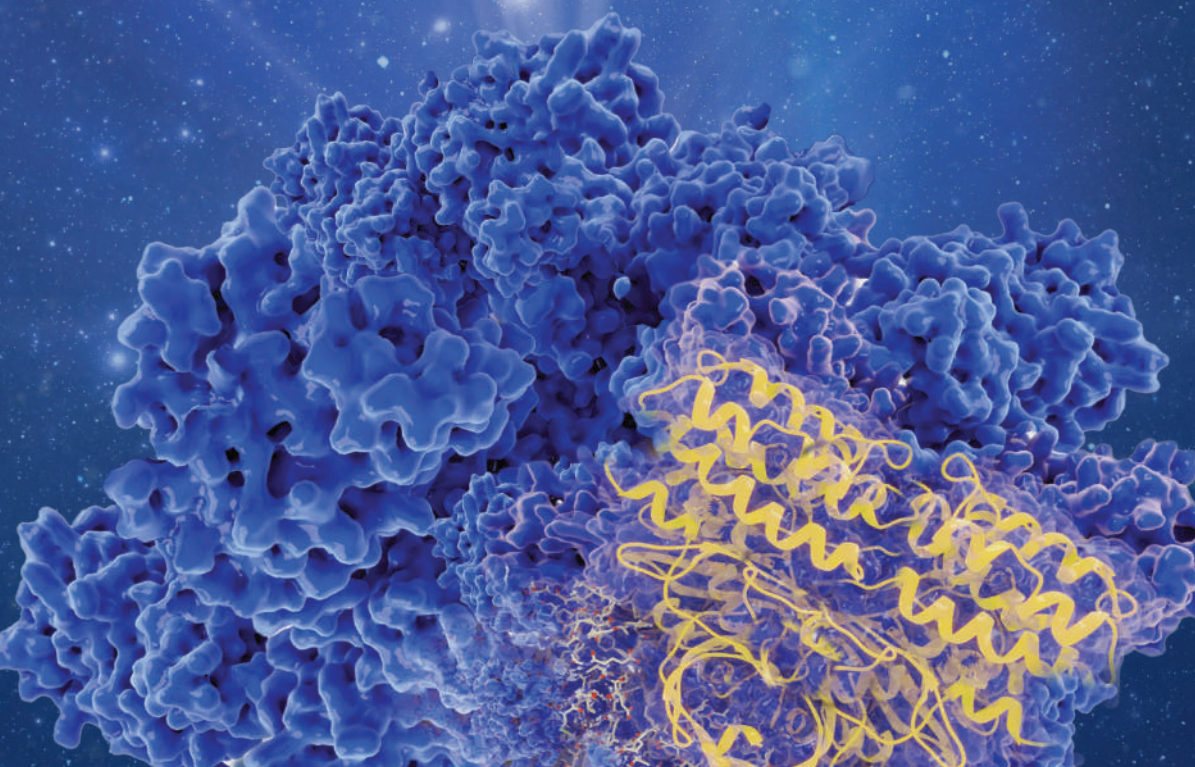
affinisep

The art of making sample preparation easier

BioSPE®

Ready-to-use SPE kits for PROTEOMICS



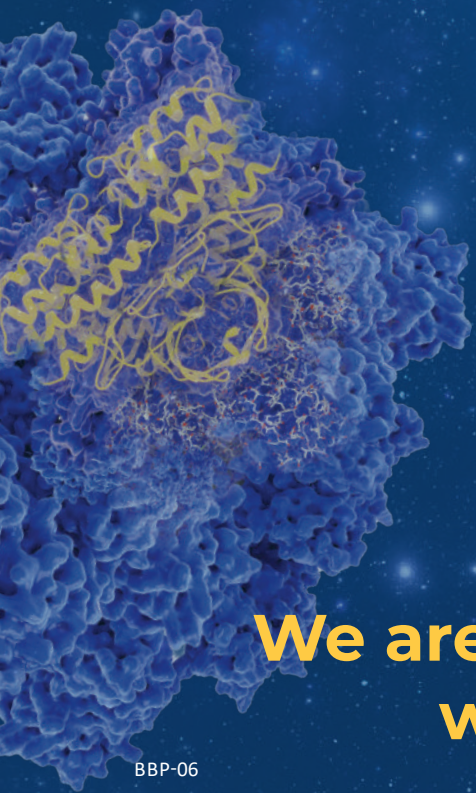
Information

This brochure gives technical information about our SPE kits for sample preparation in proteomic workflows.

