

SMART Chromatography™

purification from
cell containing feed streams
in packed bed columns

SMART Chromatography™
is one of the most exciting
developments in protein purification.
SMART Chromatography™ allows
the purification of biomolecules
directly from the bioreactor
without first having to clarify
the feed stream.



*excellence
made possible*

SMART Chromatography™

Purification from cell containing feed streams in packed bed columns

Particle-based biomolecule separation is a well-established technique and has been used successfully for many years. However, preparation of the feed stream is a time-consuming and costly step and the problems associated with this only increase as the bioreactor volume increases in scale. Cell removal steps also result in lower recovery of the desired biomolecule, thus increasing the overall cost of the production process.

As the primary step in a purification process, **SMART Chromatography™** eliminates the requirement to remove cells before application to the chromatography column, reducing the number of steps in the process, reducing time and increasing product recovery.

SMART Chromatography™ uses proprietary **ZetaCell** solid phases. These are based on large-particle highly cross-linked agarose, which is surface-modified to provide the desired binding functionality. The beads have been designed to allow cells and cell debris from the bioreactor to pass unhindered through the packed column bed.

All **SMART Chromatography™** and **ZetaCell** products are manufactured in dedicated ISO certified facilities under strict control and according to the highest of internationally recognized quality standards.

Resin name
ZetaCell SP
ZetaCell SP Boost
ZetaCell CM
ZetaCell CM Boost
ZetaCell Q
ZetaCell Q Boost
ZetaCell DEAE
ZetaCell DEAE Boost
ZetaCell Aldehyde activated
ZetaCell Protein G
ZetaCell NTA (metal-free)
ZetaCell Ni-NTA
ZetaCell Protein A Resolute
ZetaCell Phenyl
ZetaCell Butyl


For more information, please contact us at smart@empbiotech.com or +49 30 9489 2201



Functionality	Ligand	Target	Product Code
IEX (Strong Cation)	Sulphopropyl	Pos. charged molecules	TM-4201
IEX (Strong Cation)	Sulphopropyl	Pos. charged molecules	TM-4202
IEX (Weak Cation)	Carboxy-methyl	Pos. charged molecules	TM-4203
IEX (Weak Cation)	Carboxy-methyl	Pos. charged molecules	TM-4204
IEX (Strong Anion)	Quaternary ammonium	Neg. charged molecules	TM-4205
IEX (Strong Anion)	Quaternary ammonium	Neg. charged molecules	TM-4206
IEX (Weak Anion)	Diethyl-aminoethyl	Neg. charged molecules	TM-4207
IEX (Weak Anion)	Diethyl-aminoethyl	Neg. charged molecules	TM-4208
Activated	Client provided	Binding to specific ligand	TM-4301
Affinity	Protein G	Antibodies	TM-4404
Affinity	Nitrilotriacetic acid	His-tagged proteins	TM-4405
Affinity	Nitrilotriacetic acid Ni ²⁺	His-tagged proteins	TM-4406
Affinity	Base-stable Protein A	Antibodies	TM-4425
HIC	Phenyl (C ₆ H ₅)	General protein purification	TM-4501
HIC	Butyl (C ₄ H ₉)	General protein purification	TM-4502

SMART Chromatography™ columns are supplied pre-packed and ready-to-use. For larger columns please contact us.

emp BIOTECH is also pleased to supply you with fully customized solutions designed specifically for your application. Please contact us for a consultation.



SMART Chromatography™ has been successfully used for a wide range of primary protein purification procedures and from a variety of secretion and non-secretion cell systems, including mammalian cell lines (CHO-cell line), bacteria (*E. coli*), yeast (*S. cerevisiae*, *P. pastoris*) as well as rice flour.

Studies in filamentous fungi, plant and moss cell cultures are currently under evaluation.



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emp BIOTECH is an ISO 9001:2015 certified company
Registration number 011001300789 (TÜV Rheinland)