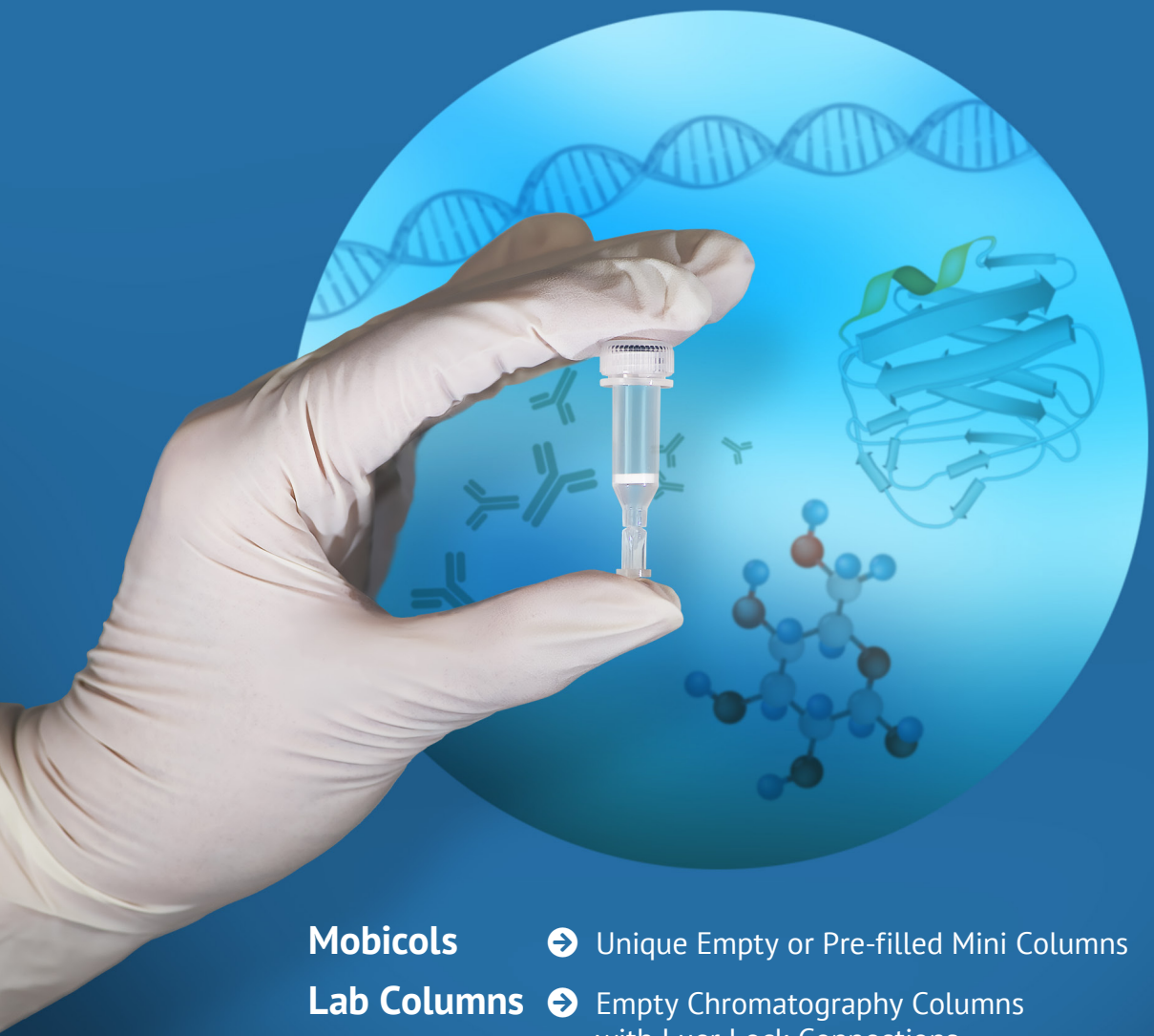
Mo Bi Tec
MOLECULAR BIOTECHNOLOGY

Purification Columns

MOBICOLS | LAB COLUMNS

Clean-Up

of Proteins, Antibodies, Nucleic Acids & More



Request a free sample!

Enjoy short processing times!

Works with small quantities of resin & buffer!

Mobicols Unique Empty or Pre-filled Mini Columns

Lab Columns Empty Chromatography Columns with Luer-Lock Connections

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Purification Columns

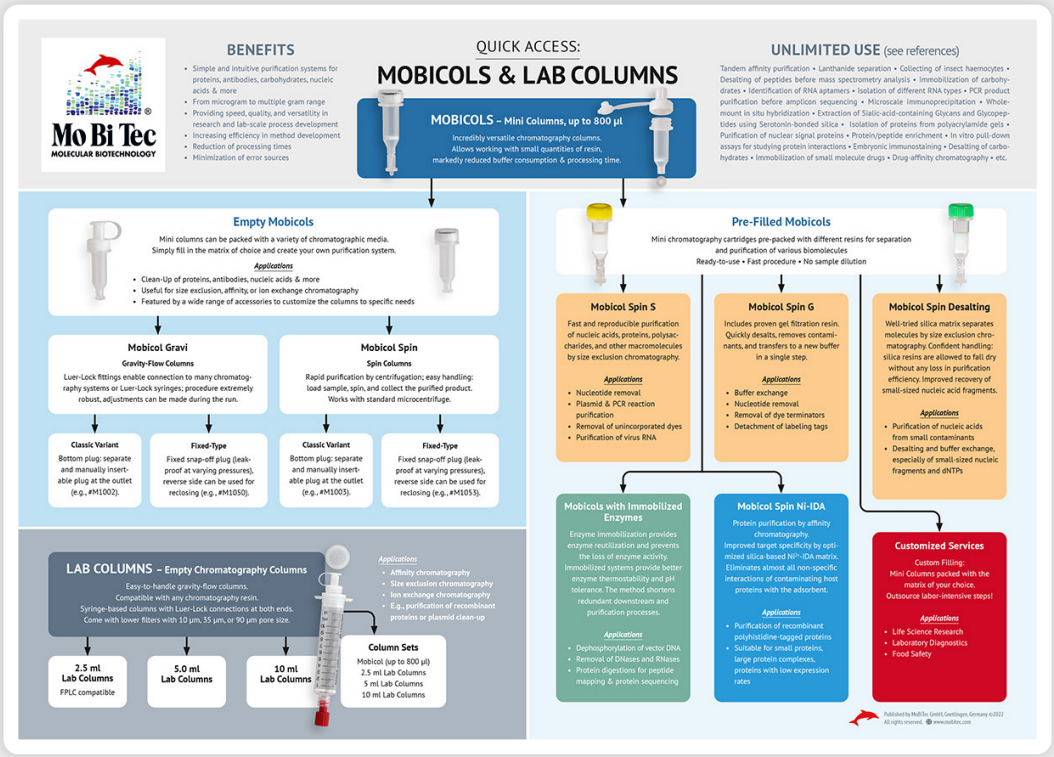
MOBICOLS

- Mini columns (up to 800 µl) - Ideal for small sample volumes
- Fast and simple purification of biomolecules
- Practical tool for chemical research, e.g., for chromatographic intragroup lanthanide separation
- Streamlines the use of resins
- Gravity-flow columns or spin columns
- Useful for, e.g., size exclusion or affinity chromatography
- Empty or pre-packed columns
- Choose from various filter sizes and accessories
- Luer-fittings enable connection to various chromatography systems or elution using a standard syringe
- Small scale laboratory techniques
  - Allows working with small quantities of resin
  - Markedly reduced buffer consumption and processing time
- Renowned for quality:
  - MoBiTec invented and designed the columns (patented)
  - Highest quality for more than 30 years, Made in Germany
  - Our mini columns have already been sold several million times worldwide. They are an integral part of many laboratory diagnostics kits for clinical routine & research

