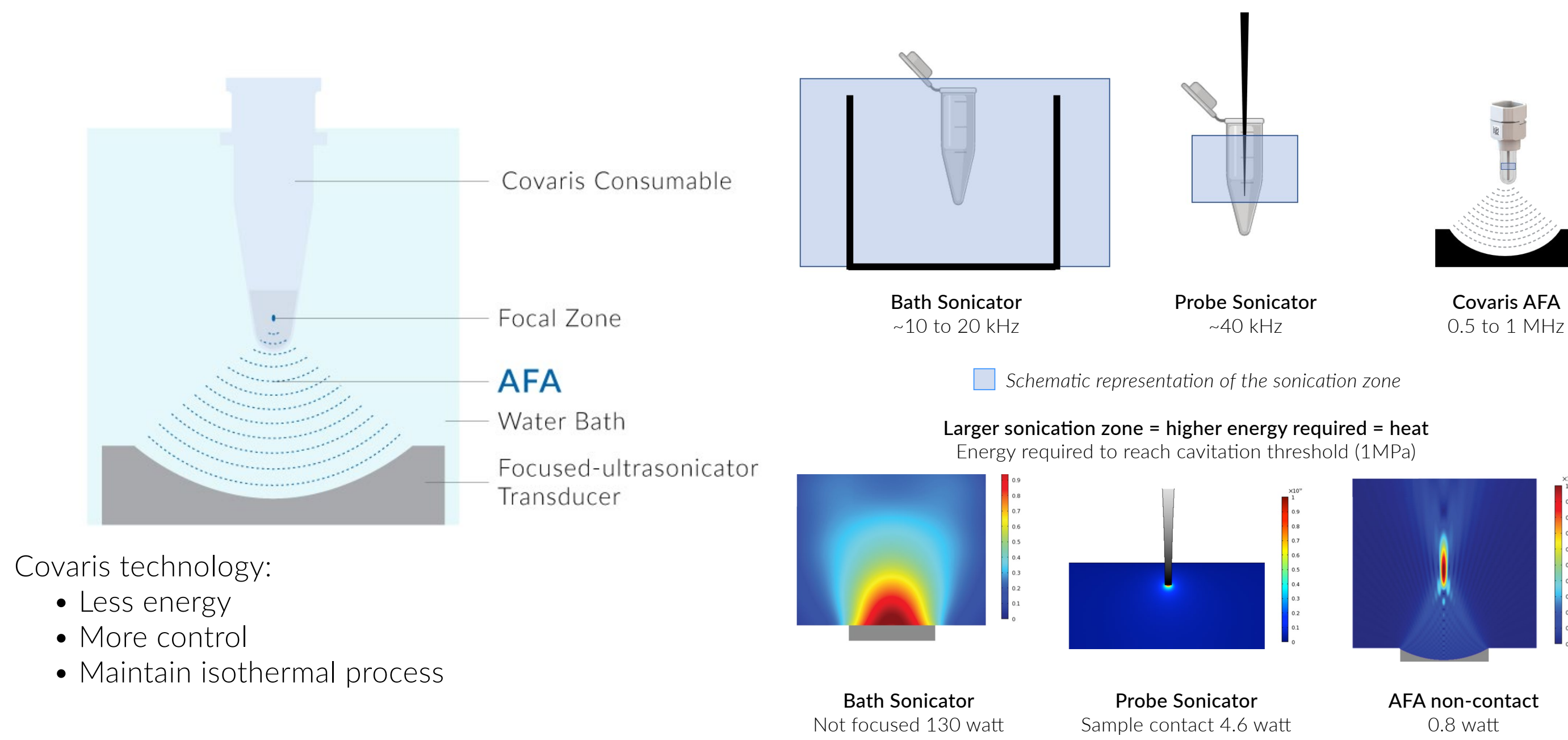


Standardized Sample Preparation Workflows for Clinical Proteomics

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Covaris[®]
www.covaris.com

Adaptive Focused Acoustics[®] (AFA[®]) in Pre-analytical Sample Prep: Extraction with Precision