To have access to our products references and prices, or to request a quote, please either:

Create an account on our website:
www.affinisep.com

Send us an email at
customer-service@affinisep.com



We are looking forward working with you!

Affinisep SPE membrane technology for microelution

Our innovative SPE membranes are made with **small sorbent beads**, that are much smaller than the particles used in traditional powder-based SPE products. These beads are tightly embedded, thus leading to **thin, dense, soft and uniform membranes with high capacity** for extraction/separation, purification and concentration of molecules.

These SPE membranes **offer outstanding sample preparation efficiency and reproducibility** of results. The sorbent particles being densely packed, the diffusion distance is minimized.

Therefore, adsorption is more efficient, and extraction can be accomplished using **very low sorbent mass** and **very small elution volumes**. **The time-consuming evaporation step** is thus **considerably reduced**, and t**he molecules of interest are highly concentrated** to improve the detection sensitivity.

These properties are giving to our SPE membranes a **significant improvement of mass transfer kinetics** compared to traditional packed SPE particles. As monoliths, our SPE membranes are self stand and require **no frits to immobilize the column bed** (unlike traditional SPE products), allowing **100% recovery of the original sample volume.**

Advantages of SPE membranes

- No need of frits or filters
- Reduced dead volume
- Small elution volumes
- High sample recovery
- Reduced time for eluate evaporation
- Higher throughput
- Channeling effects eliminated
- Excellent reproducibility
- Concentration of analytes of interest

SPE membrane for proteomics and biomolecular applications

Thanks to their unique advantages, our SPE membranes are useful for purification of very small sample volumes in diverse biological applications. Affinisep offers two ranges of products for proteomics and biomolecular applications, both based on our innovative SPE membrane technology.

Our product ranges based on SPE membrane

BioSPE®

A new range of **ready-to-use kits** specially developed and designed for **various applications in:**

- **Bottom-up proteomics:** peptide desalting, peptide fractionation, removal of magnetic beads after SP3 procedure, enrichment of N-glycans or glycopeptides
- **Top-down proteomics:** purification of intact proteins in biological matrices, food matrices (milk) or plant samples
- **Metabolomics:** purification of metabolites and small molecules from various matrices (plasma, urine, culture medium…)
- **Genomics:** isolation of cell-free DNA and RNA from plasma and urine

AttractSPE® Disks

A comprehensive product range based on sorbent chemistries, with a **wide variety of silica-based (C18, C8, C4, HILIC…) and polymeric sorbents (SAX, SCX, PS-DVB, RPS…)**, for extraction and purification of analytes in biological samples such as urine, plasma, serum, saliva....

Information

This brochure will only present our BioSPE® kits for bottom-up and top-down proteomic applications. Don't hesitate to visit our website or contact us if you want more information about our BioSPE® kits for metabolomics and genomics, or about our AttractSPE® Disks range!

Focus on SPE membrane microelution tools

Our SPE membranes can be used to miniaturize SPE for small operating volume of fluid samples. In order to give the most exhaustive applications, 4 formats are available for microelution, for both BioSPE® and AttractSPE® Disks product ranges: SPE Tips, SPE Spin columns, SPE well plates and SPE cartridges.
Thanks to the use of the SPE membranes for all formats, the change of format or the scale up of the process is easy to implement.

Formats

SPE Tips

SPE Spin columns

96 & 384 SPE well plates

SPE Cartridges

Capacity

Illustration of the different capacities available for our SPE Tips

Each format (SPE Tips, SPE Spin columns, SPE well plates and SPE Cartridges) is available with different binding capacities, that is to say different layer thicknesses of the SPE membrane immobilized inside the microelution tool, to better meet your needs. For a more reproducible product, each tool contains only ONE layer of SPE membrane.