Lab Columns – Empty Chromatography Columns

- Empty chromatography columns for lab scale
- Syringe-based columns with Luer-Lock adapters at the in- and outlet, providing several handling advantages

Quick Access:
Mobicols & Lab Columns



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Topics in this Issue

Introduction

Purification Columns – Clean-Up of Proteins, Antibodies, Nucleic Acids & More

The purification of biomolecules is an essential part of the daily laboratory routine. Protein purification is vital for the specification of the function, structural studies, and biochemical assays. For example, purified antibodies are essential for many research applications. High purity DNA and RNA is a prerequisite for most molecular biological applications, including enzymatic nucleic acid digestion, transformation, RT-(q)PCR, and NGS library preparation. Our multipurpose chromatography columns make clean-up protocols easier and faster.

MoBiTec offers a variety of columns for the purification of nucleic acids, peptides, proteins, and antibodies. Depending on the matrix, they can be used for affinity, size exclusion, and ion exchange chromatography. They are suitable for small sample volumes of a few µl up to larger volumes of several ml. Furthermore, they are featured by a wide range of accessories to customize the columns to your specific needs.

Save valuable resources and enhance your purification power with our Mobicols (mini columns) or our Lab Columns (empty chromatography columns).

Mobicols – Versatile Mini Columns

Mobicols are incredibly versatile mini columns (up to 800 µl) that are an indispensable addition to every lab. Mobicols can be used both 1) as gravity-flow column (**Mobicol Gravi**) or 2) as spin column (**Mobicol Spin**). Depending on your preference, they can be ordered as empty columns or pre-filled with matrix, e.g., Sephadex® G-50 resin, different Sephacryl® resins, or silica-based resins. Luer-Lock adapters and filters with different diameters and pore sizes are offered to customize the columns to your specific needs. Mobicols are made of polypropylene, the filters of polyethylene. The mini columns can be autoclaved at 120 °C (with inserted filter only at 110 °C for 10 minutes).

Shared Features of Mobicol Gravi & Mobicol Spin Columns:

- Fast and simple purification of biomolecules like nucleic acids, peptides, proteins, and other compounds
- Useful for size exclusion, affinity, or ion exchange chromatography
- Empty columns - fill in the matrix of choice
- Also available pre-filled with different matrices
- Ideal for small sample volumes
- Plugs included for relocking
- Filters available with 10 µm, 35 µm, and 90 µm pore sizes
- Materials: polypropylene (column corpus), polyethylene (filters)
- Autoclavable at 120 °C (with inserted filter at 110 °C for 10 minutes)

Introduction

Additional Feature Mobicol Gravi:

- Luer-Lock cap which is compatible to Luer-Lock syringes or other chromatography systems

Additional Feature Mobicol Spin:

- Can be used with a standard microcentrifuge (can be centrifuged in most 1.5 ml or 2 ml collection tubes)

Lab Columns – Empty Chromatography Columns

These empty syringe-based columns are available in three sizes (2.5 ml, 5 ml, and 10 ml) and come with an inserted lower filter with the pore size of your choice (10 µm, 35 µm, or 90 µm). Each column has Luer-Lock connectors at both ends for chromatography tubing or syringes. To close the columns, the 5 ml and 10 ml columns include an additional cap and the 2.5 ml columns have a Luer-Lock closing cap. The 2.5 ml columns can be centrifuged and autoclaved (with inserted filters only at 110 °C for 10 minutes). Each package of columns includes two One-Way stopcocks.

Upper filters (used on top of the matrix) and Luer-Lock adapters are available separately for the 2.5 ml, 5 ml, and 10 ml columns.

Features:

- Easy to handle
- Smallest and largest volumes can be treated straightforwardly
- Compatible with laboratory standards
- Each column has Luer-Lock connectors at both ends for chromatography tubing or syringes
- Two One-Way Stopcocks included

Applications:

- Affinity chromatography
- Size exclusion chromatography
- Ion exchange chromatography

Empty Mobicols

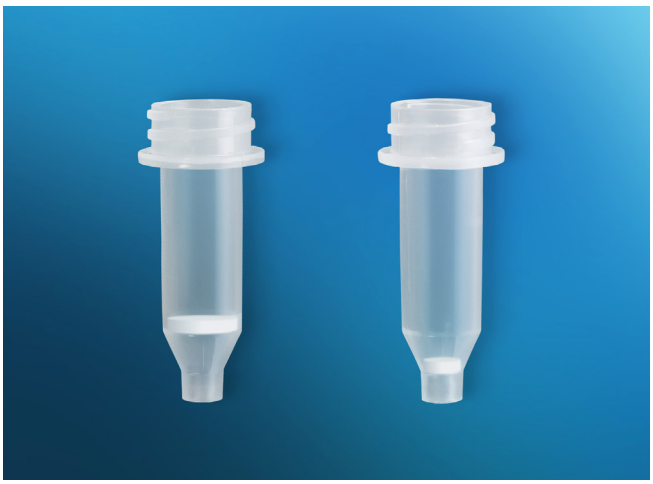
Empty Mobicols are disposable columns that can be packed with a variety of chromatographic resins. You can choose between gravity-flow or spin columns.

Mobicol Gravi – Empty Gravity-Flow Columns

Mobicol Gravi – Clean-up by Gravity-Flow Chromatography

Column chromatography can be performed with automated systems which use a pump to force solvent through a packed column at a set flow rate, or can be run by gravity-flow. The gravity method is less expensive, the user has more control, and can make adjustments during the run.

Mobicol Gravi columns are developed for performing size exclusion, affinity, or ion exchange chromatography by gravity-flow. By using the supplied Luer-Lock cap, there is no limitation in volume, i.e., it is possible to apply small or large volumes of sample or buffer. Using the Luer-Lock cap, a syringe can be connected to the top of the Mobicol Gravi column as a reservoir for sample or buffer. To enable a connection to larger reservoirs, an additional Luer-Lock adapter is available to attach chromatography tubing to the top cap. This even enables a safe connection from a pump to the inlet of a Mobicol Gravi column. Luer-Lock connections for the bottom, a One-Way Stopcock and various filters are also offered to customize the columns to specific needs (Mobicol Accessories, page 13).



Left: large filter, right: small filter

MoBiTec offers small and large filters of different diameters. For gravity-flow chromatography, we strongly recommend using large filters. Otherwise, the flow through the column is too slow, not uniform, and can also break off completely. You can also choose from various filter pore sizes - 10 µm, 35 µm, and 90 µm. The right filter pore size depends on your matrix: the matrix used should not pass through the filter pores.

