Amide AM resin	51
TCP1260	Fmoc-L-Trp(Boc)-TCP-Resin	122	BR-1360	Fmoc-Rink-Amide PEG AM Resin	52
SAL1228	Fmoc-L-Trp(Boc)-Trt TG	130	BR-1365	Fmoc-Rink-Amide PEG AM Resin	53
WAA11328	Fmoc-L-Trp(Boc)-Wang Resin	157	BR-1366	Fmoc-Rink-Amide PEG MBHA Resin	53
WAA41328	Fmoc-L-Trp(Boc)-Wang Resin	158	BR-1315	Fmoc-Rink-Amide-2CT resin	52
SAL1328	Fmoc-L-Trp(Boc)-Wang TG	169	BR-1310	Fmoc-Rink-Amide-2CT resin	52
TCP1070	Fmoc-L-Trp-TCP-Resin	122	WAA5132	Fmoc-Sar-Wang Resin	151
RAA2690	Fmoc-L-Tyr(2CT resin)-NH <sub>2</sub>	116	BR-2000	Fmoc-Sieber-PS resin	55
RAA5420	Fmoc-L-Tyr(tBu)-2CT Resin	116	BR-2005	Fmoc-Sieber-TG resin	55
SAL1126	Fmoc-L-Tyr(tBu)-AC TG	139	BR-9014	Fmoc-TTDS-BH Resin	70
MAA5114	Fmoc-L-Tyr(tBu)-Merrifield Resin	85	BR-9013	Fmoc-TTDS-Trt Resin	70
LW01902	Fmoc-L-Tyr(tBu)-MPPA	161	BR-5056	FMP AM Resin	66
PYV1280	Fmoc-L-Tyr(tBu)-NHN=Pyv Resin	143	SR-1114	Guanidinomethyl polystyrene	174
TCP1200	Fmoc-L-Tyr(tBu)-TCP-Resin	122	RAA1004	H-D-Ala-2CT Resin	93
SAL1226	Fmoc-L-Tyr(tBu)-Trt TG	131	RAA1134	H-D-allo-Ile-2CT Resin	104