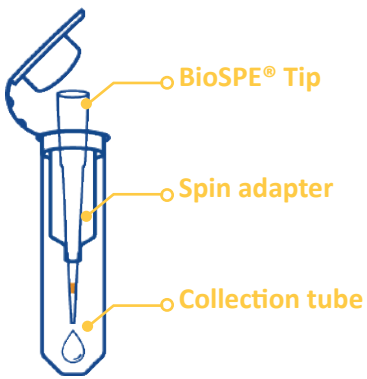
BioSPE® ready-to-use kits for proteomics, metabolomics and genomics

BioSPE® product range consists of **ready-to-use kits** for the most common applications in proteomics, metabolomics and genomics workflows. Supplied as turnkey solutions, these kits are composed of:

- SPE columns for a given application such as desalting, enrichment, fractionation…
- Instructions of use and detailedprotocol specific to a given application
- Adapters and/or collection tools (each kit contains collection tools for the conditioning loading/washing fractions and for the elution fraction)
- Some reagents

BioSPE® 96 well plates are supplied with **1mL collection plates**, **BioSPE® 384 well plates** are supplied with **240µL collection plates and BioSPE® micro and mini Spin columns** are supplied with **2mL collection tubes.**

As our SPE Tips were specifically developed for an optimal use by centrifugation, **BioSPE® Tips** are supplied with **spin adapters and collection tubes**. Very easy to use, these adapters are compatible with any 1.5 and 2mL centrifugation tube (in the case of 10µL and 200µL tips) and 15mL centrifugation tube (in the case of 1mL tips).

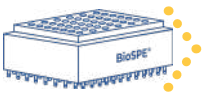


Good to know: Our SPE Tips can also be used in fully automated workflows, with the DigestPro™, the Resolvex® A200 and Evosep One automates!*

**Contact us to get the suitable references*

BioSPE® tools - Capacity

To help you select the formats that are the most adapted to your applications based on your sample amounts, the following table lists the loading capacities (maximal peptide/protein amounts that can be retained) of our different BioSPE® formats available.

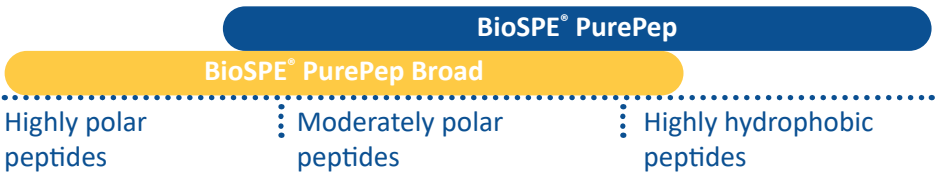
Products		Maximal capacity* (µg)		
		Single Cell (SC)	Standard (S)	High (H)
	BioSPE® Tips - 10 µL	3	7	25
	BioSPE® Tips - 200 µL	-	15	50
	BioSPE® Tips - 1 mL	-	35	105
	BioSPE® 96 well plate for microelution	3	35	105
	BioSPE® 384 well plate for microelution	-	25	100
	BioSPE® 96 well plate 1 mL	-	500	1500
	BioSPE® Spin - Micro	-	200	600
	BioSPE® Spin - Mini	-	300	900
	BioSPE® Spin - 15mL	-	1500	4500
	BioSPE® Spin - 50mL	-	3000	9000
	BioSPE® Cartridges - 1mL	-	250	750
	BioSPE® Cartridges - 3mL	-	700	2100
	BioSPE® Cartridges - 6mL	-	1500	4500

**minimal capacity of few ng for each format*

Peptide desalting with BioSPE® PurePep and BioSPE® PurePep Broad

Application: **Clean-up** of **peptide mixtures** after **enzymatic digestion** in bottom-up proteomics to **remove salts** that can interfere with peptide ionization/detection and damage mass spectrometers.

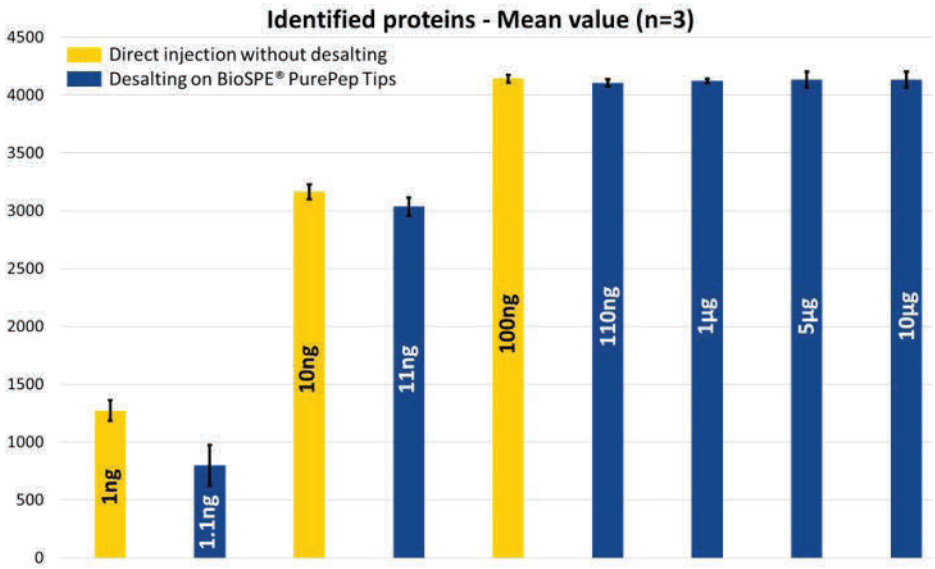
Good to know: Whatever the nature and polarity of your peptides, our desalting kits are the ideal tools for your sample clean up prior to mass spec analysis!