Empty Mobicols

Mobicol Gravi – Features:

- Mini columns (up to 800 µl) for quick purification of biomolecules and other compounds
- Fill with the matrix of your choice
- Supplied with two different caps: screw cap with rubber seal and Luer-Lock cap compatible to, e.g., syringes with Luer-Lock fitting
- Additional adapters are available for inlet and outlet chromatography tubing
- Plugs included for relocking
- Filters with 10 µm, 35 µm, and 90 µm pore sizes available
- Autoclavable at 120 °C (with inserted filter at 110 °C for 10 minutes)
- Materials: polypropylene (column corpus), polyethylene (filters)
- Available as Classic or Fixed type (see box on the right)

Different Design – Same Application: Mobicol Gravi Classic vs. Mobicol Gravi Fixed

Two types of Mobicol Gravi columns are available: **Mobicol Gravi Classic** and **Mobicol Gravi Fixed**. Both column types differ slightly in shape, but are totally equal regarding sample processing properties.

The Classic variant has a separate and manually insertable plug for the outlet (bottom plug), whereas the Fixed type comes as one piece with a fixed snap-off plug. The Mobicol Gravi Fixed can be packed, stored, or shipped with no leakage. The outlet is 100% tight until bent off. The reverse side of the snap-off plug can then be used for relocking.

Mobicol Gravi Fixed: Leak-proof outlet plug; tight even at varying pressures (e.g., transportation in airplanes).

Overview Empty Gravity-Flow Columns

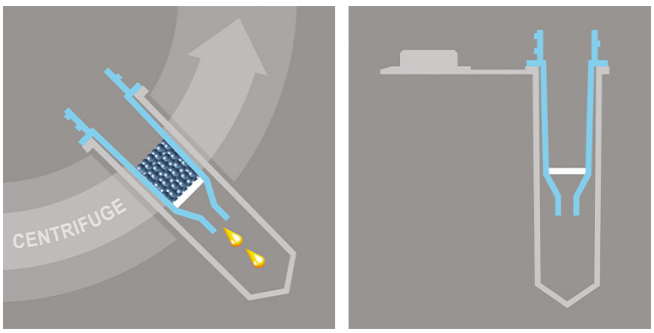
Order No.	Description	Amount
M1002	Mobicol Gravi Classic with Luer-Lock and screw cap, bottom plug, without filters	50
M1050	Mobicol Gravi Fixed with Luer-Lock and screw cap, fixed outlet plug, without filters	50
M105035F	Mobicol Gravi Fixed with Luer-Lock and screw cap, fixed outlet plug and inserted large 35 µm filter	50

Bottom plug: *separate and manually insertable plug for the outlet.*
Fixed outlet plug: *fixed snap-off plug, reverse side can be used for relocking.*
Filters and other accessories *can be ordered separately.*

Empty Mobicols

Mobicol Spin – Empty Spin Columns

Mobicol Spin – Speed-Up your Purification with a Microcentrifuge



Mobicol Spin Columns can be centrifuged in 1.5 ml or 2 ml collection tubes

The Mobicol Spin Columns are developed as fast and convenient routine tool for clean-up of biomolecules by spinning. They can be used without matrix (e.g., to extract trypsinated proteins out of a gel slice for Mass Spec analysis) or filled with a matrix of your choice, e.g., for performing size exclusion or affinity chromatography.

Independent of the preferred chromatography, the handling is easy: load the sample on the column, spin, and collect the flow-through. For collection, the Mobicol Spin column must be placed in a 1.5 ml or 2 ml microtube before centrifugation. Compared to gravitation chromatography, spinning is faster.

Left: large filter, right: small filter

For spinning, both small and large filters (different diameters) can be selected. If you choose the smaller filters, you will have a larger working volume (minimal death volume). This is due to the fact that the smaller filters are located further down in the column body.

You can also choose from various filter pore sizes – 10 µm, 35 µm, and 90 µm. The appropriate filter pore size depends on your matrix: the matrix used should not pass through the filter pores.

Empty Mobicols

Mobicol Spin – Features

- Mini spin columns (up to 800 µl) for use in a standard microcentrifuge
- Comes empty – fill in your own material (matrix, gel slice, etc.)
- Suitable for the purification of nucleic acids, peptides, proteins, and more
- Easy handling: load sample, spin, and collect the purified product
- Less than 4 minutes per application
- Reproducible results
- No sample dilution
- Versatile in use

Different Design – Same Application: Mobicol Spin Classic vs. Mobicol Spin Fixed

Two types of Mobicol Spin columns are available: **Mobicol Spin Classic** and **Mobicol Spin Fixed**. Both column types differ slightly in shape, but are totally equal regarding sample processing properties.

The Classic variant has a separate and manually insertable plug for the outlet (bottom plug), whereas the Fixed type comes in one piece with a fixed snap-off plug. The Mobicol Spin Fixed can be packed, stored, or shipped with no leakage. The outlet is 100% tight until bent off. The reverse side of the snap-off plug can then be used for relocking.

Mobicol Spin Fixed:
Leak-proof outlet plug; tight even at varying pressures (e.g., transportation in airplanes).

Overview Empty Spin Columns

Order No.	Description	Amount
M1003	Mobicol Spin Classic with screw cap, bottom plug, without filters	50
M1053	Mobicol Spin Fixed with screw cap, fixed outlet plug, without filters	50
M105010S	Mobicol Spin Fixed with screw cap, fixed outlet plug and inserted small 10 µm filter	50
M105210S	Mobicol Spin Fixed with screw cap, fixed outlet plug and inserted large 10 µm filter	50
M1002S	Mobicol Spin Classic with screw cap, bottom plug and large 10 µm filter	100

Bottom plug: *separate and manually insertable plug for the outlet.*
Fixed outlet plug: *fixed snap-off plug, reverse side can be used for relocking.*
Filters and other accessories *can be ordered separately.*

Mobicol Accessories

For its mini columns MoBiTec offers a variety of filters with different pore sizes and diameters. With this range, the users can select the ideal size for their applications for optimal performance. Multiple accessories designed for gravity-flow chromatography are also available, including Luer-Lock adapters and stopcocks.

Filters

Filters with different diameters and pore sizes are offered separately to customize the Mobicol columns to your specific needs.

Order No.	Description	Amount	Recommended for	Can be used with (Mobicol Order No.)
M2110	Filter (small) 10 µm pore size	50	Spinning	M1003, M1053
M513515	Filter (small) 35 µm pore size	50	Spinning	M1003, M1053
M2190	Filter (small) 90 µm pore size	50	Spinning	M1003, M1053
M2210	Filter (large) 10 µm pore size	50	Gravity-flow and spinning	M1002, M1003, M1050 & M1053
M523515	Filter (large) 35 µm pore size	50	Gravity-flow and spinning	M 1002, M1003, M1050 & M1053
M2290	Filter (large) 90 µm pore size	50	Gravity-flow and spinning	M1002, M1003, M1050 & M1053

For gravity-flow chromatography, we strongly recommend using large filters. For spinning, both filter sizes (small and large) can be selected. The appropriate filter pore size depends on your matrix: the matrix used should not pass through the filter pores.