**back to content ↑**

# Resin Guideline

Product code	Product name	Page	Product code	Product name	Page
RAA1029	H-D-Arg(Pbf)-2CT Resin	94	RAA1066	H-L-Cys(Trt)-2CT Resin	98
RAA1043	H-D-Asn-2CT Resin	95	RAA1330	H-L-Dap(Boc)-2CT Resin	99
RAA1049	H-D-Asp(OtBu)-2CT Resin	96	RAA1331	H-L-Dap(Boc)-2CT Resin	99
RAA1060	H-D-Cys(Trt)-2CT Resin	98	RAA1087	H-L-Gln(Trt)-2CT Resin	100
RAA1074	H-D-Glu(OtBu)-2CT Resin	100	RAA1088	H-L-Gln(Trt)-2CT Resin	101
RAA1100	H-D-His(Trt)-2CT Resin	103	RAA1085	H-L-Gln-2CT Resin	100
RAA1120	H-D-Hse(Trt)-2CT Resin	104	RAA1086	H-L-Gln-2CT Resin	100
RAA1144	H-D-Leu-2CT Resin	105	RAA2700	H-L-Glu(2CT resin)-OtBu	99
RAA1154	H-D-Lys(Boc)-2CT Resin	106	RAA1076	H-L-Glu(OtBu)-2CT Resin	100
RAA1160	H-D-Lys(Mtt)-2CT Resin	106	RAA1075	H-L-Glu(OtBu)-2CT Resin	99
RAA1170	H-D-Met-2CT Resin	108	RAA1093	H-L-His(Clt)-2CT Resin	102
RAA1200	H-D-Phe-2CT Resin	109	RAA1095	H-L-His(Mmt)-2CT Resin	102
RAA6225	H-D-Pro-2CT Resin	110	RAA1097	H-L-His(Mtt)-2CT Resin	102
RAA1229	H-D-Ser(tBu)-2CT Resin	111	RAA1105	H-L-His(Trt)-2CT Resin	102
RAA1235	H-D-Ser(Trt)-2CT Resin	111	RAA1106	H-L-His(Trt)-2CT Resin	103
RAA1249	H-D-Thr(tBu)-2CT Resin	112	RAA1115	H-L-Hse(Me)-2CT Resin	103
RAA1255	H-D-Thr(Trt)-2CT Resin	113	RAA1125	H-L-Hse(Trt)-2CT Resin	103
RAA1265	H-D-Trp-2-CT Resin	114	RAA1126	H-L-Hse(Trt)-2CT Resin	104
RAA1282	H-D-Tyr(tBu)-2CT Resin	115	RAA1135	H-L-Ile-2CT Resin	104
RAA1299	H-D-Val-2CT Resin	116	RAA1136	H-L-Ile-2CT Resin	104
RAA1040	H-Gly-2CT Resin	101	RAA1146	H-L-Leu-2CT Resin	105
RAA1041	H-Gly-2CT Resin	102	RAA1145	H-L-Leu-2CT Resin	105
RAA1005	H-L-Ala-2CT Resin	93	RAA1320	H-L-Lys(2CT-Resin)-OAll	107
RAA1006	H-L-Ala-2CT Resin	93	RAA1155	H-L-Lys(Boc)-2CT Resin	105
RAA1030	H-L-Arg(Pbf)-2CT Resin	94	RAA1156	H-L-Lys(Boc)-2CT Resin	106
RAA1031	H-L-Arg(Pbf)-2CT Resin	94	RAA1165	H-L-Lys(Mtt)-2CT Resin	106
RAA1335	H-L-Arg(Pmc)-2CT Resin	94	RAA1167	H-L-Lys(Trt)-2CT Resin	106
RAA1385	H-L-Arg(Pmc)-2CT Resin	95	RAA1168	H-L-Lys(Trt)-2CT Resin	106
RAA1045	H-L-Asn(Trt)-2CT Resin	95	RAA1175	H-L-Met-2CT Resin	107
RAA1046	H-L-Asn(Trt)-2CT Resin	95	RAA1176	H-L-Met-2CT Resin	107
RAA1044	H-L-Asn-2CT Resin	95	RAA4000	H-L-Mim-2CT Resin	108
RAA1047	H-L-Asp(OtBu)-2CT Resin	96	RAA1375	H-L-Nle-2CT Resin	108
RAA1048	H-L-Asp(OtBu)-2CT Resin	96	RAA1186	H-L-Orn(Boc)-2CT Resin	108
RAA1345	H-L-Cys(Acm)-2CT Resin	97	RAA1185	H-L-Orn(Boc)-2CT Resin	108
RAA1050	H-L-Cys(Clt)-2CT Resin	97	RAA1195	H-L-Orn(Mtt)-2CT Resin	109
RAA1055	H-L-Cys(Mmt)-2CT Resin	97	RAA1205	H-L-Phe-2CT Resin	109
RAA1365	H-L-Cys(StBu)-2CT Resin	98	RAA1206	H-L-Phe-2CT Resin	109
RAA1405	H-L-Cys(StBu)-2CT Resin	98	RAA5962	H-L-Pip-2CT Resin	109
RAA1355	H-L-Cys(tBu)-2CT Resin	97	RAA1221	H-L-Pro-2CT Resin	110
RAA1395	H-L-Cys(tBu)-2CT Resin	97	RAA1220	H-L-Pro-2CT Resin	110
RAA1065	H-L-Cys(Trt)-2CT Resin	98	RAA1232	H-L-Ser(Me)-2CT Resin	110

Product code	Product name	Page
RAA1230	H-L-Ser(tBu)-2CT Resin	110
RAA1231	H-L-Ser(tBu)-2CT Resin	111
RAA1240	H-L-Ser(Trt)-2CT Resin	111
RAA1241	H-L-Ser(Trt)-2CT Resin	111
RAA1252	H-L-Thr(Me)-2CT Resin	112
RAA1250	H-L-Thr(tBu)-2CT Resin	112
RAA1251	H-L-Thr(tBu)-2CT Resin	112
RAL1114	H-L-Thr(tBu)-ol-2CT Resin	113
RAL1115	H-L-Thr(tBu)-ol-2CT Resin	113
RAA1260	H-L-Thr(Trt)-2CT Resin	112
RAA1261	H-L-Thr(Trt)-2CT Resin	113
RAL1190	H-L-Threoninol(Mmt resin)-OTrt	113
RAA5977	H-L-Tic-2CT Resin	114
RAA1305	H-L-Trp(Boc)-2CT Resin	114
RAA1306	H-L-Trp(Boc)-2CT Resin	114
RAA1270	H-L-Trp-2CT Resin	114
RAA1271	H-L-Trp-2CT Resin	114
RAA1290	H-L-Tyr(Clt)-2CT Resin	115
RAA1292	H-L-Tyr(Me)-2CT Resin	115
RAA1280	H-L-Tyr(tBu)-2CT Resin	115
RAA1281	H-L-Tyr(tBu)-2CT Resin	115
RAA1300	H-L-Val-2CT Resin	116
RAA1301	H-L-Val-2CT Resin	116
RL-2170	HDMA	33
BR-5066	HMBA-AM Resin	49
BR-5249	HMBA-AM Resin	49
BR-5207	HMBA-MBHA Resin	49
BR-5068	HMPA Resin	48
BR-5250	HMPA Resin	48
BR-5069	HMPPA-MBHA Resin	49
BRH1280	HypoGel <sup>200°</sup> OH	61
BRH1290	HypoGel <sup>400°</sup> OH	61
BRH1040	HypoGel <sup>®</sup> 200 Br	71
BRH1050	HypoGel <sup>®</sup> 200 Bromo Acetal	73
BRH1060	HypoGel <sup>®</sup> 200 CHO	64
BRH1070	HypoGel <sup>®</sup> 200 Diol	62
BRH1080	HypoGel <sup>®</sup> 200 FMP	66
BRH1090	HypoGel <sup>®</sup> 200 FP	64
BRH1100	HypoGel <sup>®</sup> 200 HMBA	50
BRH1110	HypoGel <sup>®</sup> 200 RAM	53
BRH1120	HypoGel <sup>®</sup> 200 REM	76