Key Takeaways

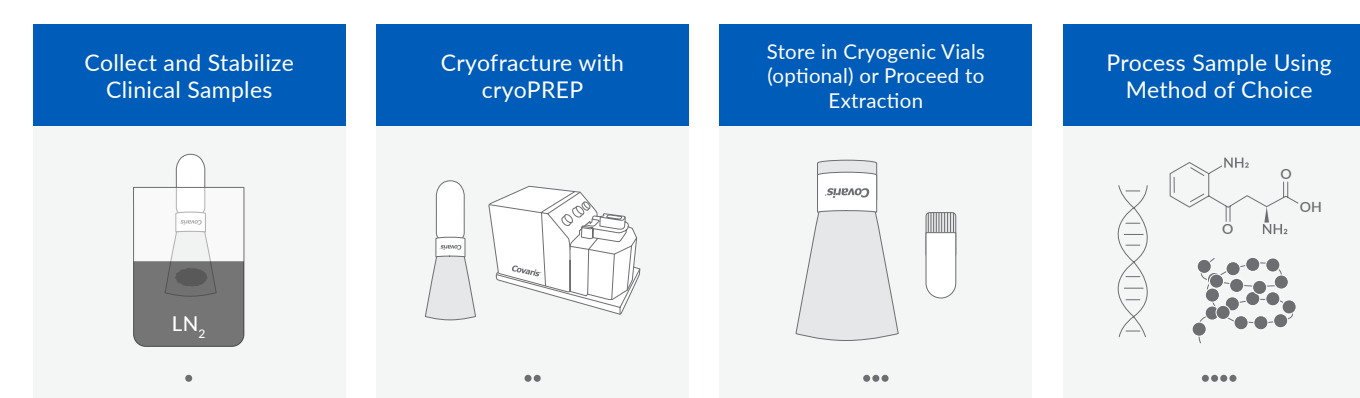
Covaris promotes robust, easy, and scalable sample preparation through:

- Standardized tissue/cell disruption
 - Improved consistency and reproducibility
 - Hands-free, automated
 - Processing in different formats, from single tube up to 96-well plate, with same sample-to-sample quality
- Fast, non-contact, easy, cold, and reproducible extraction for all soft and hard tissue samples*
 - Use your buffer of choice
 - Scale up from single tube to 96 well format and beyond
- Active deparaffinization and improved rehydration of FFPE tissue
 - Enables "fresh frozen like" protein extraction from FFPE samples, without any organic solvent