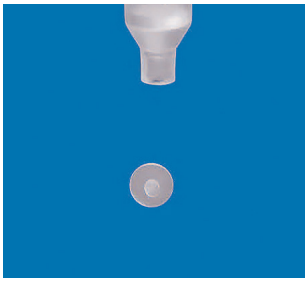
Mobicol Accessories

Adapters, Plugs, and More (for Gravity-Flow)

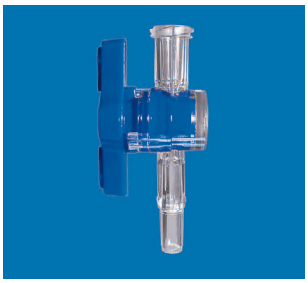
M3001 *Tubing-to-Luer-Lock Adapter*

M3003 *Luer-Lock Adapter M*

M3004 *Luer-Lock Adapter F*

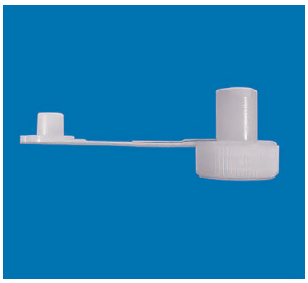


M3005 *Bottom Plugs*



M3006 *One-Way Stopcock*

M3007 *Luer-Lock Adapter M/M*



M3009 *Luer-Lock Caps*

The Luer-Lock adapters at the inlet and outlet of the Mobicol Gravi columns enable the purification of larger sample volumes that exceed the actual capacity of the mini column, or even partial automation of the process. For this purpose, MoBiTec offers a variety of adapters to enable the connection to larger reservoirs or even to attach chromatography tubing to the top cap. Without any additional adapter, a syringe can be connected to the Luer-Lock cap. The polypropylene Luer-Lock Adapter M (M3003) for tubing connection to the inlet of the column allows a flow-through mode at low pressure, whereas the Luer-Lock Adapter F (M3004) is suitable for a tubing connection to the outlet of the column. Furthermore, the Luer-Lock Adapter M/M (M3007) facilitates the connection of the inlet to a Luer-Lock system. The Tubing-to-Luer-Lock Adapter (M3001) enables a safe connection from a pump to the inlet of a Mobicol. The One-Way Stopcock (Luer-Lock F; M3006) is a convenient tool for controlling flow-through at the in- or outlet.

Order No	Description	Amount
M3001	Tubing-to-Luer-Lock Adapter (material outside: metal, inside: glass, with 1 m tubing, for Mobicols or Lab Columns)	1
M3002	Set: Luer-Lock Adapter M, Luer-Lock Adapter F (10 each)	20
M3003	Luer-Lock Adapter M (for Luer-Lock cap)	20
M3004	Luer-Lock Adapter F (for outlet)	20

Order No	Description	Amount
M3005	Bottom Plugs (for Mobicol Gravi Classic or Mobicol Spin Classic)	50
M3006	One-Way Stopcock (Luer-Lock F)	4
M3007	Luer-Lock Adapter M/M	1
M3009	Luer-Lock Caps	50

Pre-filled Mobicols

MoBiTec offers different pre-filled mini columns:

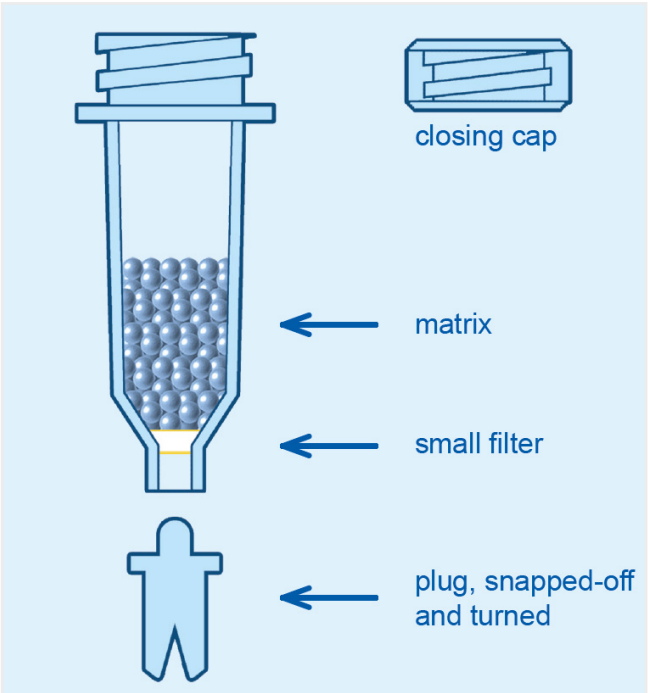
- Spin columns for purification of nucleic acids by size exclusion chromatography
- Spin columns for purifications of proteins by affinity chromatography
- Mini columns (for spinning or gravity-flow) with enzymatically active matrices (immobilized enzymes)

Setup Pre-Filled Mobicols

The pre-packed mini column is closed with a screw cap and contains a specific matrix. The outlet of the mini column is a fixed snap-off plug. Prior to the first centrifugation step, it has to be removed by bending. The reverse side of the plug can be used for relocking.

Features

- Columns are pre-packed, equilibrated, and ready-to-use
- Compatible with laboratory standard
- Quick procedure: sample purification in less than 4 minutes
- Easy handling: spin, load sample, spin, and collect the purified product
- Reproducible results with simplified protocols
- Numerous samples can be processed simultaneously
- No sample dilution



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Mobicol Spin S-Columns for Nucleic Acid Purification

Applications

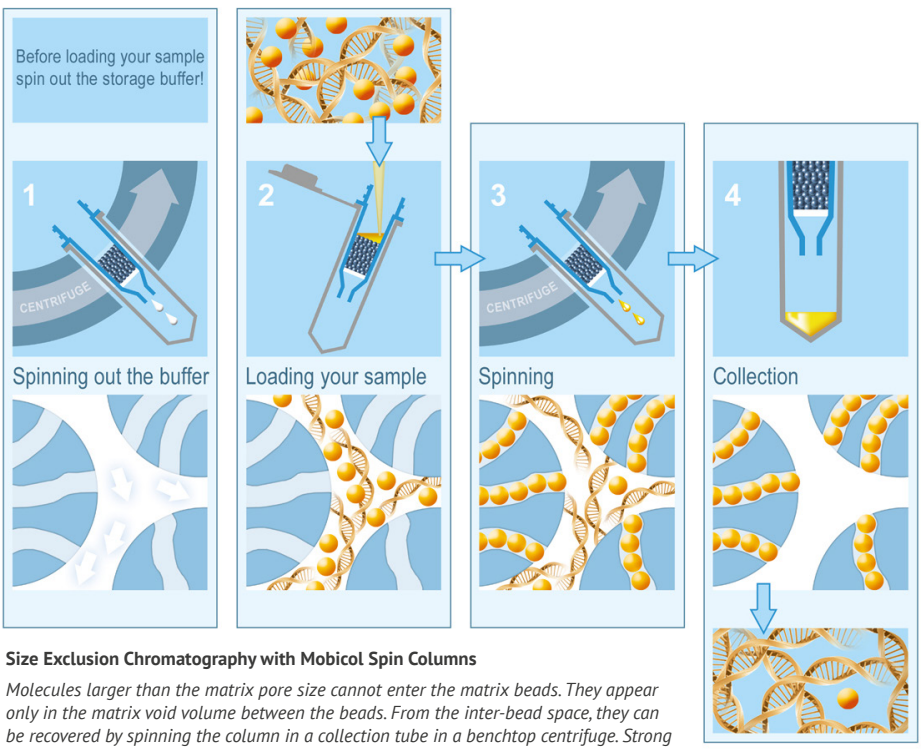
- Buffer exchange
- Nucleotide removal
- Plasmid, oligonucleotide, and PCR reaction purification
- Removal of unincorporated dyes or dye terminators

Description

Mobicol Spin S-columns are pre-packed with S-200, S-300, or S-400 Sephacryl® HR matrices. Sephacryl® High Resolution chromatography resins are highly versatile resins that offer a wide range of fractionation capabilities. They allow fast and reproducible purification of proteins, polysaccharides, and other macromolecules by size exclusion chromatography. Excellent resolution and flow characteristics as well as long-term physical and chemical stability make Sephacryl® HR the resin of choice for routine purification.

