FenoPrep

Robust and user friendly peptide prep kit mass spectrometry based proteomics.

Research Use Only. Not for use in diagnostic procedures.

Problem

Mass spectrometry (MS) based proteomics holds great potential in multiple areas from biological research to clinical diagnostics. With modern MS instrumentation, an unprecedented level of detail and sensitivity can be achieved from many types of cells and tissues. Implementation of MS proteomics for clinical research has lagged behind due to the lack of robust sample prep workflows, particularly for clinical tissue which is often limited in amount, and/or formalin fixed to ensure sample integrity and long term stability.

Solution

The FenoPrep™ kit provides all the reagents for the extraction and purification of proteins and peptides from both formalin fixed and fresh/frozen cells and tissues. With user-friendly, robust workflows, FenoPrep™ yields highly pure peptides and enables deep and reproducible analysis using MS, even when starting material is limited. The kit is delivered with key reagents and may be stored in a standard laboratory fridge for easy access for all laboratory personnel.

What users say

"Our facility offers MS-based proteomics services, and we frequently process formalin-fixed paraffin-embedded (FFPE) samples. We tested the Fenoprep kit on FFPE-samples from different tissues and organisms. We have compared several methods for processing these types of samples, and Fenoprep workflow outperformed our previous method of choice in terms of protein identifications. We found the kit easy to use, and the results were consistent between different operators."
Otto Kauko, MD PHD, Head of Proteomics Facility, Turku, Finland

"Our MS-core facility is located in a translational research environment where processing of FFPE tissue is increasingly in demand. Often such samples are precious and of limited amount. We have tested the FenoPrep kit for processing of very small amounts of FFPE tissue and found the kit to represent a simple go-to approach that can be followed and used also by non-expert users. Thus, the kit represents a good solution for laboratories that aim to process samples for MS analysis themselves in a reproducible and streamlined manner"
Jorunn Stamnæs, Researcher, Proteomics Core Facility, Oslo, Norway

An example of FenoPrep performance

FenoPrep was tested on an anonymised ovarian cancer sample that had undergone routine formalin fixation and paraffin embedding in a pathology lab. In total, 30 sections, each 5 µm thick, were deparaffinized and split between a senior (User 1) and a junior (User 2) laboratory engineer. Both engineers performed protein extraction and digestion using FenoPrep. Peptide concentration was determined using Lowry, and 2 µg of peptides were analyzed on an Orbitrap Exploris 480 mass spectrometer using an Aurora 25 cm column and a 2-hour gradient. The raw data was searched against the UniProt human database with Proteome Discoverer v2.4, using a false discovery rate of 1%.

Results

Approximately 3000 proteins were identified in at least 2 of the 3 replicates prepared by each laboratory engineer, with a >90% overlap of protein IDs between User 1 and User 2 (Figure 1A). Pearson correlation of protein areas between the two users was high (Figure 1B) and the quantification coefficient of variance between the replicates was well below the acceptable level of 20% (Figure 1C). In fresh/frozen samples with similar MS pipeline, identifications ranged from approximately 4-5000 proteins (data not shown).
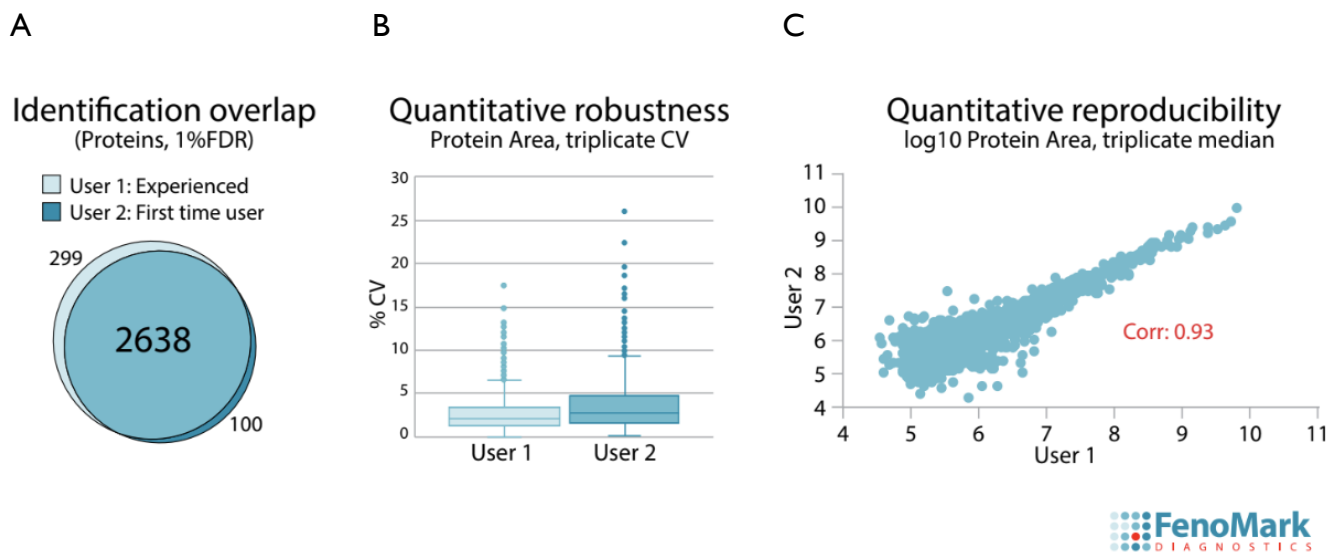

Figure 1 Performance of FenoPrep with Formalin-fixed paraffin embedded ovarian cancer sections as starting material.

Conclusions

FenoPrep provides a straightforward and reproducible solution that delivers high quality peptides for downstream MS analysis from both formalin fixed and fresh/frozen samples. With minimal training required, the easy-to-follow protocol enables peptide extraction by any laboratory personnel in both MS and non-expert laboratories.

About us

FenoMark Diagnostics AB was established in 2019 in Stockholm, Sweden by a team of leading MS experts and medical professionals. We develop products that enable mass spectrometry based proteomics in clinical research and routine.

Our mission is to make diagnostics more accurate, more informed and more accessible, with quality, reliability and consistency as our guiding principles.

Place an order today

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