*Includes non-mammalian samples like plants, yeast and bacteria

Standardized Protein Sample Preparation from Fresh Frozen Tissue

A. cryoPREP: Contact-free Tissue Pulverization



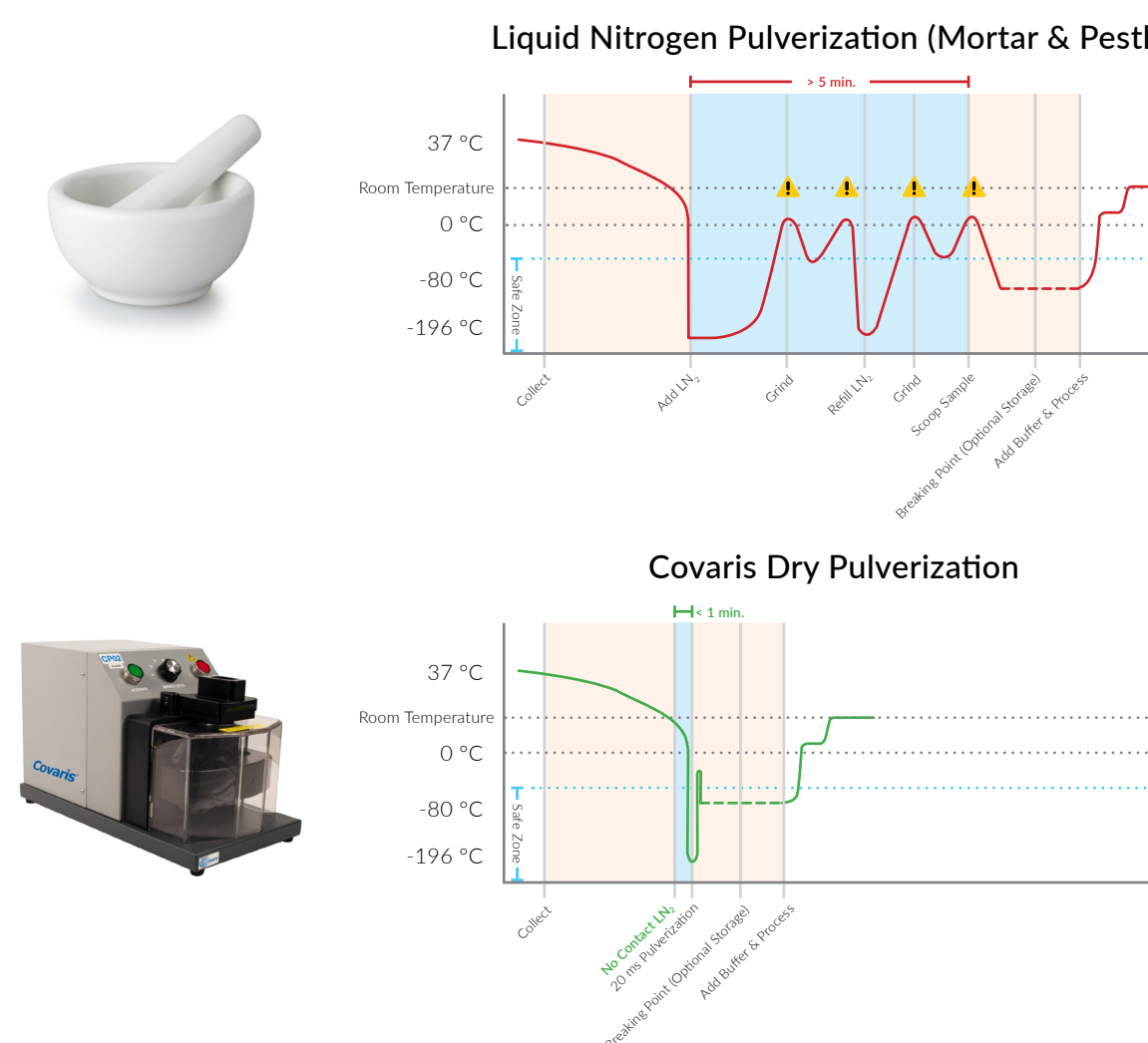
Liang et al., *Methods Mol Biol.*, 2019
„optimal preservation of precious material, fast, enable multiOMICS“

Tabb et al., *Journal of proteome research*, 2015
„high consistency, high quality, non-contact, improves extraction efficiency“