The Mobicol Spin S-columns separate molecules by differences in size. The columns combine the effectiveness of gel filtration with speed of centrifugation. The pore size of the filled-in matrix determines which molecules are small enough to enter the pores of the matrix beads and which molecules are too large to enter. In this way, compounds larger than the pore size are excluded from the resin and located in the void volume. These larger molecules move quickly through the matrix bed when the column is centrifuged. Molecules smaller than the pore size, like hydrated salt ions, do enter the pores of the matrix beads and are held back.

Sephacryl® is a registered trademark of Cytiva.



Size Exclusion Chromatography with Mobicol Spin Columns

Molecules larger than the matrix pore size cannot enter the matrix beads. They appear only in the matrix void volume between the beads. From the inter-bead space, they can be recovered by spinning the column in a collection tube in a benchtop centrifuge. Strong spinning elutes the column void volume without dilution. Molecules smaller than the matrix pore size and hydrated salt ions locate inside the matrix beads are not eluted by spinning.

Pre-filled Mobicols

Benefits of Size Exclusion Chromatography (SEC)

SEC is a liquid chromatography technique which separates molecules by virtue of their size in solution. The size separation step occurs in a column filled with porous particles (stationary phase) and is an entropy-driven process.

Molecules do not bind to the stationary phase. Instead, they are separated by the speed at which they navigate through the inert chromatography resin. Therefore, buffer composition does not directly affect resolution. Conditions can thus be varied to suit the requirements of your sample or downstream processing.

SEC offers mild conditions, simple operation, isocratic elution, and easy scaling up.

SEC is perfectly suited for the separation of biomolecules sensitive to changes in pH, concentration of metal ions or cofactors, or harsh environmental conditions. Separations can be performed in the presence of essential ions, cofactors, detergents, urea, or guanidine hydrochloride at high or low ionic strength.

SEC can be performed within a wide temperature range, provides short analysis times, and avoids sample loss.

Sephacryl®-Based Columns

Order No	Description	Amount
SCO200	Mobicol Spin S-200	20 columns
SCO210	Mobicol Spin S-200	100 columns
SCO300	Mobicol Spin S-300	20 columns
SCO310	Mobicol Spin S-300	100 columns
SCO400	Mobicol Spin S-400	20 columns
SCO410	Mobicol Spin S-400	100 columns
SCO234	Mobicol Spin S-200, S-300, S-400	3x 10 columns

Columns are pre-packed with Sephacryl® S-200 HR, Sephacryl® S-300 HR, or Sephacryl® S-400 HR resin and equilibrated in Mobicol Spin Buffer (10 mM Tris/HCl pH 7.6; 1 mM EDTA).

Sephacryl® HR resins are available in different fractionation ranges. This allows for reproducible separations over a wide molecular weight range:

- **Sephacryl® S-200 High Resolution Resin** is designed for purifying antibodies, serum proteins, and mid-size proteins (fractionation range globular proteins $5 \times 10^3 - 2.5 \times 10^5$)
- **Sephacryl® S-300 High Resolution Resin** is designed for purifying antibodies, serum proteins, and mid-size proteins (fractionation range globular proteins $1 \times 10^4 - 1.5 \times 10^6$)
- **Sephacryl® S-400 High Resolution Resin** is recommended to separate polysaccharides, macromolecules with extended structures, and even small particles such as plasmids (fractionation range globular proteins $2 \times 10^4 - 8 \times 10^6$)

Data provided by Cytiva;
Sephacryl® is a registered trademark of Cytiva.

Application Example – Food Safety

Mobicol Spin S-400 – Recommended by the German Federal Institute for Risk Assessment (BfR) for the Detection of Norovirus in Food

Mobicol Spin S-400: *Proven for Norovirus RNA Purification*

Publication Highlight

- Frozen strawberries can contain different amounts of RT-PCR inhibitors
- Efficiency of norovirus extraction protocols from strawberries varies remarkably
- Additional RNA purification with Sephacryl®-based columns (Mobicol Spin S-400) increases detection rate
- Use of these columns is suggested for norovirus detection in berry samples

Bartsch C, Szabo K, Dinh-Thanh M, Schrader C, Trojnar E, Johne R. Comparison and optimization of detection methods for noroviruses in frozen strawberries containing different amounts of RT-PCR inhibitors. Food Microbiol. 2016;60:124-130. doi:10.1016/j.fm.2016.07.005

Pre-filled Mobicols

Mobicol Spin G-50 Columns for Nucleic Acid Purification

Applications

- Buffer exchange
- Nucleotide removal
- Removal of unincorporated dyes or dye terminators

Description

Mobicol Spin G-50 columns pre-packed with Sephadex® G-50 resin remove small molecules from DNA/RNA, such as salt ions, and are therefore most suitable for buffer exchange (even from dsDNA fragments as small as 20 bp). They can also be used to remove fluorescent dye dideoxy terminators (e.g., Cy3/Cy5 nucleotides) from cycle sequencing reactions or unincorporated labeled nucleotides (dye- or radiolabeled dNTPs or ddNTPs) from DNA labeling reactions (e.g., PCR probe labeling, Nick Translation, or DNA end-labeling). The purified DNA qualifies for downstream applications like FISH (fluorescence in situ hybridization) or Southern/Northern blotting. The removal of unincorporated labeled nucleotides is a precondition for determining the DNA labeling rate. For good recovery rates, labeled DNA fragments must be at least 20 bp in length.

Sephadex® G-50 Resin

Sephadex® G-50 is a well-established gel filtration resin for desalting and buffer exchange of biomolecules:

- Quickly desalts, removes contaminants, and transfers to a new buffer in a single step
- Suitable for purification of DNA from small molecules by gel filtration
- Small bead size for shorter diffusion distances

Sephadex® G-50 is a hydrophilic matrix that swells in buffer and acquires its chromatographic properties under wet conditions. In this state, beads have a pore size of 700 Da that allow, e.g., hydrated salt ions or dNTPs (dye-labeled or radiolabeled) to enter into the pores while DNA/RNA > 20 bases and most other biomolecules stay outside.

Sephadex® G-50 Columns

Order No	Description	Amount
SCO500	Mobicol Spin G-50	20 columns
SCO510	Mobicol Spin G-50	100 columns

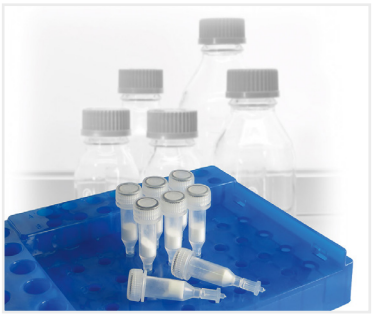
Equilibrated in Mobicol Spin Buffer (10 mM Tris/HCl pH 7.6; 1 mM EDTA)

Sephadex® is a registered trademark of Cytiva.

