IPD Project Details

Project ID: IPD9499

Project Title: Human Brain Proteomics uncovers the Inter-hemispheric laterality & Inter-regional proteomic signature

Description: This study provides a comprehensive proteomic analysis of 19 different neuroanatomical regions of human brain from both left and right hemisphere. This study has also investigated the proteomic signature in regards to the brain hemisphere.

Principal Investigator: Dr Sanjeeva Srivastava

PI Affiliation: Proteomics Lab, IIT Bombay

Sample Preparation: Brain samples were homogenized in lysis buffer containing 7 M urea, 2 M thiourea and 50 mM DTT supplemented with protease and phosphatase inhibitors. The homogenates were spun down. After protein precipitation, protein concentration in the supernatant was measured with the Bradford assay kit.

Peptide Separation: Protein enzymatic cleavage was carried out with trypsin at 37 °C for 16 h. Peptides were subjected to desalting and vacuum dried. The reconstitution of the peptide was undertaken using 0.1% Formic acid. Desalted peptides were loaded in Orbitrap fusion.

Protein Characterization: The raw datasets were processed with MaxQuant30 (v1.6.5.0) against UniProt Human Proteome Database and searched with the built-in Andromeda Search Engine of MaxQuant. Raw files were processed within Label-Free-Quantification (LFQ) parameters. The Orbitrap was set to Orbitrap Fusion mode. Trypsin was used for digestion with a maximum of 2 missed cleavages. Carbamidomethylation of Cysteine (+57.021464 Da) was set as the fixed modification, whereas oxidation of Methionine (+15.994915 Da) was set as the variable modification. The False-Discovery-Rate (FDR) was set to 1% for the protein and peptide levels to ensure high reliability of the protein detection/identification.

Experiment Type: Shotgun proteomics

Species: Homo sapiens - 9606

Tissue: Brain (bto:0000142)

Cell Type:

Disease: Unknown

Instrument Details: Orbitrap Fusion (MS:1002416)

Protein Modifications: No PTMs

PubMed ID: