

Full-Spectrum Bioprocess Reagents.
EU Supplier.

Chromatography Resins Catalogue

High-quality EU resins for affinity, ion-exchange, size-exclusion, multimodal, reverse phase, hydroxyapatite, and hydrophobic interaction purification modes.

Introduction	2
Selecting a Resin	3
Column Packing	5
Troubleshooting	6
The Catalogue Product Code System	7
Affinity Chromatography resins	8
Product line features	11
Ion-exchange Chromatography	13
Product line features	15
Size-exclusion Chromatography	17
Product line features	18
Hydrophobic Interaction Chromatography	20
Product line features	21
Multimodal Chromatography	22
Product line features	23
Reverse Phase Chromatography	24
Product line features	25
Hydroxyapatite Chromatography	26
Product line features	
Appendix A: LT Biotech Resin Families Guide	27
Appendix B: Phase Alternatives by Manufacturer	28

Introduction

LT Biotech offers a broad portfolio of chromatography resins for the purification and isolation of biomolecules such as proteins, antibodies, nucleic acids and small molecules. This catalogue presents the full range organised by purification mode, detailed Product Data Sheets for each resin and Chromatography Mode Guides are available on our website and upon request.

Biomolecule Purification

Purification of biomolecules from cells, bacteria, and multicomponent solutions (antibodies, enzymes, globulins and other proteins, as well as lipids, carbohydrates, DNA, and RNA) is a core requirement across biotechnology, food technology, pharmacy, and life sciences. The method of choice for preparative-scale purification is FPLC (Fast Protein Liquid Chromatography): a low-to-moderate-pressure liquid chromatography technique using soft, porous resin matrices, designed specifically for the gentle handling of large biological molecules that would lose activity under the high pressures and rigid supports of HPLC.

FPLC Resins

The resin determines selectivity, binding capacity, and resolution for a given target. Resins are composed of tiny beads of agarose or another polymer (the matrix), often coated with functional groups (ligands) that interact with a specific biomolecule. Resins are usually packed into columns before use. As the cell lysate flows through the resin, the molecule of interest binds to the resin and is separated from the other molecules in the sample.

Key Resin Parameters

1. **Matrix (polymer):** the material the beads are made from, usually agarose, dextran, Polystyrene-Divinylbenzene (PS/DVB), Poly(methyl methacrylate) (PMMA) or ceramic hydroxyapatite (CHT).
2. **Chromatography type (ligands):** the ligands coating the beads determine the interaction from which purification modes arise (affinity, ion exchange, size exclusion, hydrophobic interaction, reverse phase or multimodal).
3. **Bead size:** the average particle size of the beads.
4. **Bead porosity:** the bead surface can be smooth or porous to different degrees, increasing surface area and therefore ligand density.
5. **Cross-linking:** beads can be chemically cross-linked to increase the stability of the resin.

Selecting a Resin

Choosing a resin means matching the matrix, chromatography type, bead size and bead porosity to the target molecule and the goal of the purification, each decision can directly influence the yield and consistency of your purification processes.

1. Choosing the matrix

The matrix determines chemical (pH) and mechanical (pressure) stability. LT Biotech's principal matrices and their operating ranges are:

Matrix	pH stability	Pressure tolerance	Notes
Agarose	3–12	< 3 bar	Chemically stable over a wide pH range but vulnerable to high pressure.
Dextran	3–8	< 2 bar	Chemically stable but lacks mechanical strength.
PS/DVB	1–14	up to 50 bar	Excellent chemical resistance and high pressure tolerance.
PMMA	2–12	up to 20 bar	Moderately stable across a broad pH range.
CHT	vulnerable to low pH (< 6)	up to 20 bar	Rigid and stable under pressure but sensitive to low pH.

2. Choosing the chromatography type

We provide resins for all 7 purification modes:

- Affinity (AC): the molecule interacts specifically with a functional group.
- Size exclusion (SEC): molecules are fractionated by molecular size.
- Ion exchange (IEX): molecules are fractionated by surface charge.
- Hydrophobic interaction (HIC): molecules are fractionated by surface hydrophobicity.
- Reverse phase (RPC): separates compounds with more hydrophobic moieties and no dominant polar character.
- Multimodal (MMC): separation by two or more types of interaction.
- Ceramic hydroxyapatite (CHT): a mixed-mode type in which the material is both matrix and ligand, giving separation by calcium and phosphate.

3. Choosing the bead size

The larger the bead, the lower the back pressure and the lower the resolution.

Larger beads suit plasmid DNA (larger inter-particle spaces reduce back pressure and shear, helping preserve supercoiled DNA), and crude or viscous feeds such as blood plasma. They also raise flow rate for large volumes.

Smaller beads provide more surface area and interaction sites for better contaminant removal, sharper separation of closely related isoforms, and higher resolution and reproducibility for characterisation, analytical work and quality control (QC).

As a guide:

- 20 µm gives high resolution with ~6 bar back pressure
- 40 µm is intermediate at ~2 bar
- 80 µm gives lower resolution at ~0.5 bar.

4. Choosing the bead porosity

The more porous the bead, the larger the surface area and, therefore, ligand density and protein yield, but the lower the resolution. Porosity is chosen to balance capacity against the required resolution.

Column Packing

The effectiveness of a resin depends heavily on how the column is packed. Flow packing gives a more even distribution of resin particles, which delivers better resolution, more reproducible results and lower back pressure than an uneven bed.

Column packing steps

The matrix determines chemical (pH) and mechanical (pressure) stability. LT Biotech's principal matrices and their operating ranges are:

1. Insert the frit at the bottom of the column to retain the resin.
2. Attach the connector to a buffer-filled syringe, flow buffer through to remove air bubbles, then connect it to the bottom of the column.
3. Fill the column with a buffer to about one quarter of its volume.
4. Gently but thoroughly mix the resin suspension and pipette it carefully into the column, avoiding air bubbles.
5. Gently remove excess buffer with a syringe to pack the resin uniformly, keeping all the resin covered with buffer.
6. Insert the top frit above the packed resin to hold it firmly in place.
7. Place the sealing plug on top to secure the packed resin and protect it from contamination.
8. Insert the stop plug at the bottom to prevent leakage and maintain a sealed environment.
9. Ensure all components, including the bottom stop plug, are tightly secured.

The column is now ready for storage or use.

Increasing protein yield

- Molecular weight affects efficiency: smaller proteins may bind more densely (higher binding capacity), while larger proteins can give lower yields.
- Starting sample volume and concentration matter: highly concentrated samples tend to give better final yields.

Troubleshooting

Low protein binding capacity

- Equilibrate the resin properly with the recommended buffer
- Check that buffer pH and ionic strength are optimal for binding
- Verify the resin has not degraded or been overloaded

High back pressure

- Inspect for clogged filters or tubing and clean/replace as needed
- Reduce flow rate or dilute viscous samples
- Check for resin compression from excessive flow or poor packing

Poor protein recovery

- Confirm elution conditions (pH, salt) are optimised
- Check whether binding capacity is exceeded and regenerate if needed
- Ensure the protein is not aggregating or precipitating under elution conditions

Non-specific binding of contaminants

- Increase wash stringency (e.g. higher salt)
- Use a more specific resin
- Optimise buffer conditions to minimise interactions with contaminants and resin

Loss of performance over time

- Regenerate or clean per protocol
- Avoid conditions outside the recommended stability range
- Store the resin in an appropriate preservative solution.

Protein aggregation or degradation

- Adjust buffer to reduce aggregation (e.g. add glycerol or lower pH)
- Keep the system cold
- Use protease inhibitors

Column leaks or resin cracking

- Pack evenly without air bubbles
- Ensure column hardware is tightly sealed and undamaged
- Do not exceed the resin's pressure limits

Inconsistent results between runs

- Keep sample preparation consistent and re-equilibrate between runs
- Use fresh resin if the batch is old or contaminated

Sample precipitation in the column

- Centrifuge or filter the sample before loading
- Adjust buffer conditions to maintain solubility

Resin contamination

- Use proper cleaning-in-place (CIP) procedures

The Catalogue Product Code System

Catalogue numbers have eight digits in the format XXX-ZZZZZ, where XXX is the product code and ZZZZZ is the pack size in ml.

For example, 701-00025 is a 25 ml bottle of Persefose 4FF, and 200-10000 is a 10 L tin of Persecryl 200. Ceramic hydroxyapatite is supplied by weight (10 g, 25 g, 100 g, 1 kg and 5 kg). Most lines are available in 25 ml, 100 ml, 500 ml, 1 L, 5 L, 10 L and 20 L bottles or tins, and can be prepacked into 1 ml, 4.7 ml and 5 ml columns suitable for the ÄKTA™ system.



Affinity Chromatography

Affinity chromatography (AC) separates a biomolecule from a mixture through a highly specific binding interaction between the biomolecule and an immobilised ligand. LT Biotech provides a wide range of affinity resins for antibody, histidine-tagged, GST-tagged, mRNA, heparin, plasmid-DNA, benzamidine and Cibacron-Blue applications, plus pre-activated resins for custom ligand coupling.

Key:

d50: mean or average particle size

DBC: dynamic binding capacity

PMA*: polymethacrylate

dT-20mer**: 2-mercaptopyridine

CNBr***: cyanogen bromide

NHS****: n-hydroxysuccinimide

Product code	Product name	Matrix	Functional group	d50, μm	DBC/ligand density
Antibody purification					
651	Lepta SuRe LX	Agarose	AR rProtein A	85	≥ 60 mg human IgG/ml
150	Lepta ProtA LX	Agarose	AR rProtein A	75	≥ 65 mg human IgG/ml
151	Lepta SuperA	Agarose	AR rProtein A	60	≥ 75 mg human IgG/ml
652	Lepta rProtein A	Agarose	AR rProtein A	85	≥ 60 mg human IgG/ml
727	rProtein A Persefose FF	Agarose	AR rProtein A	90	≥ 60 mg human IgG/ml
728	Lepta Protein G	Agarose	Protein G	85	≥ 20 mg human IgG/ml
126	Persefose 4FF Protein G	Agarose	Protein G	90	≥ 20 mg human IgG/ml
725	Lepta Protein L	Agarose	Protein L	85	~ 25 mg Fab (Mr 50000)/ml
Histidine-tagged proteins purification					
751	Ni Persefose FF	Agarose	NTA-Ni ²⁺	90	≥ 40 mg His-tagged protein/ml
752	Ni Persefose HP	Agarose	NTA-Ni ²⁺	34	≥ 40 mg His-tagged protein/ml
755	Ni Persefose Excel	Agarose	NTA-Ni ²⁺	90	≥ 10 mg His-tagged protein/ml

Product code	Product name	Matrix	Functional group	d50, μm	DBC/ligand density
IMAC purification					
753	IMAC Persefose FF	Agarose	-	90	≥ 40 mg His-tagged protein/ml when Ni ²⁺ is added
155	IMAC Persefose HP	Agarose		34	
Metal chelating affinity					
754	Chelating Persefose FF	Agarose	Iminodiacetic acid	90	$\geq 30\text{--}37$ $\mu\text{mol Cu}^{2+}/\text{ml}$
243	Aether chelate (IDA) FF	Agarose	Aminotriacetate	80	$\geq 60\text{--}100$ $\mu\text{mol Cu}^{2+}/\text{ml}$
244	Aether chelate (NTA) FF	Agarose	Iminodiacetic acid	80	$\geq 60\text{--}100$ $\mu\text{mol Cu}^{2+}/\text{ml}$
GST-tagged proteins purification					
742	Glutathione Persefose 4FF	Agarose	Glutathione	90	≥ 10 mg GST-tagged protein/ml
743	Glutathione Persefose 4B	Agarose	Glutathione	90	≥ 5 mg GST-tagged protein/ml
mRNA purification					
252	Helios Oligo dT 20	Polystyrene	dT-20mer***	50	≥ 2 mg mRNA/ml
653	Helios Oligo dT 25	PS/DVB	dt-25 mer***	50	2~3 mg MAB/mL
Heparin affinity					
761	Heparin Persefose FF	Agarose	Porcine heparin	90	≥ 2 mg ATIII/ml
162	Heparin Persefose HP	Agarose	Porcine heparin	34	≥ 2 mg ATIII/ml
Plasmid DNA purification					
681	Lepta PlasmidCap HR	Agarose	2-mercaptopyridine	40	≥ 3.0 mg/ml
181	PlasmidCap Persefose HP	Agarose		34	≥ 2.0 mg/ml

Product code	Product name	Matrix	Functional group	d50, μm	DBC/ligand density
Benzamidine affinity					
741	Benzamidine Persefose 4FF	Agarose	p-aminobenzamidine	90	≥ 35 mg trypsin/ml
Cibacron blue affinity					
163	Blue Persefose FF	Agarose	Cibacron Blue	90	≥ 18 mg HSA/ml
164	Blue Persefose HP	Agarose	Cibacron Blue	34	≥ 20 mg HSA/ml
158	Lepta Blue	Agarose	Cibacron Blue	75	≥ 24 mg HSA/ml
159	Lepta Blue HS	Agarose	Cibacron Blue	40	≥ 24 mg HSA/ml
Affinity Activated coupling					
420	CNBr activated Persefose 4FF	Agarose	CNBr***	90	≥ 12 mg HSA/ml
421	CNBr activated Persefose 4B	Agarose	CNBr***	90	≥ 12 mg HSA/ml
422	NHS activated Persefose 4FF	Agarose	NHS****	90	16~23 NHS $\mu\text{mol/ml}$
423	NHS activated Persefose 4B	Agarose	NHS****	90	16~23 NHS $\mu\text{mol/ml}$
401	Epoxy activated Persefose 4FF	Agarose	Epoxy	90	-
402	Epoxy activated Persefose 6B	Agarose	Epoxy	90	-

Product line features

Antibody purification

- With wide pH range resistance and good chemical stability.
- Optional Protein A or Protein G ligand.

Histidine-tagged proteins purification

- With good tolerance and chemical stability.
- Used for the purification of histidine-tagged proteins.

IMAC Persefose

- With excellent rigidity, high-flow velocity and optional metal ions for chelation.
- Used for purification of native and histidine-tagged recombinant proteins.

Chelating Persefose

- Metal ion chelating affinity chromatography resin made by covalently cross-linking iminodiacetic acid (IDA).
- Resin utilises the interaction between transition metal ions and histidine, cysteine and tryptophan, which are widely present in proteins.

Plasmid DNA

- Thiophilic affinity resin for separation of supercoiled plasmid DNA based on highly cross-linked agarose matrix.
- High resolution and good chemical stability.

Aether chelate

- Good hydrophilicity, high loading capacity, high resolution and non-toxic, small adsorption.
- Used in the separation and purification of polypeptides, proteins, nucleotides, phosphorylated proteins and recombinant proteins with His-tags that can be adsorbed by metal ions.

GST-tagged proteins purification

- Resin designed for the purification of glutathione S-transferase (GST)-tagged proteins, and other S-transferases or glutathione-dependent proteins.
- With good tolerance and chemical stability, high capacity, easy regeneration and easy amplification

Oligo dT

- Based on polystyrene; the surface is covered with a large number of hydroxyl groups.
- The functionalised poly (dt) group can efficiently capture mRNA.
- High selectivity, extremely low non-specific adsorption, can withstand high temperature (65°C).

Heparin affinity

- Chromatography resin, made by covalently coupling heparin to an agarose matrix.
- Resin can be used to separate and purify coagulation factors, antithrombin III, growth factors, interferon, lipoprotein lipase, nucleic acid and steroid receptor enzymes.

Benzamidine affinity

- Chromatography resin based on agarose matrix with p-aminobenzamidine coupling.
- Especially suitable for separation and purification or removal of trypsin, serine protease, urokinase and kallikrein.

Cibacron Blue affinity

- Chromatography resin based on highly cross-linked agarose matrix with covalently linking Cibacron Blue.
- Used for separation and purification of various proteins, such as albumin, lipoprotein, interferon, coagulation factors and related proteins.
- Blue Persefose HP can also be used for separation and purification of various nucleotide-dependent enzymes, and α 2-macroglobulin.

CNBr activated Persefose

- A pre-activated affinity chromatography resin for separation and purification through specific interactions between biomolecules.
- A chromatography resin used for coupling high molecular weight ligands containing amino groups.
- Multi-point binding prevents the ligands from falling off.

NHS activated Persefose

- A pre-activated affinity chromatography resin for separation and purification through specific interactions between biomolecules.
- A chromatography resin used for coupling small molecular proteins or peptides.
- Multi-point binding prevents the ligands from falling off.

Epoxy-activated Persefose

- Epoxy-activated affinity chromatography resin with agarose base, which can be coupled through hydroxyl, amino or sulfhydryl groups on the ligand to form a specific affinity chromatography resin.
- Resin has a long hydrophilic spacer, which is especially suitable for coupling small molecule ligands.

Ordering information

LT Biotech AC resins can be supplied in 25 ml, 100 ml, 500 ml, 1L, 5 L, 10 L and 20 L plastic bottles or tins, and can be prepacked into 1 ml, 4.7 ml and 5 ml columns, suitable for the ÄKTA™ system. The catalogue number consists of eight digits, in the format XXX-ZZZZZ. XXX is the product code and ZZZZZ is the pack size in ml. For example, 651-00025 is a 25 ml bottle of Lepta SuRe LX resin, and 681-10000 is a 10 L tin of Lepta PlasmidCap HR. For detailed information on pack types and quantities please contact your local distributor or refer to the product list.

+ Ion-exchange Chromatography

Ion-exchange chromatography (IEX) separates ions and polar molecules based on their affinity for the ion exchanger. LT Biotech offers a wide product line for IEX across agarose, dextran, PS/DVB and PMMA matrices in strong and weak anion- and cation-exchange formats.

Key:

d50: mean or average particle size

DBC: dynamic binding capacity

PS/DVB*: Polystyrene-divinylbenzene

PMMA**: polymethacrylate

SAX: strong anion exchange

WAX: weak anion exchange

SCX: strong cation exchange

WCX: weak cation exchange

S: -SO₃H

CM: -COOH

Q: -CH₂N⁺(CH₃)₃Cl⁻

DEAE: -CH₂CH₂N⁺H(CH₂CH₃)₂Cl⁻

Product code	Product name	Matrix	Function	d50, μ m	DBC
601	Lepta Q	Agarose	SAX	90	≥100 mg BSA/ml
602	Lepta Q HR	Agarose	SAX	40	≥60 mg BSA/ml
711	Q Persefose FF	Agarose	SAX	90	≥50 mg BSA/ml
712	Q Persefose HP	Agarose	SAX	34	≥90 mg BSA/ml
714	Q Persefose XL	Agarose	SAX	90	≥160 mg BSA/ml
713	Q Persefose BB	Agarose	SAX	200	≥90 mg BSA/ml
604	Lepta DEAE	Agarose	WAX	90	≥90 mg ovalbumin/ml
716	DEAE Persefose FF	Agarose	WAX	90	≥90 mg ovalbumin/ml
717	DEAE Persefose HP	Agarose	WAX	34	≥90 mg ovalbumin/ml
298	DEAE Persefose XL	Agarose	WAX	90	≥80 mg BSA/ml
296	DEAE Persefose BB	Agarose	WAX	200	≥50 mg BSA/ml
605	Lepta S	Agarose	SCX	90	≥60 mg p-lactoglobulin/ml
606	Lepta SP HR	Agarose	SCX	40	≥90 mg lysozyme/ml

Product code	Product name	Matrix	Function	d50, μm	DBC
607	Lepta S ImpAct	Agarose	SCX	50	>100 mg MAB/ml
718	SP Persefose FF	Agarose	SCX	90	≥ 90 mg lysozyme/ml
719	SP Persefose HP	Agarose	SCX	34	≥ 90 mg lysozyme/ml
721	SP Persefose XL	Agarose	SCX	90	≥ 160 mg lysozyme/ml
720	SP Persefose BB	Agarose	SCX	200	≥ 90 mg lysozyme/ml
723	CM Persefose FF	Agarose	WCX	90	≥ 50 mg lysozyme/ml
724	CM Persefose HP	Agarose	WCX	34	≥ 50 mg lysozyme/ml
299	CM Persefose XL	Agarose	WCX	90	≥ 85 mg lysozyme/ml
297	CM Persefose BB	Agarose	WCX	200	≥ 60 mg lysozyme/ml
261	DEAE Persedex A-25	Dextran	WAX	80	≥ 140 mg α -lactalbumin/ml
262	DEAE Persedex A-50	Dextran	WAX	80	≥ 140 mg albumin/ml
263	CM Persedex C-25	Dextran	WCX	80	≥ 190 mg ribonuclease/ml
264	CM Persedex C-50	Dextran	WCX	80	≥ 120 mg lysozyme/ml
111	Helios Q 15	PS/DVB*	SAX	15	≥ 45 mg BSA/ml
112	Helios S 15	PS/DVB*	SCX	15	≥ 80 mg lysozyme/ml
113	Helios Q 30	PS/DVB*	SAX	30	≥ 45 mg BSA/ml
114	Helios S 30	PS/DVB*	SCX	30	≥ 80 mg lysozyme/ml
801	Helios 50-HS	PS/DVB*	SCX	50	≥ 50 mg lysozyme/ml
205	Helios 50-XS	PS/DVB*	SCX	50	≥ 102 mg human IgG/ml
206	Helios 50-HQ	PS/DVB*	SAX	50	≥ 70 mg BSA/ml
207	Helios 50-Q	PS/DVB*	SAX	50	≥ 140 mg BSA/ml