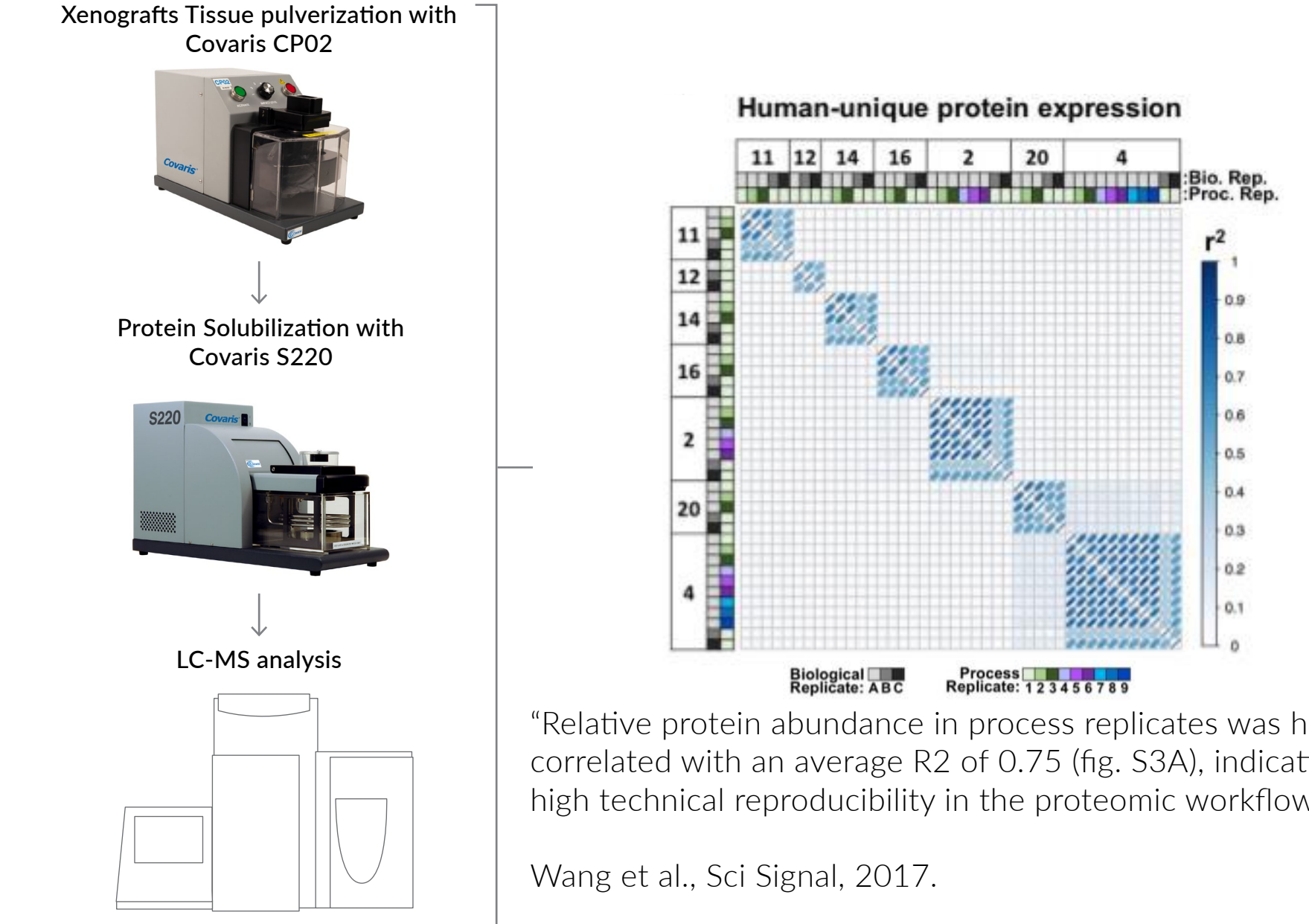
Wylezich et al., *Scientific Reports*, 2017
„highly reliable, most efficient method“

Schultz et al., *Metabolites*, 2019
„uncovers more biomolecules, cold, fast, reproducible“