Product code	Product name	Page
BRH1130	HypoGel <sup>®</sup> 200 SH	74
BRH1140	HypoGel <sup>®</sup> 200 Trt-OH	43
BRH1150	HypoGel <sup>®</sup> 200 Wang	47
BRH1160	HypoGel <sup>®</sup> 400 Br	72
BRH1170	HypoGel <sup>®</sup> 400 Bromo Acetal	73
BRH1180	HypoGel <sup>®</sup> 400 CHO	64
BRH1190	HypoGel <sup>®</sup> 400 Diol	62
BRH1200	HypoGel <sup>®</sup> 400 FMP	66
BRH1210	HypoGel <sup>®</sup> 400 FP	64
BRH1220	HypoGel <sup>®</sup> 400 HMBA	50
BRH1230	HypoGel <sup>®</sup> 400 RAM	53
BRH1240	HypoGel <sup>®</sup> 400 REM	76
BRH1250	HypoGel <sup>®</sup> 400 SH	74
BRH1260	HypoGel <sup>®</sup> 400 Trt-OH	43
BRH1270	HypoGel <sup>®</sup> 400 Wang	48
BRH1000	HypoGel <sup>®</sup> 200 COOH	57
BRH1010	HypoGel <sup>®</sup> 200 NH <sub>2</sub>	68
BRH1020	HypoGel <sup>®</sup> 400 COOH	57
BRH1030	HypoGel <sup>®</sup> 400 NH <sub>2</sub>	68
BR-5208	Linear Vinyl Sulfone Resin	76
BR-1180	MBH-Br Resin	38
BR-1185	MBH-Br Resin	38
BR-5072	MBHA Resin	38
BR-1120	MBHA-Resin	37
BR-5070	MBHA-Resin	37
BR-5071	MBHA-Resin	37
BR-5073	MBHA-Resin	38
BR-5074	MBHA-Resin	38
BR-1125	MBHA-Resin	37
BR-5030	Merrifield-PEG Resin	42
BR-5031	Merrifield-PEG Resin	42
BR-5032	Merrifield-PEG Resin	42
BR-1110	Mmt-Cl Resin	46
BR-1115	Mmt-Cl Resin	46
BR-1160	Mmt-OH Resin	45
BR-1165	Mmt-OH Resin	45
BR-1130	Mtt-Cl Resin	45
BR-1135	Mtt-Cl Resin	45
BR-1070	N-Ethyl-PAL-PEG resin	55
BR-1050	N-Methyl-PAL-PEG resin	55
BR-5076	Oxime Resin	41