Mobicol Spin Desalting Columns – Separation of Small Contaminants

Applications

- Purification of nucleic acids from small contaminants
- Desalting and buffer exchange especially of small-sized nucleic fragments and of dNTPs



Description

Mobicol Spin Desalting columns are perfectly suited for a fast and efficient routine purification of nucleic acids. The well-tried silica resin of the Mobicol Spin Desalting columns is comprised of uniform beads of a porous, form-stable material. It allows the selective removal of molecules as small as NaCl. Mobicol Spin Desalting columns offer numerous advantages:

- Improved recovery of small-sized nucleic acid fragments
- Desalting efficiency > 90%
- Silica resins are allowed to fall dry without any loss in purification efficiency
- Easy handling and long-term storage stability
- No sample dilution
- Reproducible results with simplified protocols
- Sample loading and recovery in less than 3 minutes
- Spin column chromatography combines effectiveness of gel filtration with speed of centrifugation

Nucleic acids purified with these columns are well suited for use in many downstream applications, including sequencing, labeling, PCR, cloning, and in vitro transcription. The separation performance of the Mobicol Spin Desalting columns is vigorously tested with a wide range of nucleic acid fragments. In particular, fragments of 100 bp or smaller showed an improved recovery rate.

The desalting matrix separates molecules by differences in size (size exclusion chromatography). Nucleic acid molecules larger than the pore size are excluded from the resin. These molecules quickly move through the matrix bed when the column is centrifuged. Molecules smaller than the pore size, like hydrated salt ions, do enter the pores of the matrix beads and are held back. Thus, nucleic acid molecules are eluted from the column in order of decreasing molecular size.

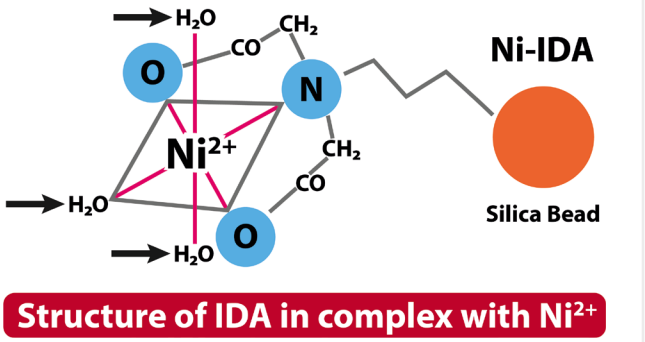
Since this silica matrix material works without moisture expansion (contrasting Sepharcryl® and Sepharose® resins, which swell in buffer), resins are allowed to fall dry without any loss in purification efficiency. Therefore, Mobicol Spin Desalting columns give reproducible results of high quality and are much easier to handle. Furthermore, the columns are long-term storable in dry state.

Silica-Based Columns

Order No	Description	Amount
SCO100	Mobicol Spin Desalting	20 columns
SCO110	Mobicol Spin Desalting	100 columns

Including Mobicol Spin Buffer (10 mM Tris/HCl pH 7.6; 1 mM EDTA) for equilibration

Pre-filled Mobicols



Structure of IDA in complex with Ni^{2+}

Ni-IDA Columns for Purification of His-tagged Proteins

Applications

- Purification of recombinant polyhistidine-tagged proteins
- Gravity-flow or spinning columns

First Choice for Higher Yields of His-Tagged Proteins

- Easy, fast, and cost-effective routine purification of recombinant polyhistidine-tagged proteins:
  - under native and denaturing conditions
  - starting from diverse expression systems, e.g., *E. coli*, yeast, insect, and mammalian cells
- Universal use: suitable for small proteins, large protein complexes, proteins with low expression rates
- High binding capacity and high affinity
- Improved target specificity by optimized silica-based Ni^{2+}-IDA matrix
- Imidazol-free loading and washing buffer

His-Tagged Protein Purification

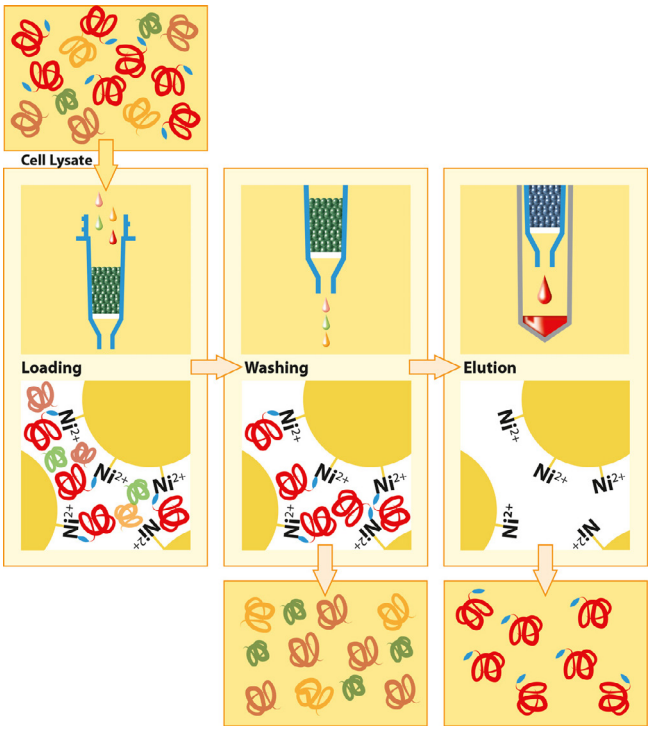
Histidine-tagged protein purification uses affinity chromatography to capture recombinant proteins with 4 - 10 histidine residues. Histidine-tagged proteins can be purified from a wide range of expression systems, including bacterial, yeast, plant, and mammalian cells under native or denaturing conditions.

Ni-IDA columns from MoBiTec contain a silica-based resin. The form-stable silica matrix is pre-charged with Ni^{2+} ions and allows purification on the principle of Immobilized Metal Ion Affinity Chromatography (IMAC). Binding of proteins is based on the interaction between the polyhistidine tag of a recombinant protein and immobilized Ni^{2+} ions. The chelating group of the Ni-IDA resin is based on iminodiacetic acid (IDA), which enables strong and efficient binding of target protein to the IMAC matrix.

In contrast to traditional IDA matrices, MoBiTec Ni-IDA matrix is an optimized matrix with low density of IDA ligands. This non-saturating surface concentration of IDA eliminates almost all non-specific interactions of contaminating host proteins with the adsorbent. As a result, Lab Columns Ni-IDA and Mobicol Spin Ni-IDA columns provide much higher target protein purity.

IDA is a tridentate chelator which occupies three of the six binding sites in the coordination sphere of the Ni^{2+} ion. The remaining three coordination sites are usually occupied by water molecules and can be exchanged with histidine residues of the recombinant protein.

Pre-filled Mobicols



Procedure
The purification of His-tagged proteins consists of 4 steps: cell lysis, loading & binding, washing, and elution. Cleared cell lysates are loaded onto the matrices. His-tagged proteins are bound while other proteins pass through the matrix. After washing, His-tagged proteins are eluted with buffer from the matrix.

Mobicol Spin Ni-IDA Columns

- For protein purification by spinning
- Compatible with standard microcentrifuges
- The purification run takes approximately 10 min
- Very high binding capacity: up to 12 mg protein per spin column
- Excellent protein recovery rate of > 90%
- No commercial license required

Mobicol Spin Ni-IDA columns are pre-packed, single-use spin columns for simple, small-scale purification of histidine-tagged proteins and rapid expression screening. This technology allows one-step purification of almost any His-tagged protein from any expression system under native or denaturing conditions.

