SCIEX

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Knowledge for Life.™

Case Study

Prof. David Communi

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Project Goal

The major goals for professor David Communi are to decipher molecular mechanisms implicated in cellular signalling, as well as to discover novel clinical biomarkers, by using structural and quantitative proteomics (and metabolomics) for various neurological or systemic pathologies, such as multiple sclerosis, acute brain injury, encephalitis and idiopathic pulmonary fibrosis. It represents a mandatory step to improve precision medicine for diagnosis, prognosis and therapeutic follow-up. Moreover, the discovery of novel biomarkers will also provide new insights in the understanding of the molecular mechanisms of diseases.

The Challenges

- To Handle robustly, with high uptime, complex biological samples for fundamental and clinical research
- Identify and quantify with confidence, thousands of proteins (and their post-translational modifications) or metabolites
- Translate the mass spectrometry approach from biomarker detection to clinical routine assays

The Solution

A complete strategy including efficient biochemical sample process, reproducible SWATH® Acquisition mass spectrometry analysis, as well as bio-informatical tools for the identification and the quantification of thousands of biomolecules.

The outcomes

- Generation of reproducible data from large-scale studies and retrospective data mining
- Detection of novel partners and post-translational modifications of key molecules implicated in cellular signalling
- Discovery of novel biomarker panels in clinical fluids and tissues for a better understanding and monitoring of human pathologies

"We believe that the quantitative screening by SCIEX SWATH Acquisition mass spectrometry represents one of the major improvements at a fundamental and clinical level to discover novel biomarkers for human pathologies in biological fluids and tissues."

Type of Organization

Academic Proteomics and Clinical Research Center

Goals

To identify and quantify proteins and metabolites for fundamental as well as clinical research, and thereby find novel mechanistic and diagnostic biomolecules related to cellular signalling and to pathologies

Applications

Untargeted and targeted proteomics, SWATH® Acquisition quantification

SCIEX Products

- TripleTOF® 5600+ system SWATH Acquisition
- MicroLC
- Proteomics consumables
- Bio-informatical tools for quantitative SWATH Acquisition analysis

"SCIEX SWATH Acquisition mass spectrometry represents one of the best approaches to improve precision medicine by establishing an extensive proteomic and metabolomic cartography for each patient."

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