B. Optimal Biomolecule Preservation

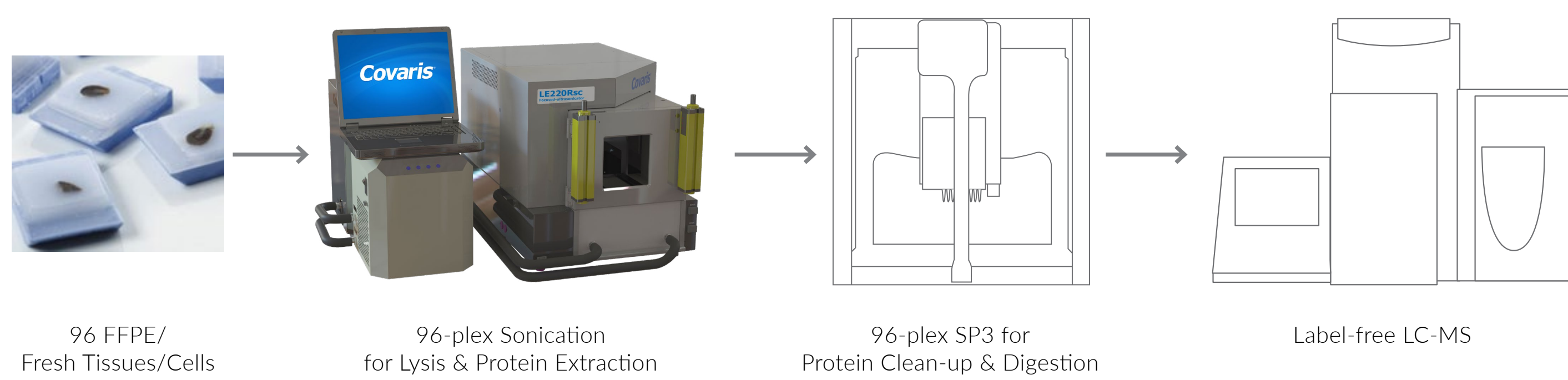


C. cryoPREP Combined with AFA Enables High Reproducibility



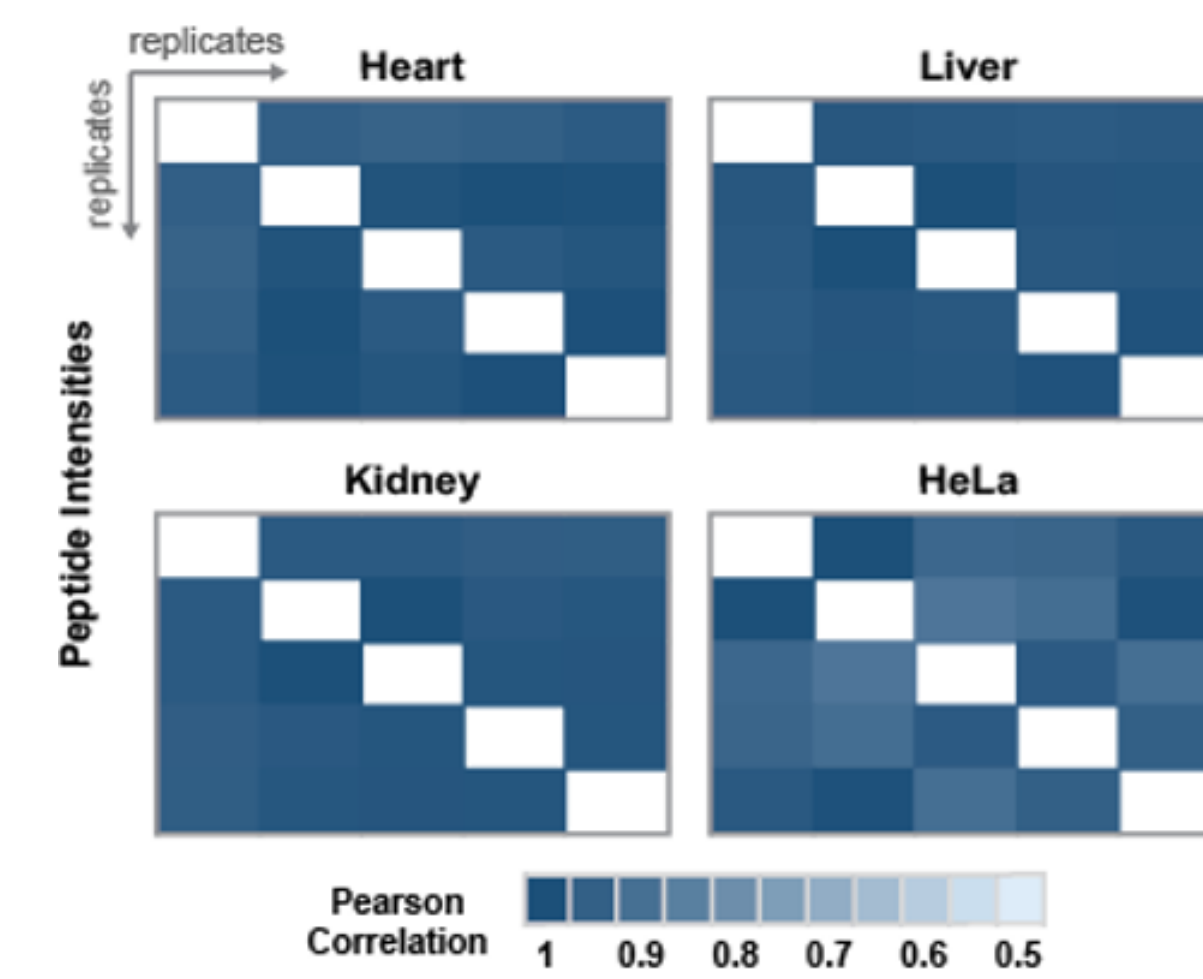
Improved Data Consistency with Automated Extraction from Low Input Samples

