



Article No.: AZURA RNA System
Articlename: AZURA RNA Purifier

RNA Purifier: Preparative HPLC system for batch purification of RNA

with ternary pump, UV detection and thermal control

The therapeutic potential of mRNA is extensively discussed in times of search for vaccines in the research of COVID-19. The idea is to provide the human body with mRNA, encoding therapeutic proteins, which the immune system uses to fight the virus.¹

RNA can be produced and applied much easier compared to the full-length therapeutic proteins it is encoding for. In order to generate pure mRNA to administer, it was found that purification by chromatographic means is highly important.²

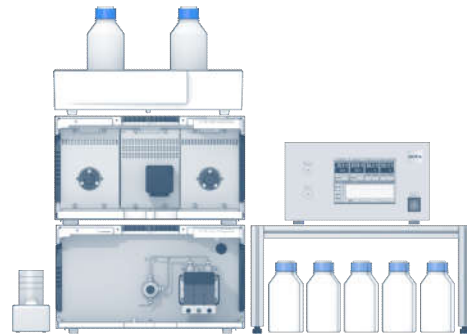
Key for RNA chromatography is the HPLC system layout. It is highly important that the chromatography is carried out at elevated temperatures in order to denature the RNA itself and hence simplify its structural diversity and yield a successful purification. Elevated temperature in combination with a binary gradient between acetonitrile and water as done in the Reverse Phase Chromatography Method, will effectively separate and also inactivate and unfold RNase.^{3,4}

The dedicated **RNA Purifier** is an especially designed system for RNA purification. It consists of a ternary low pressure system pump, which not only gives you a reliable formation of binary gradient between water including 1.0 M TEAA (pH 7) and acetonitrile, but also allows the direct sample application of large volume sample onto the column by the system pump via its separate sample inlet port. The flow rate range of this pump lies between 10 to 80 ml/min. Sample Injection via a sample- or Variloop is possible with the integrated injection valve. After the injection valve solvent as well as sample will be heated by an eluent heater and then applied onto the column, which additionally is heated by a heating sleeve to ensure perfect thermal purification conditions. Product identification is realized by the variable single wavelength detector at 260 nm or the wavelength of your choosing. After purification fractionation is carried out by the fractionation valve.

Literature:

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1. Schlake et al. *Molecular Therapy*, 2019, 27,4
2. Kariko et al. *Nucleic Acids Research*, 2011, 39 (21) e142
3. Gjerde et al. *RNA purification and analysis* 2009
4. Ketterer T. et al. U.S. Patent 8,383,340 B2.



RNA Purifier

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SYSTEM COMPONENTS



AZURA P 2.1L

Article No. APE20KA

AZURA® Pump P 2.1L with 100 ml pump head (stainless steel)

Max. flow rate : **100 ml/min**

Pump head materials : **Stainless steel**

Gradient : **Isocratic**

Maximum delivery pressure [MPa] : **40 MPa**

Maximum delivery pressure [bar] : **400 bar**



AZURA LPG ternary module for Pump P 2.1L

Article No. AZZ00AB

LPG module for Pump P 2.1L ternary up to 220 ml/min (stainless steel)



Dynamic mixer

Article No. A0581

Dynamic mixing chamber (250 V), stainless steel, preparative, 1/8", up to 250 bar, 5.9 ml mixing volume

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AZURA Assistant ASM 2.2L

Article No. AY00593

Left module: Valve drive VU 4.1 - EWA04 Middle module: UV detector UVD 2.1S - EDA03XA Right module: Valve drive VU 4.1 - EWA04

Left module : **Valve drive VU 4.1 - EWA04**

Middle module : **UV detector UVD 2.1S - EDA03XA**

Right module : **Valve drive VU 4.1 - EWA04**



AZURA V 4.1 Valve

Article No. AVD26AE

2-position valve, 6 Port, DLC stainless steel, PEEK, 1/16", 500 bar, 0.75 mm bore size