	BioSPE® PurePep	BioSPE® PurePep Broad
High number of proteins identified after desalting (up to 97%)	✓	✓
Desalting of TMT-labeled peptides (recovery > 98%)	✓	✗
Desalting of phosphopeptides (recovery > 95%)	✓	✗
Sorbent stable under extreme pH conditions (pH < 2 or pH > 10)	✗	✓
Sorbent can run dry during SPE procedure	✗	✓

Application note:
Estimation of the working range on **BioSPE®** **PurePep** SPE Tips 200µL – Standard capacity.

Read the application note for more results!



- Number of identified proteins very close to reference sample, even for small peptide amounts (10ng and below)
- BioSPE® PurePep SPE Tips 200µL – Standard capacity can be used for single cell-like analysis
- Excellent repeatability (RSD < 3%)

Good to know: Video on the use of **BioSPE® PurePep SPE Tips** by centrifugation for peptide desalting available on our website!

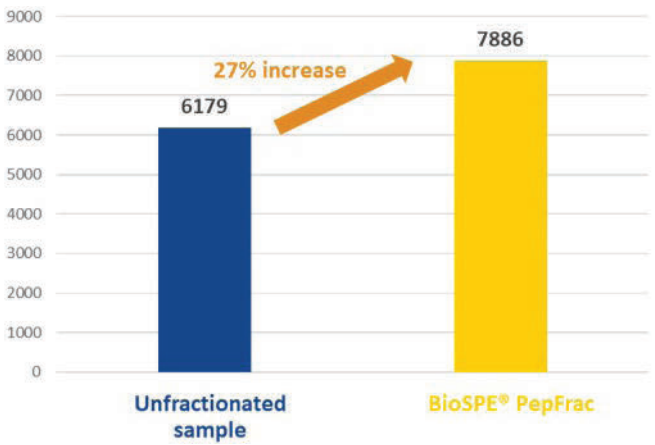
Peptide fractionation with BioSPE® PepFrac

Application: Reduction of sample complexity with peptide fractionation at basic pH for deep proteome sequencing and quantitative analysis

Advantages

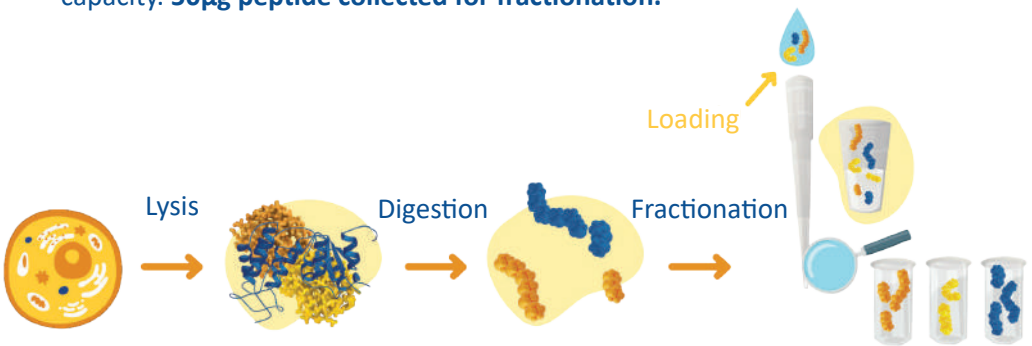
- **Increased number of identified proteins**
- **Fractionation of unlabeled or TMT-labeled peptides**
- **No desalting step required prior to LC-MS analysis**
- **No storage constraints (dry at room temperature) with long shelf life**
- **Real flexibility of format and capacity to adapt to all samples**