A. Hands-free, High-throughput Proteomics from FFPE* and Fresh Tissues or Cells



*includes Laser Captured Microdissection (LCM) samples

B. Automated Sample Preparation with SP3 for Low-input Clinical Proteomics

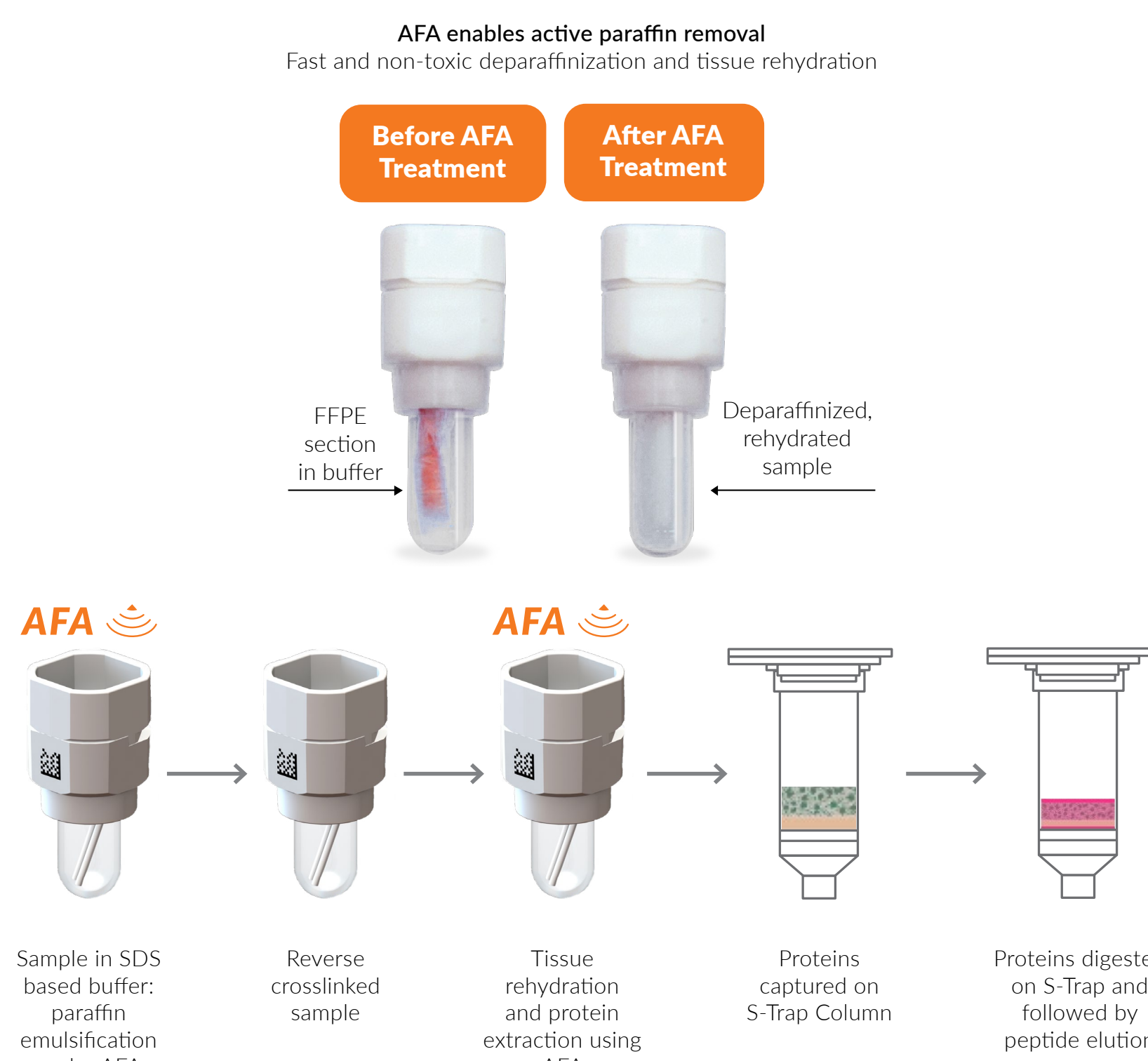


„multiplexed ultrasonication combined with autoSP3 constitutes a highly standardized pipeline that should contribute to the identification of biological or clinical determinants in cohorts of dozens or hundreds of samples“