Product code	Product name	Matrix	Function	d50, μm	DBC
232	Aether Q	PMMA**	SAX	80	≥ 110 mg BSA/ml
231	Aether S	PMMA**	SCX	80	≥ 130 mg lysozyme/ml
226	Aether Q-650	PMMA**	SAX	80	≥ 95 mg BSA/ml
225	Aether DEAE-650	PMMA**	WAX	80	≥ 90 mg BSA/ml
228	Aether SP-650	PMMA**	SCX	80	≥ 110 mg lysozyme/ml
227	Aether CM-650	PMMA**	WCX	80	≥ 105 mg lysozyme/ml

Product line features

Lepta

- Chromatography resin based on a highly cross-linked agarose matrix.
- High-flow velocity, low back pressure and high binding capacity, good chemical stability and solvent resistance.
- Suitable for the separation and purification of recombinant proteins, antibodies, nucleic acids, viruses and virus-like particles and polysaccharides.

Lepta HR

- Chromatography resin based on an improved agarose matrix.
- Weak non-specific adsorption and good chemical stability.
- Suitable for the separation of various biomolecules, including polypeptides, polysaccharides, re-combinant proteins, nucleic acids and viruses.

Persefose BB

- Large-particle-size chromatography resin based on an agarose-based matrix.
- With organic solvent resistance and good chemical stability.
- Suitable for separation with large molecules, high impurity content or large sample volume.

Persefose FF

- High-flow velocity chromatography resin based on an agarose-based matrix.
- With weak non-specific adsorption and good chemical stability.
- Used for the separation and purification of recombinant proteins, antibodies, nucleic acids, viruses and virus-like particles, and polysaccharides.

Persefose HP

- High-resolution chromatography resin based on an agarose-based matrix.
- With weak non-specific adsorption and good chemical stability.
- Suitable for fine separation and purification of recombinant proteins, antibodies, nucleic acids, viruses and virus-like particles and polysaccharides.

Persefose XL

- Chromatography resin based on an agarose-based matrix with ultra-high binding capacity.
- With organic solvent resistance and good chemical stability.
- Suitable for separation and purification of recombinant proteins, antibodies, nucleic acids, viruses and virus-like particles, and polysaccharides.

Persedex A

- Chromatography resin on a dextran-based matrix.
- Used for purification of proteins, nucleic acids and peptides.

Persedex C

- Chromatography resin on a dextran-based matrix.
- Used for separation of low molecular weight proteins, peptides, nucleotides and Macromolecules.

Helios

- Chromatography resin series with polystyrene-divinylbenzene (PS/DVB) matrix.
- Widely used in the capture, intermediate purification and fine purification of antibodies, proteins, peptides, nucleic acids, vaccines, blood products and viruses.

Aether

- Chromatography resin series with Polymethylmethacrylate matrix.
- Widely used in the capture, intermediate purification and fine purification of antibodies, proteins, peptides, nucleic acids (oligonucleotides), viruses, insulins and other Biomolecules.

Ordering information

LT Biotech IEX resins can be supplied in 25 ml, 100 ml, 500 ml, 1L, 5L, 10L and 20 L plastic bottles or tins, and can be prepacked into 1 ml, 4.7 ml and 5 ml columns, suitable for the ÄKTA™ system. The catalogue number consists of eight digits, in the format XXX-ZZZZZ. XXX is the product code and ZZZZZ is the pack size in ml. For example, 601-00025 is a 25 ml bottle of Lepta Q resin, and 801-10000 is a 10 L tin of Helios 50-HS. For detailed information on pack types and quantities please contact your local distributor or refer to the product list.

Size-exclusion Chromatography

Size-exclusion chromatography (SEC), also known as molecular-sieve chromatography, separates molecules in solution by their size and, in some cases, molecular weight.

Key:

*copolymer of acrylic anhydride and N-N methylenebisulfamide

4FF; CL-4B; 4B – linking ratio 4%

6FF; CL-6B; 6B – linking ratio 6%

PSD: particle size distribution

Product code	Product name	Matrix	Particle sizes	Separation range, kDa	Swelling coefficient
701	Persefose 4FF	Agarose	45–165	60–20,000	ND
702	Persefose 6FF	Agarose	45–165	10–4,000	ND
703	Persefose CL-4B	Agarose	45–165	60–20,000	ND
704	Persefose CL-6B	Agarose	45–165	10–4,000	ND
705	Persefose 4B	Agarose	45–165	60–20,000	ND
706	Persefose 6B	Agarose	45–165	10–4,000	ND
791	SP-dex 30 PG	Agarose and Dextran	22–44	1–10	ND
792	SP-dex 75 PG	Agarose and Dextran	22–44	3–70	ND
793	SP-dex 200 PG	Agarose and Dextran	22–44	10–600	ND
571	Persedex G-10	Dextran	40–120	<0.7	ND
572	Persedex G-25C	Dextran	100–300	1–5	4–5 ml/g
573	Persedex G-25M	Dextran	50–150	1–5	4–5 ml/g
574	Persedex G-25F	Dextran	20–80	1–5	4–5 ml/g

Product code	Product name	Matrix	Particle sizes	Separation range, kDa	Swelling coefficient
575	Persedex G-25SF	Dextran	20–50	1–5	4–5 ml/g
576	Persedex G-50F	Dextran	20–80	1–30	9–10 ml/g
577	Persedex G-50M	Dextran	50–150	1–30	9–10 ml/g
578	Persedex LH-20	Dextran	20–120	4–5	1.9–2.3 ml/g
579	Persedex G-50SF	Dextran	10–40	1.5–30	9–11 ml/g
200	Persecryl 200	*	25–75	5–250	ND
201	Persecryl 100	*	25–75	1–100	ND

Product line features

Persefose FF, CL

- Chromatography resins based on agarose matrix.
- Weak non-specific adsorption, organic solvent resistance and good chemical stability.
- Suitable for the separation of polysaccharides, recombinant proteins, nucleic acids and other biomolecules, or determination of QC molecular weight.

SP-dex PG

- Chromatography resin based on an improved agarose matrix.
- Weak non-specific adsorption and good chemical stability.
- Suitable for the separation of various biomolecules, including polypeptides, polysaccharides, recombinant proteins, nucleic acids and viruses.

Persedex G

- Chromatography resin based on a cross-linked dextran matrix
- Organic solvent resistance and good chemical stability
- Suitable for desalting of various biomolecules, buffer replacement, separation and purification of small molecular substances, such as peptides.

Persecryl

- Chromatography resin based on a copolymer of acrylic anhydride and N-N methylenebisulfamide.
- Suitable for the separation and purification of γ -interferon, interleukin-II, protein A and hepatitis B vaccine.