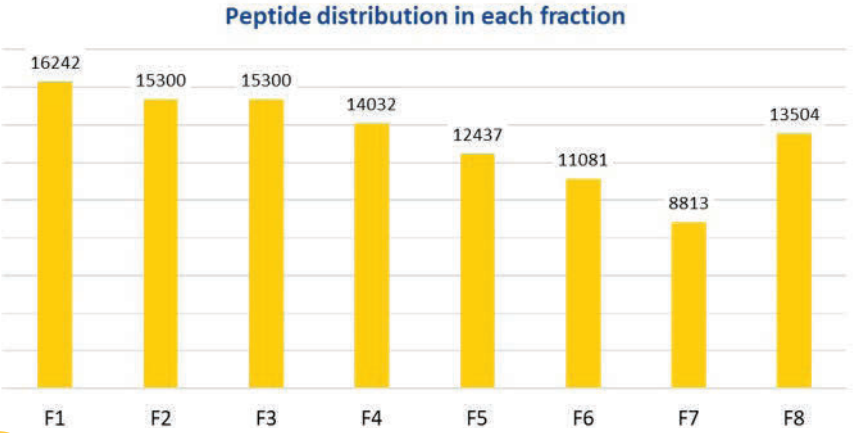
Number of proteins identified



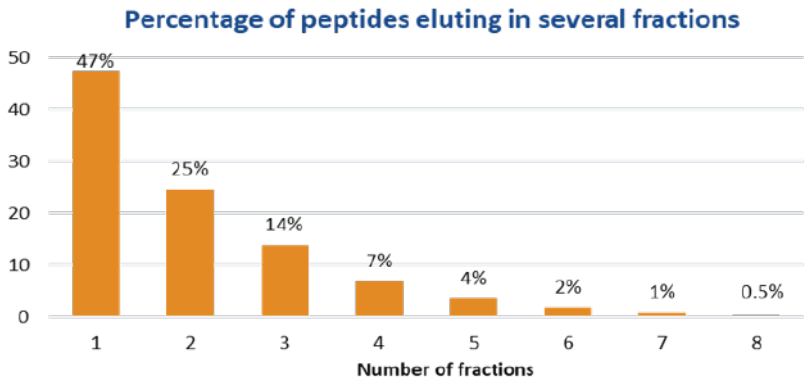
Did you know? BioSPE® PepFrac ready-to-use kits are supplied with **0.1% triethylamine (TEA) solution.** Up to 8 fractions can be performed thus the kits are supplied with **nine collection tools** (one for conditioning/loading/washing fractions and one for each of the eight fractions).

Example 1: Fractionation of peptides on **BioSPE® PepFrac SPE** Tips – High capacity. **50µg peptide collected for fractionation.**





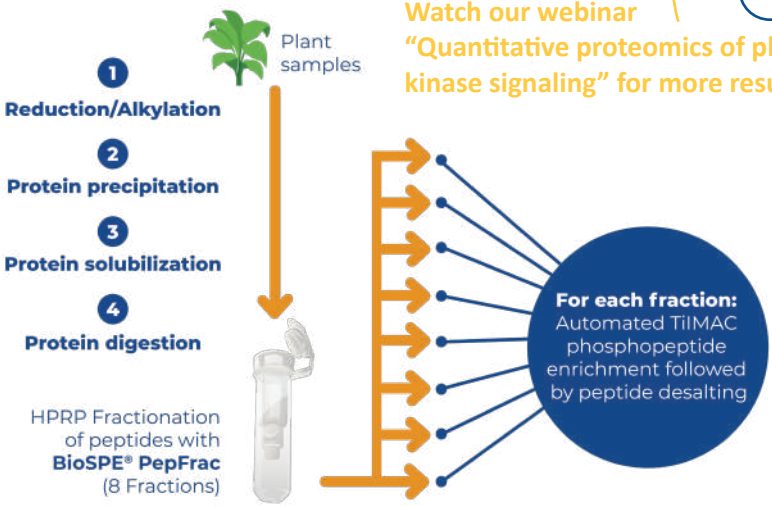
Good distribution of peptides over the eight fractions

