PREOMICS

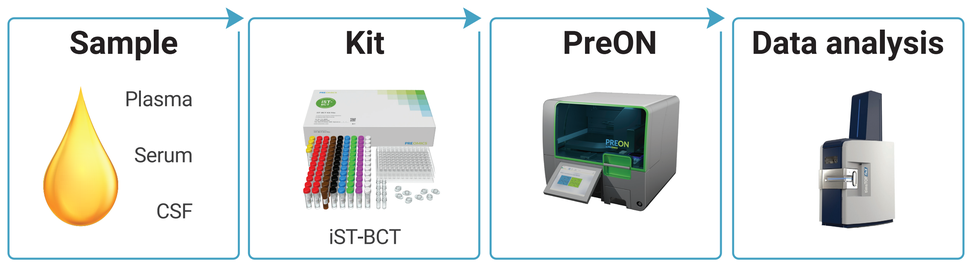
Fully automated proteomics workflow for liquid biopsies

Vincenzo Romaniello, Chloé Moritz, Cameron Ellis, Measho Abreha and Zuzana Demianova | PreOmics GmbH, Martinsried, Germany

Spotlight

- A fully automated solution tailored to liquid biopsies, such as plasma, serum, and CSF
- From liquid biopsy to clean and ready-to-measure peptides for LC-MS analysis with just 5-min hands-on time
- Highly reproducible proteomics sample preparation
- Mid-throughput solution for confident biomarkers discovery or monitoring disease progression in clinical trials

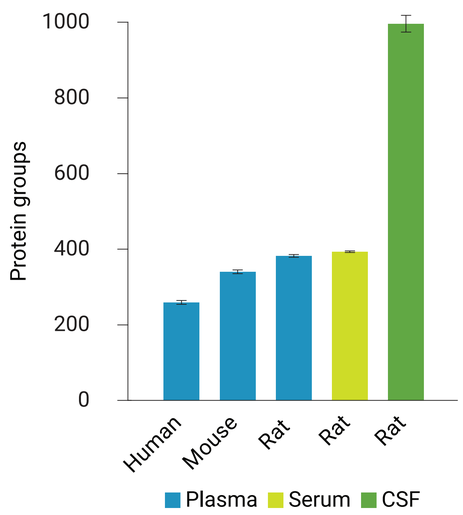
Materials & Methods



- **Input**: 2 µL of human plasma, BALB/C mouse plasma, and Sprague Dawley rat plasma and serum; 10 µL of Sprague Dawley rat CSF
- **Kit**: iST-BCT PreON 96x
- **Automated sample preparation**: PreON platform (software v.1.10.7)
- **LC-MS analysis**: 45-min LC-gradient; DDA-PASEF,EASY-nLC™ 1200 - TimsTOF Pro
- **Data analysis**: MaxQuant (v 2.0.1.0); Perseus (v.2.0.3.0)

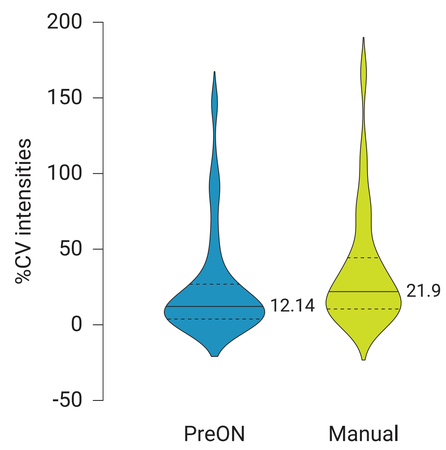
Results & Discussion

Sample versatility



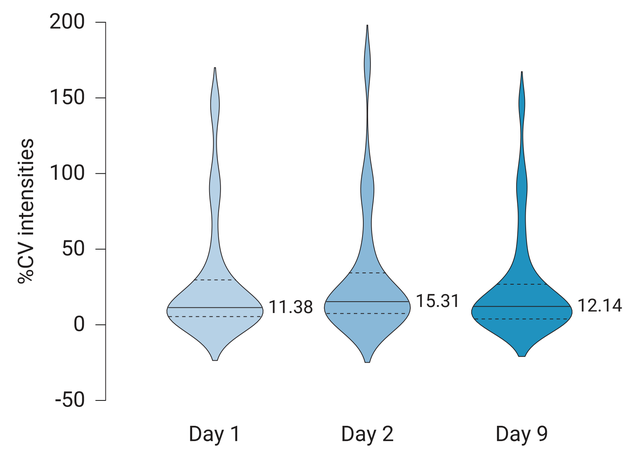
- Various liquid biopsies collected from different species were processed by the PreON platform
- Up to 12 different samples can be analyzed in a single run

Manual vs Automated sample preparation



- Hands-on time was reduced to less than 5 minutes, compared to the ~60 minutes required for the manual preparation with the iST-BCT kit
- The PreON platform showed a 1.8-fold improvement in sample-to-sample variation compared to manual sample preparation
- Intraday coefficient of variation is ~13% (n=4)

Inter-day repeatability



Key takeaways

- PreON eliminates the hands-on time and enables fully automated processing of samples for mass spectrometry-based protein analysis
- The iST-BCT workflow coupled with PreON allows straightforward analysis of various types of liquid biopsies, such as plasma, serum, and CSF
- Standardized and highly reproducible sample preparation workflow for reliable proteomic profiling and biomarker discovery from collected liquid biopsies