**back to content ↑**

# Resin Guideline

Product code	Product name	Page	Product code	Product name	Page
RL-1180	OxymaPure	33	BR-5269	Polystyrene-Et-NH <sub>2</sub>	171
BR-5210	PAM Resin	62	BR-5113	Polystyrene-Et-OH	60
BR-5239	PAM Resin	62	BR-5114	Polystyrene-Et-OH	60
BR-5240	Polystyrene (PEG crosslinked)	35	BR-5270	Polystyrene-Et-SH	74
SR-1111	Polystyrene-3-CHO	172	BR-5271	Polystyrene-Et-SH	74
SR-1129	Polystyrene-4-CHO	172	SR-1073	Polystyrene-Et-SO <sub>2</sub> Cl	173
SR-1004	Polystyrene-Ac	172	SR-1119	Polystyrene-Et-SO <sub>2</sub> Cl	173
SR-1108	Polystyrene-Ac	172	SR-1120	Polystyrene-Et-SO <sub>3</sub> H	173
BR-5251	Polystyrene-AE-COOH	57	SR-1121	Polystyrene-Et-SO <sub>3</sub> H	173
BR-5252	Polystyrene-AE-COOH	57	SR-1122	Polystyrene-Et-SO <sub>3</sub> H	173
BR-5253	Polystyrene-AE-COOH	171	BR-5272	Polystyrene-FMP	65
BR-5248	Polystyrene-Allyl	73, 76	BR-5273	Polystyrene-FMP	65
TR-2000	Polystyrene-AM-(AC-HMPA)-RAM	77	BR-5218	Polystyrene-Indole-CHO	64
TR-1000	Polystyrene-AM-AC-HMPA	77	BR-5085	Polystyrene-Me	35
BR-5254	Polystyrene-AM-CHO	63	BR-5086	Polystyrene-Me	35
BR-5255	Polystyrene-AM-CHO	63	BR-1000b	Polystyrene-Me-NH <sub>2</sub>	67
BR-5256	Polystyrene-AM-COOH	57	BR-1000a	Polystyrene-Me-NH <sub>2</sub>	67
BR-5257	Polystyrene-AM-COOH	57	BR-1000c	Polystyrene-Me-NH <sub>2</sub>	67
BR-5258	Polystyrene-AM-COOH	170	BR-5214	Polystyrene-Me-OH	60
BR-5081	Polystyrene-Br	171	BR-5019	Polystyrene-Me-OH	59
BR-5110	Polystyrene-Br	171	BR-5020	Polystyrene-Me-OH	60
BR-5212	Polystyrene-Br	71	BR-5241	Polystyrene-Me-OH	59
BR-5260	Polystyrene-Bu-NH <sub>2</sub>	68	BR-5242	Polystyrene-Me-OH	59
BR-5261	Polystyrene-Bu-NH <sub>2</sub>	68	BR-5274	Polystyrene-Me-SH	73
BR-5262	Polystyrene-Bu-NH <sub>2</sub>	68	BR-5275	Polystyrene-Me-SH	74
BR-5111	Polystyrene-Bu-OH	60	SR-1109	Polystyrene-Morpholine	174
BR-5112	Polystyrene-Bu-OH	60	SR-1123	Polystyrene-Morpholine	174
SR-1008	Polystyrene-CH <sub>2</sub> PPh <sub>3</sub> , Cl	176	SR-1021	Polystyrene-NCO	174
BR-5217	Polystyrene-CHO	63	SR-1124	Polystyrene-NCO	174
BR-5263	Polystyrene-CHO	63	SR-1093	Polystyrene-NEt <sub>2</sub>	174
BR-5084	Polystyrene-COCH <sub>2</sub> -Cl	72	SR-1131	Polystyrene-NEt <sub>3</sub> Cl	175
BR-5213	Polystyrene-COOH	56	SR-1132	Polystyrene-NH <sub>2</sub>	175
BR-5259	Polystyrene-COOH	56	BR-5276	Polystyrene-O-Ph-CHO	63
SR-1130	Polystyrene-COOH	170	BR-5277	Polystyrene-O-Ph-CHO	64
SR-1012	Polystyrene-DIC	172	SR-1116	Polystyrene-Pip	175
SR-1014	Polystyrene-EDC	173	SR-1133	Polystyrene-Pip	175
BR-5264	Polystyrene-Et-Br	71	SR-1032	Polystyrene-PPh <sub>2</sub>	175
BR-5265	Polystyrene-Et-Br	71	SR-1125	Polystyrene-PPh <sub>2</sub>	175
BR-5266	Polystyrene-Et-NH <sub>2</sub>	67	SR-1134	Polystyrene-PPh <sub>2</sub> -Pd(PPh <sub>3</sub> ) <sub>3</sub>	176
BR-5267	Polystyrene-Et-NH <sub>2</sub>	171	SR-1034	Polystyrene-SO <sub>2</sub> Cl	176
BR-5268	Polystyrene-Et-NH <sub>2</sub>	67	SR-1126	Polystyrene-SO <sub>3</sub> H	176