Persedex LH-20

- Chromatography resin based on a hydroxypropylated dextran matrix.
- Substituted by hydroxypropyl, suitable for aqueous or organic phase, with good chemical stability.
- Suitable for the separation of natural products and other substances with small differences.

Ordering information

LT Biotech SEC resins can be supplied in 25 ml, 100 ml, 500 ml, 1L, 5L, 10L and 20 L plastic bottles or tins, and can be prepacked into 1 ml, 4.7 ml and 5 ml columns, suitable for the ÄKTA™ system. The catalogue number consists of eight digits, in the format XXX-ZZZZZ. XXX is the product code and ZZZZZ is the pack size in ml. For example, 701-00025 is a 25 ml bottle of Persefose 4FF, and 200-10000 is a 10 L tin of Persecryl 200. For detailed information on pack types and quantities please contact your local distributor or refer to the product list.

Hydrophobic Interaction Chromatography

Hydrophobic interaction chromatography (HIC) separates proteins according to differences in their surface hydrophobicity. We provide a product line specifically for HIC based on the Agarose matrix.

Key:
d50: mean or average particle

Product code	Product name	Functional group	Ligand density	d50*, μm	Hydrophobicity
631	Lepta Phenyl (HS)	Phenyl	~22 $\mu\text{mol/ml}$	75	Ultra strong
135	Lepta Phenyl (LS)	Phenyl	~15 $\mu\text{mol/ml}$	75	Strong
632	Lepta Phenyl HR	Phenyl	~9 $\mu\text{mol/ml}$	40	Ultra strong
731	Phenyl Persefose 6FF (HS)	Phenyl	~45 $\mu\text{mol/ml}$	90	Ultra strong
732	Phenyl Persefose 6FF (LS)	Phenyl	~25 $\mu\text{mol/ml}$	90	Strong
730	Phenyl Persefose HP	Phenyl	~25 $\mu\text{mol/ml}$	34	Ultra strong
133	Lepta Butyl	Butyl	~53 $\mu\text{mol/ml}$	80	Weak
634	Lepta Butyl HR	Butyl	~20 $\mu\text{mol/ml}$	40	Weak
734	Butyl Persefose 4FF	Butyl	~40 $\mu\text{mol/ml}$	90	Weak
735	Butyl-S Persefose 6FF	Butyl-S	~10 $\mu\text{mol/ml}$	90	Ultra weak
136	Butyl Persefose HP	Butyl	~50 $\mu\text{mol/ml}$	34	Weak
134	Lepta Octyl	Octyl	~5 $\mu\text{mol/ml}$	80	Strong
137	Octyl Persefose 4FF	Octyl	~5 $\mu\text{mol/ml}$	90	Strong

Product line features

Lepta HIC

- High-flow velocity chromatography resin based on an improved agarose matrix.
- Excellent rigidity, high-flow velocity, low back pressure and easy to scale up.
- Resistant to high-concentration salt, a wide pH range and organic solvents, and with good chemical stability.
- Used for the separation and purification of various biomolecules such as recombinant proteins, plasmids, viruses and virus-like particles.

Lepta HR HIC

- High-resolution chromatography resin based on an improved agarose-based matrix.
- Has both high resolution and high-flow velocity.
- Resistant to high-concentration salt, a wide pH range and organic solvents, and with good chemical stability.

Persefose HIC FF

- Chromatography resin based on an improved agarose-based matrix.
- Resistance to high-concentration salt, a wide pH range and organic solvents, and with good chemical stability.
- Used for the separation and purification of various biological molecules such as recombinant proteins, plasmids, viruses and virus-like particles.

Persefose HIC HP

- Chromatography resin based on an improved agarose-based matrix, uses the difference in the nature and amount of hydrophobicity of different molecules under specific conditions to separate them.
- Resistance to high-concentration salt, a wide pH range and organic solvents, and with good chemical stability.
- Used for the separation and purification of various biological molecules, such as recombinant proteins, antibodies and virus vaccines.

Ordering information

LT Biotech HIC resins can be supplied in 25 ml, 100 ml, 500 ml, 1L, 5 L, 10 L and 20 L plastic bottles or tins, and can be prepacked into 1 ml, 4.7 ml and 5 ml columns, suitable for the ÄKTA™ system.

The catalogue number consists of eight digits, in the format XXX-ZZZZZ. XXX is the product code and ZZZZZ is the pack size in ml. For example, 632-00025 is a 25 ml bottle of Lepta Phenyl HR resin, and 133-10000 is a 10 L tin of Lepta Butyl. For detailed information on pack types and quantities please contact your local distributor or refer to the product list.

Multimodal Chromatography

Multimodal (mixed-mode) chromatography separates solutes using a stationary phase that engages two or more types of interaction at once. Built on a highly rigid agarose base matrix, it contributes affinity-like binding and selectivity. LT Biotech offers a product line for MMC.

Key:
d50: mean or average
particle

Product code	Product name	Functional group	d50*, µm	Ligand density
610	Lepta MMC	Carboxyl groups, hydrogen bonds and hydrophobic groups	75	≥45 mg BSA/ml
611	Lepta MMC HR		40	≥45 mg BSA/ml
612	Lepta MMA	Amino groups, hydrogen bonds and hydrophobic groups	75	≥30 mg BSA/ml
613	Lepta MMA HR		40	≥30 mg BSA/ml
624	Lepta 400	N/A	90	≥22 mg ovalbumin/ml
627	Lepta 700	N/A	90	≥10 mg BSA/ml

Product line features

Lepta MMC

- High-flow velocity chromatography resin based on an improved agarose-based matrix.
- Wide range resistance and good chemical stability.
- Strong binding force, high binding capacity under high-salt conditions.
- Composed of multiple groups with different properties: carboxyl groups, hydrogen bonds and hydrophobic groups.

Lepta 700/400

- Double-layer structure, where the outer shell is an improved agarose-based passivation layer and the inner core is a ligand of both hydrophobic and ionic functions.
- Wide range resistance and good chemical stability.
- Suitable for the separation of viruses and other large biomolecules.

Lepta MMA

- High-flow velocity chromatography resin based on an improved agarose-based matrix.
- Wide range resistance and good chemical stability.
- Composed of multiple groups with different properties: amino groups, hydrogen bonds and hydrophobic groups.
- Can remove major impurities such as nucleic acid, host protein, aggregates and viruses, and is widely used in the fields of polysaccharides, antibodies, viral vectors or vaccines.

Ordering information

LT Biotech MMC resins can be supplied in 25 ml, 100 ml, 500 ml, 1L, 5 L, 10 L and 20 L plastic bottles or tins, and can be prepacked into 1 ml, 4.7 ml, and 5 ml columns, suitable for the ÄKTATM system.

The catalogue number consists of eight digits, in the format XXX-ZZZZZ. XXX is the product code and ZZZZZ is the pack size in ml. For example, 610-00025 is a 25 ml bottle of Lepta MMC resin, and 624-10000 is a 10 L tin of Lepta 400. For detailed information on pack types and quantities please contact your local distributor or refer to the product list.

Reversed-phase Chromatography

Reversed-phase chromatography (RPC) is used for separating compounds that have hydrophobic moieties and do not have a dominant polar character.