Lab Columns Ni-IDA

- For protein purification by gravity-flow
- Maximal binding capacity: up to 90 mg protein per column
- Protein recovery rate of > 80%
- Columns are long-term storable and reusable

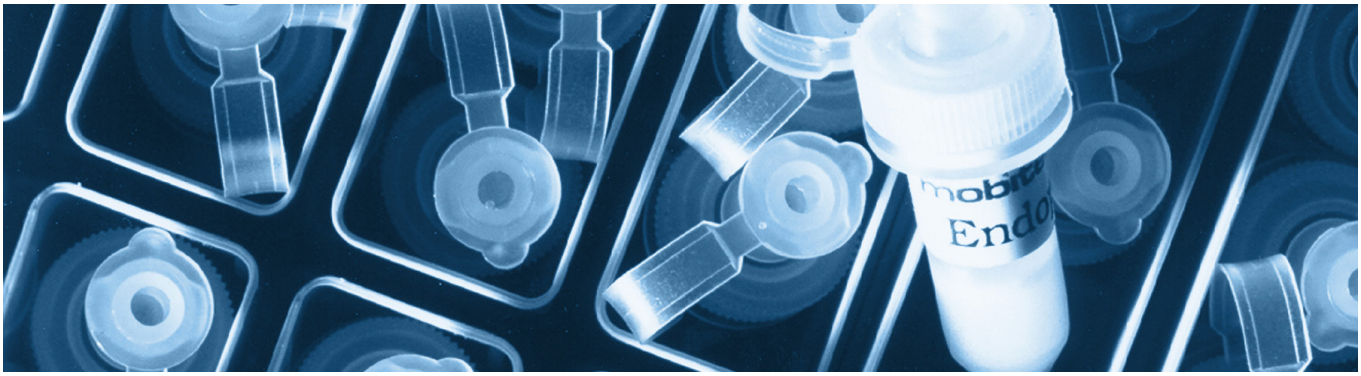
Lab Columns Ni-IDA are designed for fast and simple purification of polyhistidine-tagged proteins without the need for a pump or purification system. Special column frits protect the chromatography medium from running dry during the process. A single column allows purification of approximately 90 mg of protein. The purified protein can be eluted in a small volume, resulting in a highly concentrated target protein.

Order No	Description	Amount
PR-HTK105	Mobicol Spin Ni-IDA	5 columns
PR-HTK110	Mobicol Spin Ni-IDA	10 columns
PR-HTK004	Lab Columns Ni-IDA	4 columns
PR-HTK010	Lab Columns Ni-IDA	10 columns
PEG01*	E. coli pEG-His1 Vector	5 µg DNA

Columns contain dry matrix; storable at RT for at least 1 year.

** Convenient cloning and subsequent purification of your protein of interest: pEG-His1 vector for IPTG-inducible expression of gene products with C-terminal RGS motif and His_6-tag. 5' and 3' primers for sequencing are provided in addition.*

Pre-filled Mobicols



Mobicols with Immobilized Enzymes

Applications

- Dephosphorylation of vector DNA to prevent self-ligation
- Removal of DNases and RNases
- Protein digestions for peptide mapping and protein sequencing
- Diverse proteomic applications requiring maximum activity and selectivity
- Reproducible protein digestion and mass spectrometry-based protein identification
- Generation of antibody fragments

Enzyme immobilization provides enzyme reutilization and prevents the loss of enzyme activity. The technique further results in increased activity by providing a more suitable microenvironment for the enzyme/substrate reaction. Moreover, immobilized systems can provide better enzyme thermostability and pH tolerance. The method curtails redundant downstream and purification processes.

MoBiTec offers mini columns containing a G3m matrix with covalently immobilized enzymes for quick substrate-to-product turnover. The immobilized enzymes are stable in aqueous media at a pH range of 5 to 10 and column bleeding is negligible. The "stiff" linkers, which keep the enzymes off the matrix surface, effectively eliminate steric hindrance. This results in high activity of enzymes in the immobilized state.

The enzyme reaction occurs as soon as the substrate is loaded onto the column. The sample is recovered from the column quantitatively either by gravity-flow or by centrifugation. Since the enzymes are covalently bound, they remain in the column after reaction and product elution, making the columns reusable. The eluted product solution is free of enzyme and does not require enzyme removal steps. This saves time and valuable resources.

Features

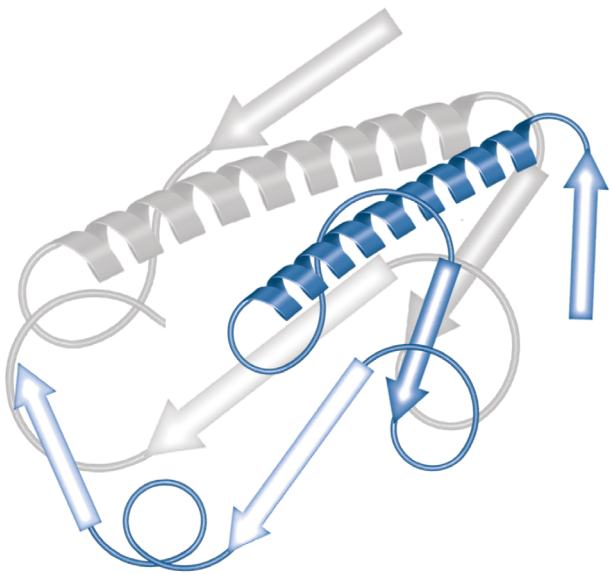
- Covalently bound enzymes enable fast and easy handling
- Immobilization prevents loss of enzyme activity
- High enzymatic densities and very high activities
- Simple product recovery by centrifugation or elution by gravity-flow
- Suitable for small and large volumes – no sample dilution
- Treat larger volumes using syringes or chromatography tubing with standard Luer-Lock connections

Pre-filled Mobicols

- The eluted product solution is free of enzyme and does not require enzyme removal steps
- Enjoy short reaction and treatment times
- Reusability – use the columns multiple times
- Sample solutions down to 20 µl can be treated and recovered

Order No	Description	Amount
P3102	Mobicol with immobilized Endoproteinase Glu-C (Prot.V8)	22 U
P3402	Mobicol with immobilized Papain	0.6 U
P3122	Mobicol with immobilized Pepsin	0.4 mAnson-U
P3502	Mobicol with immobilized Proteinase K	0.7 mAnson-U
P3302	Mobicol with immobilized TLCK-α-Chymotrypsin	1.4 U
P3702	Mobicol with immobilized TPCK-Trypsin	260 S&T-U
A3202	Mobicol with immobilized Alkaline Phosphatase (CIP)	100 U
A3102	Mobicol with immobilized b-Galactosidase	15 U

All columns contain 200 µl immobilized enzyme matrix. Product includes concentrated buffer, a detailed handbook, a data sheet with the description of the immobilized enzyme, the specific buffer composition, and a protocol for the use of the columns.



Lab Columns – Empty Chromatography Columns

Empty Chromatography Columns for Lab Scale with Luer-Lock Connections

Applications

- Affinity chromatography
- Size exclusion chromatography
- Ion exchange chromatography

The empty syringe-based columns are available in three sizes (2.5 ml, 5 ml, and 10 ml) and come with an inserted lower filter with the pore size of your choice (10 µm, 35 µm, or 90 µm). Each column has Luer-Lock connectors at both ends for tubing or syringes. To close the columns, the 5 ml and 10 ml columns include an additional cap whereas the 2.5 ml columns have a Luer-Lock closing cap. The 2.5 ml columns can be centrifuged and autoclaved (with inserted filters only at 110 °C). Each package of columns includes two One-Way Stopcocks.