Operated : **electrical by VU 4.1**

Port number : **6**

Positions : **2**

Material : **Stainless steel**

Capillary connection : **1/16"**



5 ml Sample loop

Article No. A0586-2

Sample loop, 5ml, stainless steel, 1.6 mm ID

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AZURA V 4.1 Valve

Article No. [AVS35AE](#)

Multiposition valve, 8 Port, DLC stainless steel, PEEK, 1/16", 300 bar, 0.75 mm bore size

Operated : **electrical by VU 4.1**

Port number : **8**

Positions : **Multiposition**

Material : **Stainless steel**

Capillary connection : **1/16"**



Semi-preparative UV Flow Cell

Article No. [A4042](#)

3 mm path length, 2 μ l, 1/16", stainless steel, classical KNAUER flow cell

Flow cell type : **Semi-preparative UV flow cell**

Path length : **3 mm**

Capillary connection : **1/16"**

Max. flow rate : **50 ml/min**

Flow cell volume : **2 μ l**



Preparative UV Flow Cell

Article No. [A4066](#)

2 mm path length, 1/8", 200 bar, stainless steel, changeable to 0.5/1.25 mm, classical KNAUER flow cell

Flow cell type : **Preparative UV flow cell**

Path length : **0.5 / 1.25 / 2 mm**

Capillary connection : **1/8"**

Max. flow rate : **1000 ml/min**

Flow cell volume : **1.7 / 4.3 / 6.8 μ l**

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Eluent Heating Device (2-Channel)

Article No. A70054V4

Eluent heating device to control the temperature of eluent and a column heating sleeve (2-Channel). Cleanroom compatible.



Custom made Column Heating Sleeve for HPLC Columns

Article No. A57032

Heating sleeve for HPLC costum made up to 350 x 50 mm



Benchtop Rack customized

Article No. A70015

Benchtop rack: special manufacture with customized dimensions



AZURA Eluent tray E 2.1L

Article No. AZC00

AZURA® Eluent tray E 2.1L for AZURA® devices with a capacity of 6 x 1 l bottles or 4 x 2.5 l bottles or 2 x 5 l bottles, (delivery without bottles)

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Router 8-Port LAN, WiFi, international

Article No. A64809INT

WiFi router, 8x LAN GBit RJ-45 ports, 1x WAN GBit RJ-45 port, power plug UK, US or AUS



Inlet-bushing kit LPG

Article No. A58206

Solvent Filter 1/4" PTFE tubing max Flow 250 ml/min



AZURA Capillary Start-up kit

Article No. A9849-1

AZURA® start-up kit 1/16", stainless steel, semi-prep, capillary kit



Adapter 1/16" to M8x1 thread

Article No. A7200

Adapter to connect a capillary with 1/16" OD (thread: 10-32 UNF) to AZURA® Pump P2.1L or BlueShadow Pump 80P outlet (1/8", M8x1 thread), material: stainless steel

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Tool kit AZURA

Article No. A1033-1

Tool Kit AZURA® for 1/16" systems (stainless steel)



Set of eluent supply bottles

Article No. A70037

Set of eluent supply bottles, 3 x 2.5 L brown glass bottles (borosilicate glass) with special round bottom for minimal eluent remainder, for preparative HPLC/FPLC, includes screw-type cap



250 ml Bottle

Article No. A2056

250 ml Bottle for Piston Back Flushing



Installation Box Kit

Article No. A9862

Installation Box Kit, Box for small parts, KNAUER file folder and support sticker

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PurityChrom® Basic

Article No. A2650

Basic License for one system

Software name : **PurityChrom® 5**



Chromatography Workstation: PC plus monitor

Article No. A13120

Desktop PC (SFF) for PurityChrom® and ClarityChrom® with 24" monitor, English edition Windows 10 Prof. 64-bit English, Intel® Core™ i5, 8 GB RAM, 256 GB SSD, two network cards



Do you need more details or a quote?

We are happy to help you



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