

Date: 2021

Keywords or phrases:

Filter-Aided Sample Preparation, Protein Digestion, Peptide Fractionation, Proteomics, Mass Spectrometry

Filter-Aided Sample Preparation (FASP) with Vivacon[®] 500

In 2009 the group around Matthias Mann, at the Max Planck Institute for Biochemistry, Department of Proteomics and Signaltransduction, Martinsried (Germany), published a new method for the preparation of peptide samples using ultrafiltration devices. This new procedure, termed Filter-Aided Sample Preparation (FASP)¹ allows gel-free processing of biological samples solubilized with detergents for proteomic analysis by mass spectrometry. In FASP, detergents are removed by ultrafiltration and after protein digestion, peptides are separated from undigested material.

The effectiveness of different filtration devices for analysis of proteomes and glycoproteomes was compared. Horizontal ultrafiltration devices including Vivacon[®] filtration units with nominal molecular weight cut-offs (MWCOs) of 30 and 50 kDa were found to be suitable for FASP².

FASP has become a very popular method in proteomics workflows, as it is fast, easy and highly reproducible. Furthermore, this technique has found many new applications in proteomics, including quantification of nucleic acids to estimate cell number, protein derivatization to support peptide fractionation, and modification of the detergents used to enable partial protein extractions^{3,4}.



References


1. Wiśniewski *et al.* (2009). Universal Sample Preparation Method for Proteome Analysis. *Nature Methods* **6**, 359-362.
2. Wiśniewski, Zielinska and Mann (2010). Comparison of Ultrafiltration Units for Proteomic and N-glycoproteomic Analysis by the Filter-Aided Sample Preparation Method. *Analytical Biochemistry* **410**(2), 307-309.
3. Matic *et al.* (2011). Absolute SILAC-Compatible Expression Strain Allows Sumo-2 Copy Number Determination in Clinical Samples. *Journal of Proteome Research* **10**(10), 4869-4875.
4. Wiśniewski (2017). Chapter Two - Filter-Aided Sample Preparation: The Versatile and Efficient Method for Proteomic Analysis. *Methods in Enzymology* **585**, 15-27.

Germany

Sartorius Lab Instruments GmbH & Co. KG
Otto-Brenner-Strasse 20
37079 Goettingen
Phone +49 551 308 0

USA

Sartorius Corporation
565 Johnson Avenue
Bohemia, NY 11716
Phone +1 631 254 4249
Toll-free +1 800 635 2906

 For further information, visit
www.sartorius.com