Upper filters (used on top of the matrix) and Luer-Lock adapters are available as well.

Shared Features 2.5 ml, 5 ml, and 10 ml Columns

- Empty gravity-flow columns
- Compatible with most chromatography resins
- Luer-Lock connectors at both ends for connecting, e.g., syringes or stopcocks
- Can be closed with additional closing cap
- Smallest and largest volumes can be treated easily
- Come with lower filters with 10 µm, 35 µm, or 90 µm pore size
- Upper filter (used on top of the matrix) available separately
- 2 One-Way Stopcocks in each package of 20 columns
- Luer-Lock adapters can be ordered separately

Additional Features 2.5 ml Columns:

- Can be closed tightly with Luer-Lock closing cap
- Tight up to 4 atmospheres pressure
- Can also be centrifuged and autoclaved (with inserted filters only at 110 °C)
- FPLC compatible

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Lab Columns – Empty Chromatography Columns

Order No	Description	Amount
S10121	2.5 ml Lab Columns - Empty Chromatography Columns (10 µm filter pore size)	20
S1012	2.5 ml Lab Columns - Empty Chromatography Columns (35 µm filter pore size)	20
S10129	2.5 ml Lab Columns - Empty Chromatography Columns (90 µm filter pore size)	20
S10131	5.0 ml Lab Columns - Empty Chromatography Columns (10 µm filter pore size)	20
S1013	5.0 ml Lab Columns - Empty Chromatography Columns (35 µm filter pore size)	20
S10139	5.0 ml Lab Columns - Empty Chromatography Columns (90 µm filter pore size)	20
S10141	10 ml Lab Columns - Empty Chromatography Columns (10 µm filter pore size)	20
S1014	10 ml Lab Columns - Empty Chromatography Columns (35 µm filter pore size)	20
S10149	10 ml Lab Columns - Empty Chromatography Columns (90 µm filter pore size)	20
S1210	Upper filter 10 µm for 2.5 ml Lab Columns	20
S1235	Upper filter 35 µm for 2.5 ml Lab Columns – (thickness 1.5 mm)	20
S123532	Upper filter 35 µm for 2.5 ml Lab Columns – (thickness 3.2 mm)	20
S1290	Upper filter 90 µm for 2.5 ml Lab Columns	20
S1310	Upper filter 10 µm for 5.0 ml Lab Columns	20
S1335	Upper filter 35 µm for 5.0 ml Lab Columns – (thickness 1.5 mm)	20
S133532	Upper filter 35 µm for 5.0 ml Lab Columns – (thickness 3.2 mm)	20
S1390	Upper filter 90 µm for 5.0 ml Lab Columns	20
S1410	Upper filter 10 µm for 10 ml Lab Columns	20
S143532	Upper filter 35 µm for 10 ml Lab Columns – (thickness 3.2 mm)	20
S1490	Upper filter 90 µm for 10 ml Lab Columns	20

**The appropriate filter pore size depends on your matrix. The matrix used should not pass through the filter pores.*

Lab Columns – Empty Chromatography Columns

Column Sets

MoBiTec's column sets are a composition of mini columns and syringe-based lab columns. All columns are easy to handle and can be used in a wide variety of chromatography applications.
These sets of empty columns contain four different sizes with three units of each:

- Mobicol (Mini Column up to 800 µl) (3x)
- 2.5 ml Lab Columns (3x)
- 5 ml Lab Columns (3x)
- 10 ml Lab Columns (3x)

Each column contains a Luer-Lock and a closing cap, a plug, and an inserted lower filter with your choice of pore size (10 µm, 35 µm, or 90 µm). Additionally, two stopcocks are included. An optional upper filter used on top of the matrix can be ordered separately.

Available Sets

Column Set 1: 10 µm pore size filters inserted
Column Set 2: 35 µm pore size filters inserted
Column Set 3: 90 µm pore size filters inserted

Order No	Description	Amount
S10011	**Column Set 1:** Mobicol M1050; 2.5 ml; 5 ml and 10 ml Lab Columns (each with 10 µm pore size filter)	3 each
S1001	**Column Set 2:** Mobicol M1050; 2.5 ml; 5 ml and 10 ml Lab Columns (each with 35 µm pore size filter)	3 each
S10019	**Column Set 3:** Mobicol M1050; 2.5 ml; 5 ml and 10 ml Lab Columns (each with 90 µm pore size filter)	3 each
S10031	Set upper filters 10 µm for S10011	1 set
S1003	Set upper filters 35 µm for S1001	1 set
S10039	Set upper filters 90 µm for S10019	1 set

M1050: *Mobicol Gravi Fixed with Luer-Lock and screw cap, fixed outlet plug*

Customized Services

Custom Filling: Mini Columns Packed with the Matrix of Your Choice

Benefits Contract Filling

- Save valuable resources – outsource labor- and cost-intensive steps
- Complete documentation
- On-time delivery
- Ready-to-use chromatography columns can be straightforwardly integrated into your kits
- Renowned for quality:
  - MoBiTec invented and designed the columns (patented)
  - Highest quality for more than 30 years, Made in Germany
  - Our mini columns have already been sold several million times worldwide. They are an integral part of many laboratory diagnostics kits for clinical routine & research

Target Group

- Life Science Research
- Laboratory Diagnostics
- Food Safety

Pre-Filled Mobicols are an integral part of many kits provided by global leaders in the field of bio-analytical testing solutions. Furthermore, they are used as a complement in laboratory diagnostics kits or as an asset in assays for Life Science research. Contact our team for working out a solution tailored to your needs.

Cooperation Example:

Label IT® Nucleic Acid Labeling Kits

Mirus Bio (Madison, USA) has developed a unique technology to label DNA and RNA. The *Label* IT® Technology is a non-enzymatic labeling method that facilitates the direct covalent attachment of either fluorescent or non-fluorescent labels to any nucleic acid using a simple one-step chemical reaction. After the labeling reaction, the sample should be purified using MoBiTec's G-50 microspin purification columns (Mobicol Spin G-50, **SCO500** or **SCO510**). Following microspin column purification, the researcher will get a 100% recovery of the labeled nucleic acid.

Innovative Tools for Molecular and Cell Biology

MoBiTec GmbH

MoBiTec develops cutting-edge research tools for the global life science, diagnostic, and pharmaceutical community. These include versatile purification columns and unique vector systems for protein expression in different species. Moreover, MoBiTec is specialized in labeling and detection technologies. Our products are distributed worldwide.

Next to our own portfolio, MoBiTec is a leading distributor for innovative life science reagents and services. We represent a number of well-established international companies:

ABP Biosciences · ANASPEC · BellBrook Labs · Clare Chemical Research · COYOTE

cyagen – We help you discover life · Dextra · Echelon Biosciences · ECOLI · EdgeBio

HansaBioMed Life Sciences · invent BIOTECHNOLOGIES, INC. · ION BIOSCIENCES · magtivio · Mirus

Montana Molecular – Fluorescent Biosensors for Live Cell Discovery · PYF · Sbio · UBPBio – Ubiquitin-Proteasome Biotechnologies · VIDA – ...the Way to the correct results

Mo Bi Tec – MOLECULAR BIOTECHNOLOGY

For the most up-to-date listing of our supplier companies please visit our website

www.mobitec.com

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