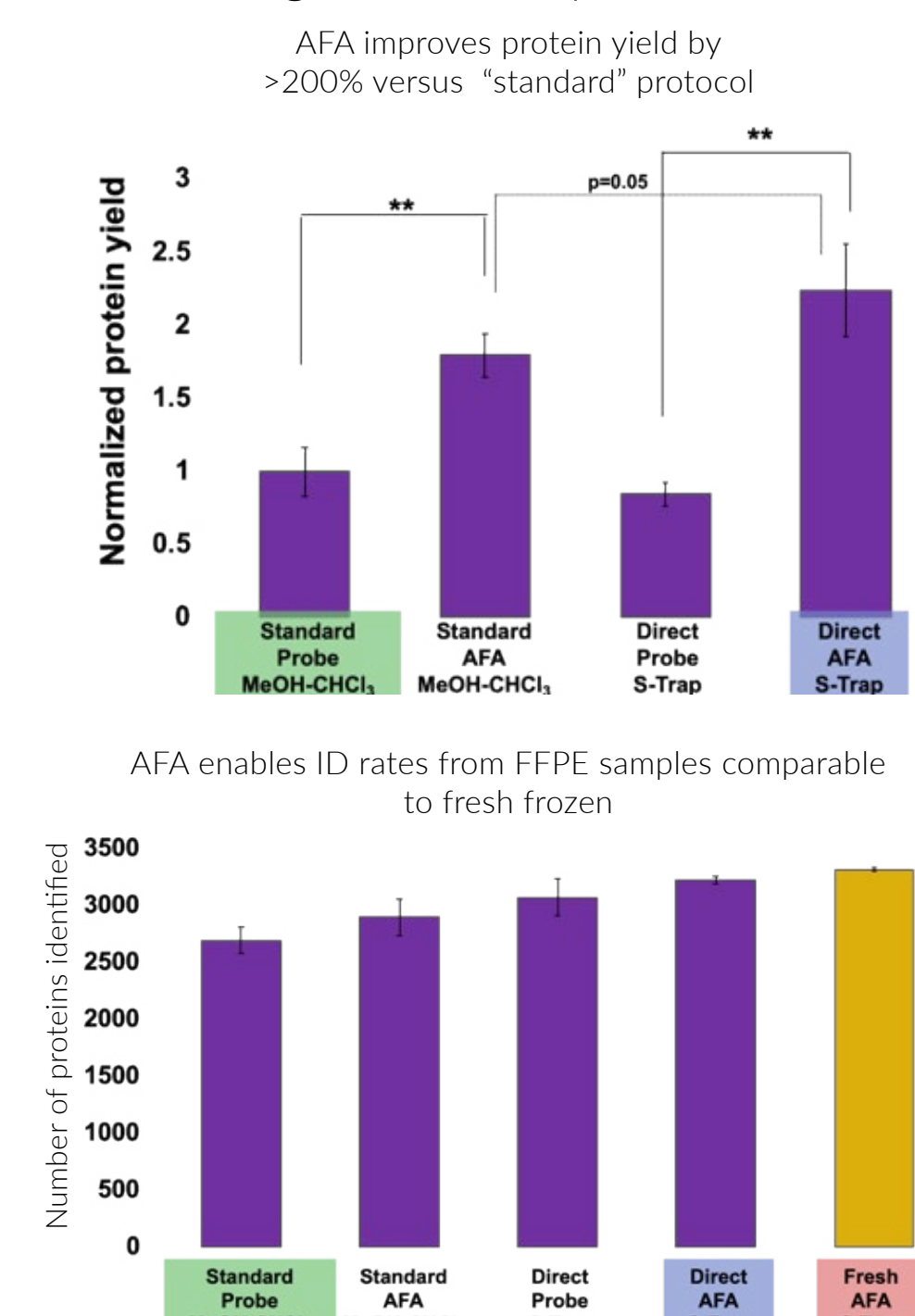
T Mueller, J Krijgsvelde et al.
Molecular Systems Biology
16:e9111 | 2020

Flash-frozen Quality Protein Extraction from Old Archived FFPE Samples with ProtiFi