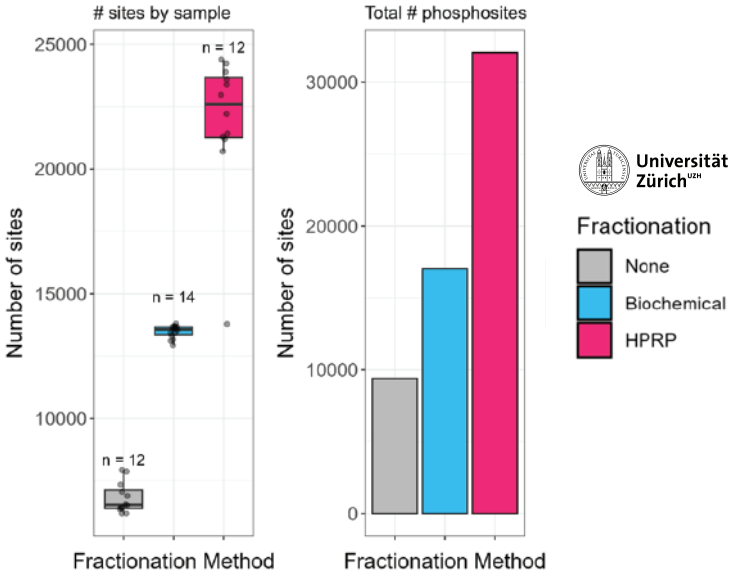


Efficient fractionation with minimized fraction overlapping

Example 2: Fractionation of phosphopeptides on **BioSPE® PepFrac** Mini Spin Columns – High capacity upstream of enrichment.

Watch our webinar "Quantitative proteomics of plant receptor kinase signaling" for more results!





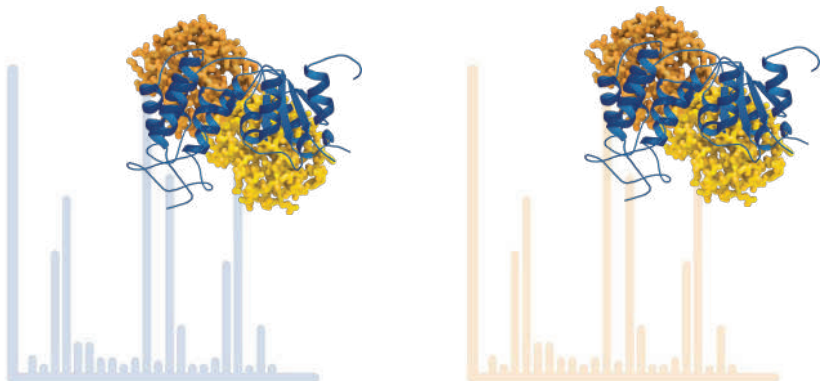
High pH reversed-phase (HPRP) fractionation with BioSPE® PepFrac spin columns greatly increases P-site IDs

Intact protein purification with BioSPE® PureProt

Application: Purification of protein mixtures in top-down proteomics to remove salts and contaminants that can affects mass spectrometry or capillary electrophoresis data.

Advantages

- **Purification and desalting of intact proteins and large peptides (MW > 10kDa)**
- **Compatible with various matrices: biological matrices (blood), plant samples or food matrices (milk)**
- **High recovery yields of proteins of interest (> 90%)**
- **Compatible with MS analysis, capillary electrophoresis…**

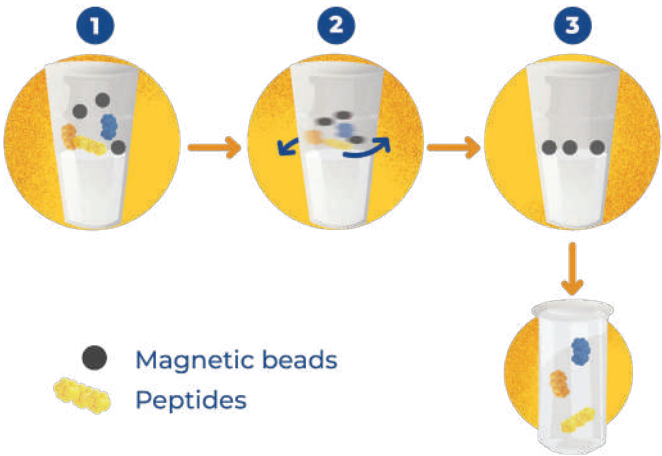


Magnetic beads removal with BioSPE® BeadRem

BioSPE® BeadRem is used to easily and quickly filter-out magnetic beads remaining in peptide or protein samples after Single-Pot, Solid-Phase enhanced Sample Preparation (SP3) procedure, and that could plug the chromatographic column during LC-MS/MS analysis.