Key:

PS/DVB*: Polystyrene-divinylbenzene

PMMA**: polymethacrylate

Product code	Product name	Matrix	d50/PSD, μm	Pore size, $\text{\AA}$	DBC
272	Corus 15-100	PS/DVB*	15	100	$\geq 32\text{--}40$ mg B12/ml $\geq 30\text{--}60$ mg insulin/ml
273	Corus 15-300	PS/DVB*	15	300	
274	Corus 30-100	PS/DVB*	30	100	
275	Corus 30-300	PS/DVB*	30	300	
276	Amphirus 161-S	PS/DVB*	30–50	100	≥ 40 mg B12/ml ≥ 45 mg insulin/ml
277	Amphirus 161-M	PS/DVB*	50–75	100	
278	Amphirus 161-L	PS/DVB*	75–150	100	
279	Amphirus 71-S	PMMA**	30–50	300	≥ 6 mg B12/ml ≥ 28 mg insulin/ml
280	Amphirus 71-M	PMMA**	50–75	300	
281	Amphirus 71-L	PMMA**	75–150	300	
282	Demerus 20-S	PS/DVB*	30–50	300	≥ 32 mg B12/ml ≥ 28 mg insulin/ml
283	Demerus 20-M	PS/DVB*	50–75	300	
284	Demerus 20-L	PS/DVB*	75–150	300	
285	Demerus 20-S HP	PS/DVB*	30–50	300	≥ 42 mg B12/ml ≥ 70 mg insulin/ml
286	Demerus 20-M HP	PS/DVB*	50–75	300	
287	Demerus 20-L HP	PS/DVB*	75–150	300	

Product line features

Corus

- Large specific surface area, excellent chemical, physical stability and other characteristics; narrow pH operating range, high flow rate and high dynamic capacity.
- Used for separation of small molecular compounds, peptides, low molecular weight proteins and other biomolecules.

Amphirus

- High mechanical stability, high resolution and selectivity.
- Long resin lifetime and direct scale-up.
- Designed for use in capture and purification steps recombinant polypeptides, such as insulin.

Demerus

- Controlled pore size distribution and large surface area offer excellent resolution.
- Excellent balance of pressure flow characteristics and true chromatographic fractionation.
- Widely used for purification of small peptides, oligonucleotides, proteins, adsorption of vitamins, antibiotics, enzymes, steroids and other substances from fermentation solution, removal of phenol.

Ordering information

LT Biotech RPC resins can be supplied in 25 ml, 100 ml, 500 ml, 1L, 5 L and 10 L plastic bottles or tins.

The catalogue number consists of eight digits, in the format XXX-ZZZZZ.XXX is the product code and ZZZZZ is the pack size in ml. For example, 272-00025 is a 25 ml bottle of Corus 15-100 resin, and 276-10000 is a 10 L of Amphiriton 161-S. For detailed information on pack types and quantities please contact your local distributor or refer to the product list.

Hydroxyapatite Chromatography

Ceramic hydroxyapatite (CHT) – $(\text{Ca}_5(\text{PO}_4)_3\text{OH})_2$ is a form of calcium phosphate used in the mode of chromatographic separation also known as hydroxyapatite chromatography (HAC). LT Biotech provides two types of CHT with different DBC ranges, Type I and Type II, each in four particle sizes.

Product code	Product name	Matrix	Functional group	d50*, μm	DBC
800	Pleiad CHT Type I	CHT	$\text{Ca}^{2+} \text{PO}_4^{3-} \text{OH}$	20	$\geq 25\text{--}60 \text{ mg mAb/ml}$
802	Pleiad CHT Type I			40	
803	Pleiad CHT Type I			60	
804	Pleiad CHT Type I			80	
805	Pleiad CHT Type II			20	$\geq 15\text{--}25 \text{ mg mAb/ml}$
806	Pleiad CHT Type II			40	
807	Pleiad CHT Type II			60	
808	Pleiad CHT Type II			80	

Product line features

Pleiad CHT

- Resin of inorganic pure chromatography phase with a stable structure.
- Supporting multiple separation modes including cation exchange, calcium affinity and separation by hydroxyl groups.

Ordering information

LT Biotech CHT can be supplied in 10 g, 25 g, 100 g, 1 kg and 5 kg packs.

The catalogue number consists of eight digits, in the format XXX-ZZZZZ. XXX is the product code and ZZZZZ is the pack size in ml. For example, 800-00025 is a 25 g pack of Pleiad CHT Type I 20 μm , and 806-50000 is a 5 kg tin of Pleiad CHT Type II 40 μm . For detailed information on pack types and quantities please contact your local distributor or refer to the product list.

Appendix A: LT Biotech Resin Families Guide

Each LT Biotech resin belongs to a named family defined by its matrix and the modes it supports. The table below summarises the families, their matrices and their principal uses.

Resin family	Matrix	Modes	Principal use
Persefose (FF, HP, XL, BB, CL, 4B/6B)	Agarose (cross-linked)	SEC, IEX, AC, HIC	Separation and purification of recombinant proteins, antibodies, nucleic acids, viruses and virus-like particles, and polysaccharides; base matrix for ion-exchange, affinity and HIC ligands.
SP-dex PG	Improved agarose	SEC	Separation of polypeptides, polysaccharides, recombinant proteins, nucleic acids and viruses.
Persedex (G-series)	Cross-linked dextran	SEC (desalting/ group separation)	Desalting of biomolecules, buffer exchange, and separation/purification of small molecular substances such as peptides.
Persedex LH-20	Hydroxypropylated dextran	SEC	Separation of natural products and other substances with small differences; usable in aqueous or organic phase.
Persedex A / C	Dextran	IEX	Purification of proteins, nucleic acids and peptides (A); low-MW proteins, peptides, nucleotides and macromolecules (C).
Persecryl	Copolymer of acrylic anhydride and N-N methylenebissulfamide	SEC	Separation/purification of interferon, interleukin-II, protein A and hepatitis B vaccine.
Lepta	Highly cross-linked agarose	IEX, HIC, AC, MMC	High-flow, high-capacity capture and polishing of recombinant proteins, antibodies, nucleic acids, viruses/VLPs and polysaccharides; Protein A/G/L affinity; multimodal.
Helios	Polystyrene-divinylbenzene (PS/DVB)	IEX, AC (Oligo dT)	Capture, intermediate and fine purification of antibodies, proteins, peptides, nucleic acids, vaccines, blood products and viruses; mRNA capture via Oligo dT.
Aether	Polymethylmethacrylate (PMMA)	IEX, AC (chelate)	Capture, intermediate and fine purification of antibodies, proteins, peptides, oligonucleotides, viruses, insulins; metal-chelate affinity.
Pleiad CHT	Ceramic hydroxyapatite	Mixed-mode / Hydroxyapatite	Antibodies, vaccines, nucleic acids, enzymes and recombinant proteins via simultaneous cation-exchange and calcium-affinity mechanisms.
Corus	PS/DVB	RPC	Separation of small molecular compounds, peptides, low-MW proteins and other biomolecules.
Amphirus	PS/DVB and PMMA	RPC	Capture and purification of recombinant polypeptides such as insulin; high resolution and selectivity.
Demerus	PS/DVB	RPC	Purification of small peptides, oligonucleotides and proteins; adsorption of vitamins, antibiotics, enzymes, steroids; phenol removal.