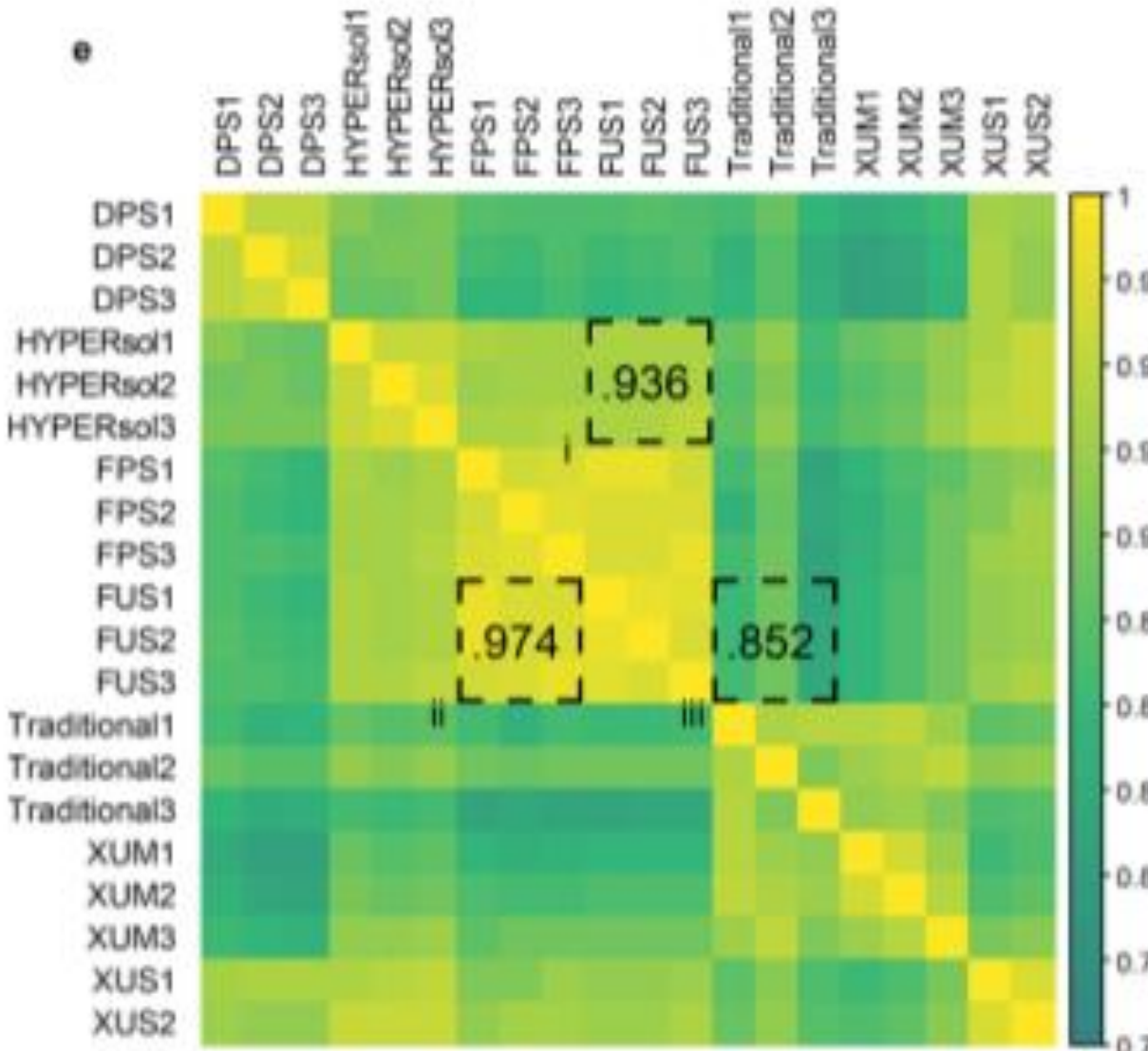
A. A Fast and Simple Workflow (< 2.5 h)



B. Complete Solubilization of FFPE Samples for High Recovery of Proteins



C. HYPERsol Yields Proteomic Data that Closely Resemble Matched Flash-frozen Tissue



- Correlations between fresh frozen and FFPE (direct) are very good -> more uniform and complete extraction
- Old samples (up to 17 years old) can be processed with the same quality

Marchione, Wojcik et al. - *J Prot Res* 2020