BioSPE® BeadRem is available in two different versions, depending on the nature of your sample:

- **BioSPE® BeadRem Aqua** for aqueous peptide samples containing less than 5% of organic solvent
- **BioSPE® BeadRem Orga** for peptide samples containing more than 5% of organic solvent



Advantages

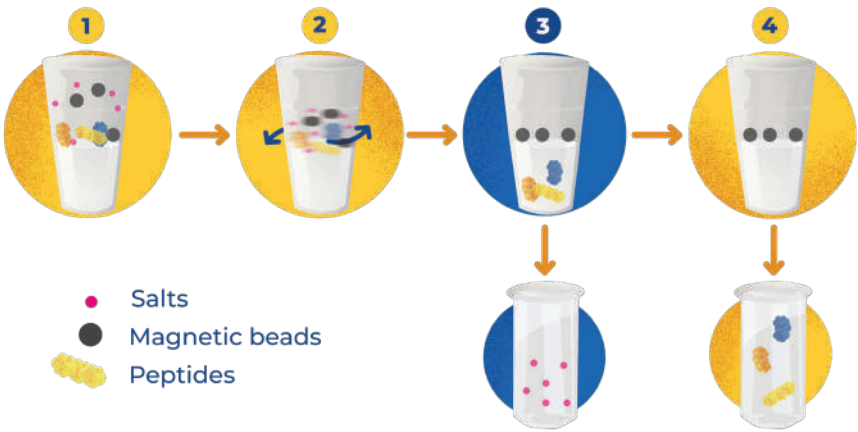
- **Efficient removal of magnetic beads as small as 1µm diameter**
- **Fast and easy 3-step pass-through process**
- **High peptide/protein recovery**
- **Possibility to filter-out non-magnetic beads such as agarose beads**

Magnetic beads removal & peptide desalting

with BioSPE® BeadRem Pure

With the **BioSPE® BeadRem Pure** kit, you can filter-out magnetic beads and desalt peptides samples **at the same time**, thus reducing sample handling, minimizing sample loss and saving precious time!

Fast and easy 4-step process!



1 • Load sample containing magnetic beads, peptides and salts

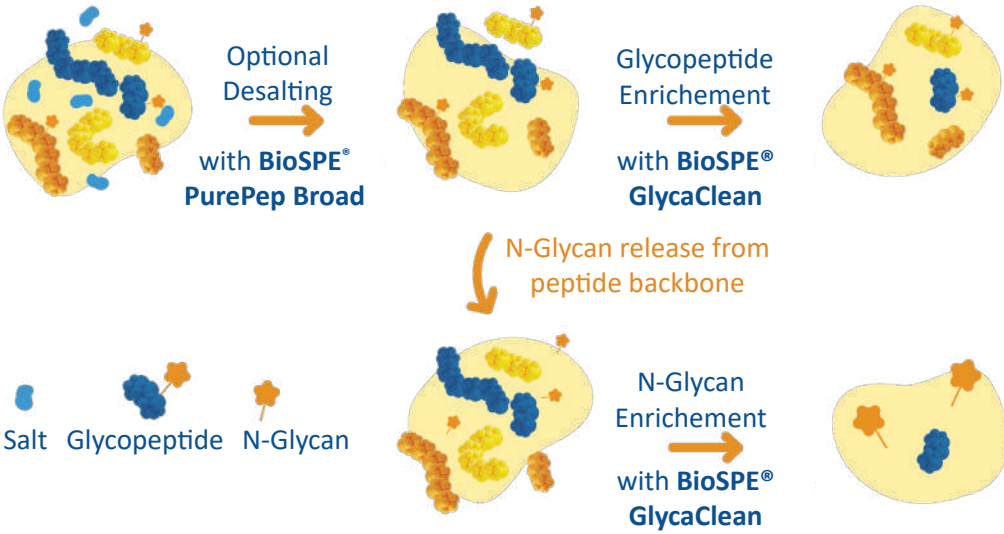
2 • Centrifuge

3 • Magnetic beads are trapped on top of the sorbent while peptides are retained on the sorbent and salts are removed.