Appendix 2: Phase Alternatives by Manufacturer

Size-exclusion Chromatography

Size-exclusion chromatography (SEC), also known as molecular sieve chromatography, is a chromatographic method in which molecules in solution are separated by their size, and in some cases molecular weight. LT Biotech offers a product line for SEC chromatography.

No.	Brand	Production	Analogue from LT Biotech	Product code
1	Sepharose 4FF	Cytiva	Persefose 4FF	701
2	Sepharose 6FF	Cytiva	Persefose 6FF	702
3	Sepharose CL-4B	Cytiva	Persefose CL-4B	703
4	Sepharose CL-6B	Cytiva	Persefose CL-6B	704
5	Sepharose 4B	Cytiva	Persefose 4B	705
6	Sepharose 6B	Cytiva	Persefose 6B	706
7	Superdex 30PG	Cytiva	SP-dex 30 PG	791
8	Superdex 75PG	Cytiva	SP-dex 75 PG	792
9	Superdex 200PG	Cytiva	SP-dex 200 PG	793
10	Sephadex G-10	Cytiva	Persedex G-10	571
11	Sephadex G-25C	Cytiva	Persedex G-25C	572
12	Sephadex G-25M	Cytiva	Persedex G-25M	573
13	Sephadex G-25F	Cytiva	Persedex G-25F	574

No.	Brand	Production	Analogue from LT Biotech	Product code
14	Sephadex G-25SF	Cytiva	Perседex G-25SF	575
15	Sephadex G-50M	Cytiva	Perседex G-50M	577
16	Sephadex G-50F	Cytiva	Perседex G-50F	576
17	Sephadex G-50SF	Cytiva	Perседex G-50SF	579
18	Sephadex LH-20	Cytiva	Perседex LH-20	578
19	Sephacryl S-100	Cytiva	Persecryl S-100	201
20	Sephacryl S-200	Cytiva	Persecryl S-200	200

Ion-exchange Chromatography

Ion-exchange chromatography (IEX) separates ion and polar molecules based on their affinity to the ion exchanger. LT Biotech offers a wide product line for IEX chromatography.

No.	Brand	Production	Analogue from LT Biotech	Product code
21	Capto Q	Cytiva	Lepta Q	601
22	Capto Q ImpRes	Cytiva	Lepta Q HR	602
23	Q Sepharose FF	Cytiva	Q Persefose FF	711
24	Q Sepharose HP	Cytiva	Q Persefose HP	712
25	Q Sepharose XL	Cytiva	Q Persefose XL	714
26	Q Sepharose BB	Cytiva	Q Persefose BB	713
27	Capto DEAE	Cytiva	Lepta DEAE	604
28	DEAE Sepharose FF	Cytiva	DEAE Persefose FF	716
29	DEAE Sepharose HP	Cytiva	DEAE Persefose HP	717
30	DEAE Sepharose XL	Cytiva	DEAE Persefose XL	298
31	DEAE Sepharose BB	Cytiva	DEAE Persefose BB	296
32	Capto S	Cytiva	Lepta S	605
33	Capto SP ImpRes	Cytiva	Lepta SP HR	606
34	Capto S impAct	Cytiva	Lepta S impAct	607
35	SP Sepharose FF	Cytiva	SP Persefose FF	718
36	SP Sepharose HP	Cytiva	SP Persefose HP	719
37	SP Sepharose XL	Cytiva	SP Persefose XL	721
38	SP Sepharose BB	Cytiva	SP Persefose BB	720
39	CM Sepharose FF	Cytiva	CM Persefose FF	723

No.	Brand	Production	Analogue from LT Biotech	Product code
40	CM Sepharose HP	Cytiva	CM Persefose HP	724
41	CM Sepharose XL	Cytiva	CM Persefose XL	299
42	CM Sepharose BB	Cytiva	CM Persefose BB	297
43	DEAE Sephadex A-25	Cytiva	DEAE Persedex A-25	261
44	DEAE Sephadex A-50	Cytiva	DEAE Persedex A-50	262
45	CM Sephadex C-25	Cytiva	CM Persedex C-25	263
46	CM Sephadex C-50	Cytiva	CM Persedex C-50	264
47	Source 15Q	Cytiva	Helios 15Q	111
48	Source 15S	Cytiva	Helios 15S	112
49	Source 30Q	Cytiva	Helios 30Q	113
50	Source 30S	Cytiva	Helios 30S	114
51	Poros 50HS	Thermo S	Helios 50-HS	801
52	Poros XS	Thermo S	Helios 50-XS	205
53	Poros 50-HQ	Thermo S	Helios 50-HQ	206
54	Poros 50-Q	Thermo S	Helios 50-Q	207
55	Eshmuno Q	Merck	Aether Q	232
56	Eshmuno S	Merck	Aether S	231
57	Toyopearl super Q-650; Fractogel EMD Q	Tosoh / Merck	Aether Q-650	226
58	Toyopearl DEAE-650; Fractogel EMD DEAE	Tosoh / Merck	Aether DEAE-650	225
59	Toyopearl SP-650; Fractogel EMD SO3-	Tosoh / Merck	Aether SP-650	228
60	Toyopearl CM-650; Fractogel EMD C00-	Tosoh / Merck	Aether CM-650	227

Affinity Chromatography

Affinity chromatography (AC) is a method of separating a bio molecule from a mixture, based on a highly specific macromolecular binding interaction between the bio molecule and another substance. LT Biotech provides vast product range of affinity chromatography resins.

No.	Brand	Production	Analogue from LT Biotech	Product code
61	MabSelectSuRe LX	Cytiva	Lepta SuRe LX	651
62	MabSelectSuRe LX	Cytiva	Lepta ProtA LX	150
63	MabSelectPrisma	Cytiva	Lepta SuperA	151
64	rProtein A Sepharose FF	Cytiva	Lepta rProtein A	652
65	rProtein A Sepharose FF	Cytiva	rProteinA Persefose FF	727
66	Capto Protein G	Cytiva	Lepta Protein G	727
67	Protein G Sepharose 4FF	Cytiva	Protein G Persefose 4FF	126
68	Protein L	Cytiva	Lepta Protein L	725
69	Ni Sepharose 6FF	Cytiva	Ni Persefose FF	751
70	Ni Sepharose HP	Cytiva	Ni Persefose HP	752
71	Ni Sepharose Excel	Cytiva	Ni Persefose Excel	755
72	IMAC Sepharose 6FF	Cytiva	IMAC Persefose FF	753
73	IMAC Sepharose HP	Cytiva	IMAC Persefose HP	155
74	Chelating Sepharose FF	Cytiva	Chelating Persefose FF	754
75	Fractogel EMD chelate (IDA)	Merck	Aether chelate (IDA) FF	243
76	Fractogel EMD chelate (NTA)	Merck	Aether chelate (NTA) FF	244
77	Glutathione Sepharose 4FF	Cytiva	Glutathione Persefose 4FF	742