Product code	Product name	Page
SR-1127	Polystyrene-SO <sub>3</sub> Na	177
BR-5204	Ramage Resin	54
BR-2015	Ramage Resin	54
RL-1029	Ramage-Linker	55
SR-1036	REM Resin	75
SR-1118	REM Resin	76
BR-5088	Rink Acid Resin	40
BR-5093	Safety Catch (Aliphatic) MBHA Resin	56
BR-5094	Safety Catch (Aromatic) MBHA Resin	56
BR-2010	TCP Resin	46
TR-1200	TentaGel-AC-HMPA	77
TR-2100	TentaGel-AM-(AC-HMPA)-RAM	77
HL12011	TG HL AC (75µm)	51
HL12019	TG HL Bromo Acetal (110µm)	73
HL12136	TG HL CHO (110µm)	65
HL12906	TG HL CHO (75µm)	65
HL12133	TG HL COOH (110µm)	58
HL12903	TG HL COOH (75µm)	58
HL12010	TG HL Diol (75µm)	62
HL12016	TG HL FMP (75µm)	66
HL12014	TG HL HMBA (75µm)	50
HL12132	TG HL NH <sub>2</sub> (110µm)	69
HL12902	TG HL NH <sub>2</sub> (75µm)	69
HL12023	TG HL RAM (75µm)	54
HL12018	TG HL REM (75µm)	76
HL12134	TG HL SH (110µm)	75
HL12904	TG HL SH (75µm)	75
HL12012	TG HL Trt-OH (75µm)	43
HL12013	TG HL Wang (75µm)	48
R28014	TG R HMBA (90µm)	50
R28902	TG R NH <sub>2</sub> (90µm)	68
R28023	TG R RAM (90µm)	54
R280120	TG R Trt-OH (90µm)	61
R28013	TG R Wang (90µm)	48
S-30011	TG S AC (90µm)	50
S-30131	TG S Br (130µm)	72
S-30901	TG S Br (90µm)	72
S-30136	TG S CHO (130µm)	65
S-30906	TG S CHO (90µm)	65
S-30135	TG S CO-NHS (130µm)	58
S-30905	TG S CO-NHS (90µm)	58

Product code	Product name	Page
S-30133	TG S COOH (130µm)	58
S-30903	TG S COOH (90µm)	58
S-30016	TG S FMP (90µm)	66
S-30014	TG S HMBA (90µm)	50
S-30137	TG S NH-NH-Boc (130µm)	70
S-30907	TG S NH-NH-Boc (90µm)	70
S-30132	TG S NH <sub>2</sub> (130µm)	69
S-30902	TG S NH <sub>2</sub> (90µm)	69
S-30130	TG S OH (130µm)	61
S-30900	TG S OH (90µm)	61
S-30023	TG S RAM (90µm)	54
S-301340	TG S SH (130µm)	75
S-309040	TG S SH (90µm)	74
S-30012	TG S Trt-OH (90µm)	43
S-30013	TG S Wang (90µm)	48
XV30015	TG XV HMPA (100µm)	49
XV30002	TG XV NH <sub>2</sub> (100µm)	69
XV30023	TG XV RAM (100µm)	54
XV30031	TG XV Trt-Cl (100µm)	44
XV30012	TG XV Trt-OH (100µm)	44
SR-1037	Traceless Arene Resin	177
BR-1145	Trt-Cl Resin	43
BR-1140	Trt-Cl Resin	43
BR-1150	Trt-OH Resin	42
BR-5243	Trt-OH Resin	171
BR-1155	Trt-OH Resin	42
PAM5795	Trt-S-Ac-L-Leu-PAM Resin	78
BR-9011	TTDS-Mmt-Resin	59
BR-9012	TTDS-Mmt-Resin	59
BR-5244	Wang Resin	47
BR-5245	Wang Resin	47
BR-5098	Wang Resin	46
BR-1420	Wang Resin	47
BR-5106	Wang-amide Resin	47
BR-5216	Wang-Br Resin	47
SR-1023	Wang-OC-Imidazole	177
SR-1025	Wang-OCO-Su	177
SR-1024	Wang-pNPC	177
SR-1039	Weinreb Amide Resin	177

**back to content ↑**



## Get in Contact

**Iris**  
Biotech

**Iris Biotech GmbH**  
Adalbert-Zoellner-Str. 1  
95615 Marktredwitz  
Germany

+49 (0) 9231 97121-0  
+49 (0) 9231 97121-99  
[info@iris-biotech.de](mailto:info@iris-biotech.de)  
[www.iris-biotech.de](http://www.iris-biotech.de)

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