4 • Elute and collect purified peptides for downstream LC-MS analysis

Glycopeptide enrichment with BioSPE® GlycaClean

Application: Selective enrichment of N-glycans or glycopeptides in glycoproteomics

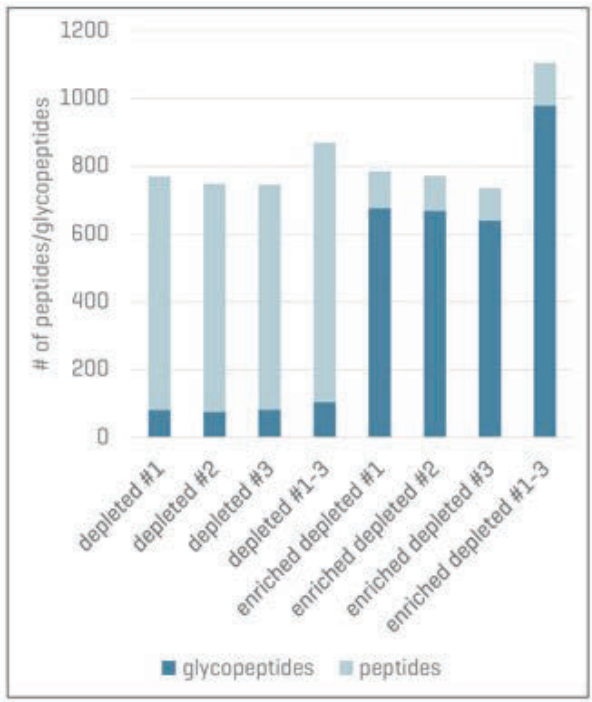


Advantages

- Same sorbent can be used to enrich both glycopeptides or N-glycans (labeled or not)
- High recovery of glycosylated peptides in various matrices (plasma, cells…)
- More than 5-fold increase in glycopeptide identification compared to non-enriched samples
- No storage constraints (dry at room temperature) with long shelf life
- Real flexibility of format and capacity to adapt to all samples

Example: Enrichment of N-glycopeptides from plasma samples with **BioSPE® GlycaClean** Mini Spin Columns – High capacity

Read the technical note for more results!



SCIEX

Fraction of glycopeptides increases from 12% to 88% in the sample enriched with BioSPE® GlycaClean

Publications & Posters

BioSPE® PurePep & BioSPE® PurePep Broad

H. Hijazi, J. Manessier, S. Brugiere, T. Ravnsborg, M. Courçon, B. Brule, K. Merienne, O.N. Jensen, A.-M. H , D. Pflieger, **Mind Your Spectra: Points to be Aware of When Validating the Identification of Isobaric Histone Peptidoforms,** J. Proteome Res. (2025)

P.K. Thorén Edvardsen, A.N. Englund, Å. Kjendseth Rohr, S. Mesnage, G. Vaaje-Kolstad, ***Pseudomonas aeruginosa* Cryptic Prophage Endolysin Is a Highly Active Muramidase**, Biochemistry 64 (2025) 3446–3458.

T. Lumpp, H. Hijazi, S. Stößer, E. Tekin, L. Brunner, F. Fischer, S. Brugière, D. Pflieger, A. Hartwig, **Impact of Arsenite on Transient and Persistent Histone H3 Modifications and Transcriptional Response**, Chem. Res. Toxicol. 39 (2026) 64–78.

BioSPE® BeadRem

F. Chen, J.M. Bruder, N. Govindasamy, J. Wu, R. Chen, D. Prit, H.C.A. Drexler, S.A. Leidel, H.R. Schöler, I. Bedzhov, Developmental regulation of Erk signaling by mitotic kinases, Sci. Adv. 12 (2026)..

BioSPE® PepFrac

A new SPE Tips method based on an innovative sorbent for fast and efficient peptide fractionation in proteomic studies.

What about us?

Affinisep is an innovative company having world class technology portfolio for sample preparation solution to solve bioanalytical scientists' challenges and to impact life, environment and health with science.

Affinisep is a fully integrated manufacturer of comprehensive catalog of new sample preparation kits for various analysis such as proteomics, metabolomics and bioanalysis, food safety, water analysis, …

Affinisep R&D and production facilities are located in Normandy. All of our products are developed and manufactured in France.

Affinisep is the winner of the France Relance prize and is supported by the Normandy region.

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