No.	Brand	Production	Analogue from LT Biotech	Product code
78	Glutathione Sepharose 4B	Cytiva	Glutathione Persefose 4B	743
79	Poros Oligo dT20	Thermo S	Helios Oligo dT20	252
80	Poros Oligo dT25	Thermo S	Helios Oligo dT25	653
81	Heparin Sepharose 6FF	Cytiva	Heparin Persefose FF	761
82	Heparin Sepharose HP	Cytiva	Heparin Persefose HP	162
83	Capto Plasmid Select	Cytiva	Lepta PlasmidCap HR	681
84	PlasmidSelectXtra	Cytiva	PlasmidCap Persefose HP	181
85	Benzamidine Sepharose 4FF (HS)	Cytiva	Benzamidine Persefose 4FF	741
86	Blue Sepharose 6FF	Cytiva	Blue Persefose FF	163
87	Blue Sepharose HP	Cytiva	Blue Persefose HP	164
88	Capto Blue	Cytiva	Lepta Blue	158
89	Capto Blue (HS)	Cytiva	Lepta Blue HS	159
90	CNBr Activated Sepharose 4B	Cytiva	CNBr Activated Persefose 4B	420
91	CNBr Activated Sepharose 4FF	Cytiva	CNBr Activated Persefose 4FF	421
92	NHS Activated Sepharose 4B	Cytiva	NHS Activated Persefose 4B	422
93	NHS Activated Sepharose 4FF	Cytiva	NHS Activated Persefose 4FF	423
94	Epoxy activated Sepharose 4FF	Cytiva	Epoxy activated Persefose 4FF	401
95	Epoxy activated Sepharose 6B	Cytiva	Epoxy activated Persefose 6B	402

Hydrophobic Interaction Chromatography

Hydrophobic interaction chromatography (HIC) separates proteins according to differences in their surface hydrophobicity. LT Biotech provides a product line for HIC based on the agarose matrix.

No.	Brand	Production	Analogue from LT Biotech	Product code
96	Capto Phenyl (HS)	Cytiva	Lepta Phenyl (HS)	631
97	Capto Phenyl (LS)	Cytiva	Lepta Phenyl (LS)	135
98	Capto Phenyl ImpRes	Cytiva	Lepta Phenyl HR	632
99	Phenyl Sepharose 6FF (HS)	Cytiva	Phenyl Persefose 6FF (HS)	731
100	Phenyl Sepharose 6FF (LS)	Cytiva	Phenyl Persefose 6FF (LS)	732
101	Phenyl Sepharose HP	Cytiva	Phenyl Persefose HP	730
102	Capto Butyl	Cytiva	Lepta Butyl	133
103	Capto Butyl ImpRes	Cytiva	Lepta Butyl HR	634
104	Butyl Sepharose 4FF	Cytiva	Butyl Persefose 4FF	734
105	Butyl-S Sepharose 6FF	Cytiva	Butyl-S Persefose 6FF	735
106	Butyl Sepharose HP	Cytiva	Butyl Persefose HP	136
107	Capto Octyl	Cytiva	Lepta Octyl	134
108	Octyl Sepharose 4FF	Cytiva	Octyl Persefose 4FF	137

Multimodal Chromatography

Mixed-mode chromatography (MMC), or multimodal chromatography, refers to chromatographic methods that separates solutes by using a stationary phase that involves in the separation two or more types of interactions. Based on a highly rigid agarose base matrix it contributes affinity-like binding and selectivity. LT Biotech offers a product line for MMC chromatography.

No.	Brand	Production	Analogue from LT Biotech	Product code
109	Capto MMC	Cytiva	Lepta MMC	610
110	Capto MMC ImpRes	Cytiva	Lepta MMC HR	611
111	Capto Adhere	Cytiva	Lepta MMA	612
112	Capto Adhere ImpRes	Cytiva	Lepta MMA HR	613
113	Capto Core 400	Cytiva	Lepta 400	624
114	Capto Core 700	Cytiva	Lepta 700	627

Hydroxyapatite

Ceramic hydroxyapatite (CHT) – $(\text{Ca}_5(\text{PO}_4)_3\text{OH})_2$ – is a form of calcium phosphate used in chromatographic separation. LT Biotech provides two types of CHT, Type I and Type II.

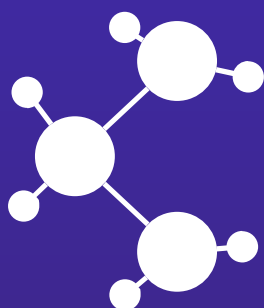
No.	Brand	Production	Analogue from LT Biotech	Product code
115	CHT Type I, 20 μm	Biorad	Pleiad CHT type I, 20 μm	800
116	CHT Type I, 40 μm	Biorad	Pleiad CHT type I, 40 μm	802
117	CHT Type I, 60 μm	Biorad	Pleiad CHT type I, 60 μm	803
118	CHT Type I, 80 μm	Biorad	Pleiad CHT type I, 80 μm	804
119	CHT Type II, 20 μm	Biorad	Pleiad CHT type II, 20 μm	805
120	CHT Type II, 40 μm	Biorad	Pleiad CHT type II, 40 μm	806
121	CHT Type II, 60 μm	Biorad	Pleiad CHT type II, 60 μm	807
122	CHT Type II, 80 μm	Biorad	Pleiad CHT type II, 80 μm	808

Reverse-phase Chromatography

Reversed-phase chromatography (RPC) is used for separating compounds that have hydrophobic moieties and do not have a dominant polar character. LT Biotech provide a product line for RPC.

No.	Brand	Production	Analogue from LT Biotech	Product code
123	Source 15RPC	Cytiva	Corus 15-100	272
124	Source 15RPC	Cytiva	Corus 15-300	273
125	Source 30RPC	Cytiva	Corus 30-100	274
126	Source 30RPC	Cytiva	Corus 30-300	275
127	Amberchrom CG161 (30-50)	DuPont	Amphirus 161-S	276
128	Amberchrom CG161 (50-75)	DuPont	Amphirus 161-M	277
129	Amberchrom CG161 (75-150)	DuPont	Amphirus 161-L	278
130	Amberchrom CG71 (30-50)	DuPont	Amphirus 71-S	279
131	Amberchrom CG71 (50-75)	DuPont	Amphirus 71-M	280
132	Amberchrom CG71 (75-150)	DuPont	Amphirus 71-L	281
133	Diaion HP20SS (30-50)	MCC*	Demerus 20-S	282
134	Diaion HP20SS (50-75)	MCC*	Demerus 20-M	283
135	Diaion HP20SS (75-150)	MCC*	Demerus 20-L	284
136	Diaion HP20SS HP (30-50)	MCC*	Demerus 20-S HP	285
137	Diaion HP20SS HP (50-75)	MCC*	Demerus 20-M HP	286
138	Diaion HP20SS HP (75-150)	MCC*	Demerus 20-L HP	287

* Mitsubishi Chemical Corporation



LT Biotech

UAB LT Biotech

Phone: +370 5 2160227

E-mail: info@ltbiotech.lt

Address: Mokslininku 2, Vilnius, Lithuania, LT-08412

Full Resins Catalogue 2026