

Quantitative Proteomics and Spatial Metabolomics



Bruker timsTOF AIP
Mass Spectrometer
NIH S10OD034300 (2024)



Waters Synapt XS
Mass Spectrometer
with DESI XS source



DESI XS

Switchable



Leica CM 1950

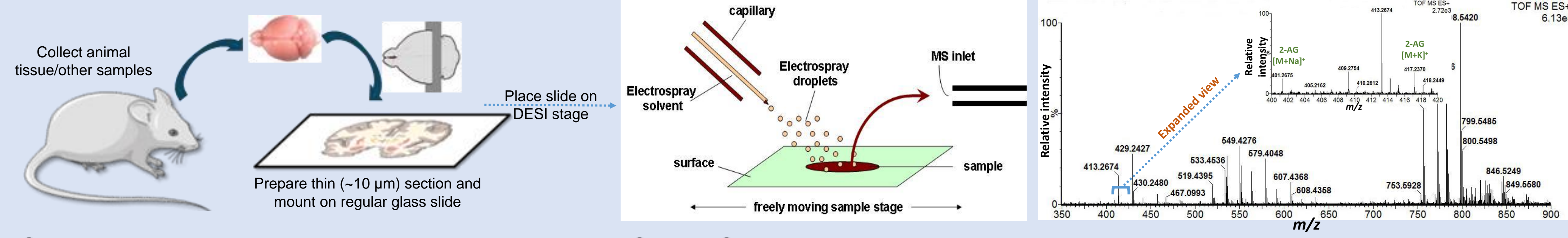
Proteomics services:

- ✓ Expression Proteomics
- ✓ Protein-protein Interaction
- ✓ PTM Identification and quantitation
- ✓ Protein identification

Metabolomics services:

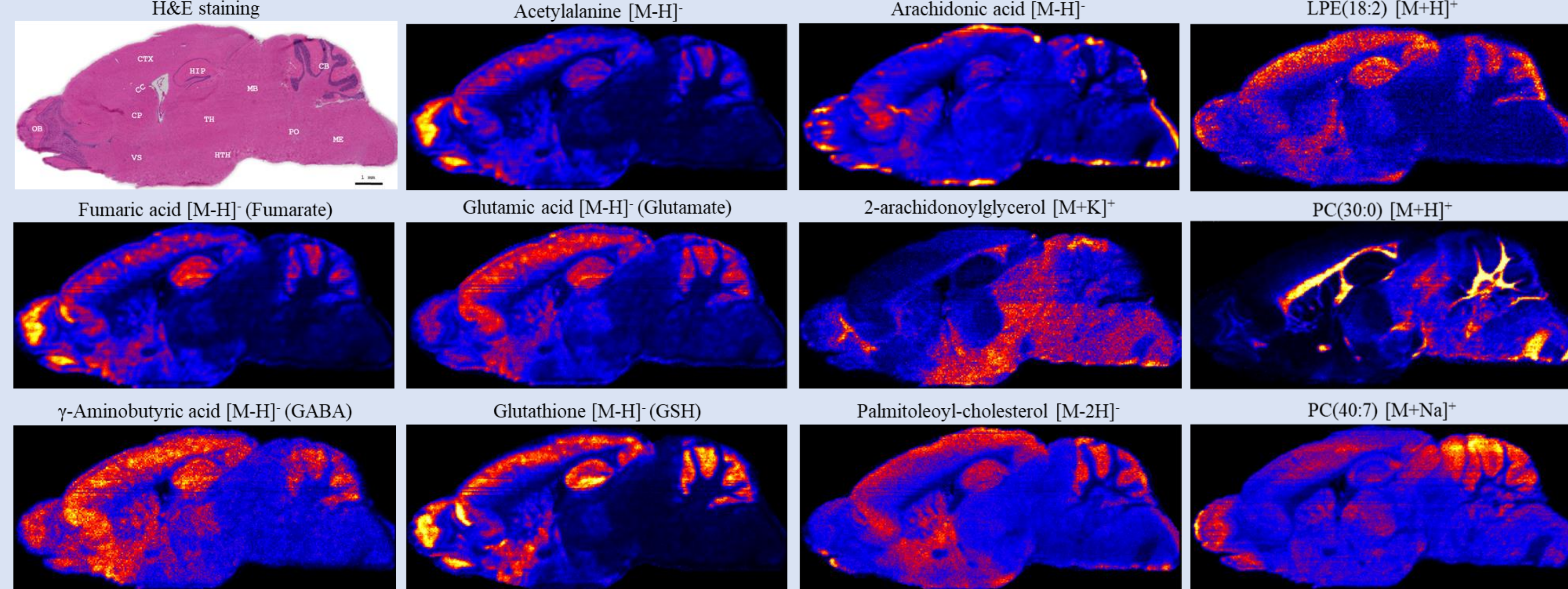
- ✓ Spatial Metabolomics (lipids, amino acids, neurotransmitters, small metabolites, drugs, etc.)
- ✓ Rapid MS screening of metabolites

DESI Mass Spec Imaging



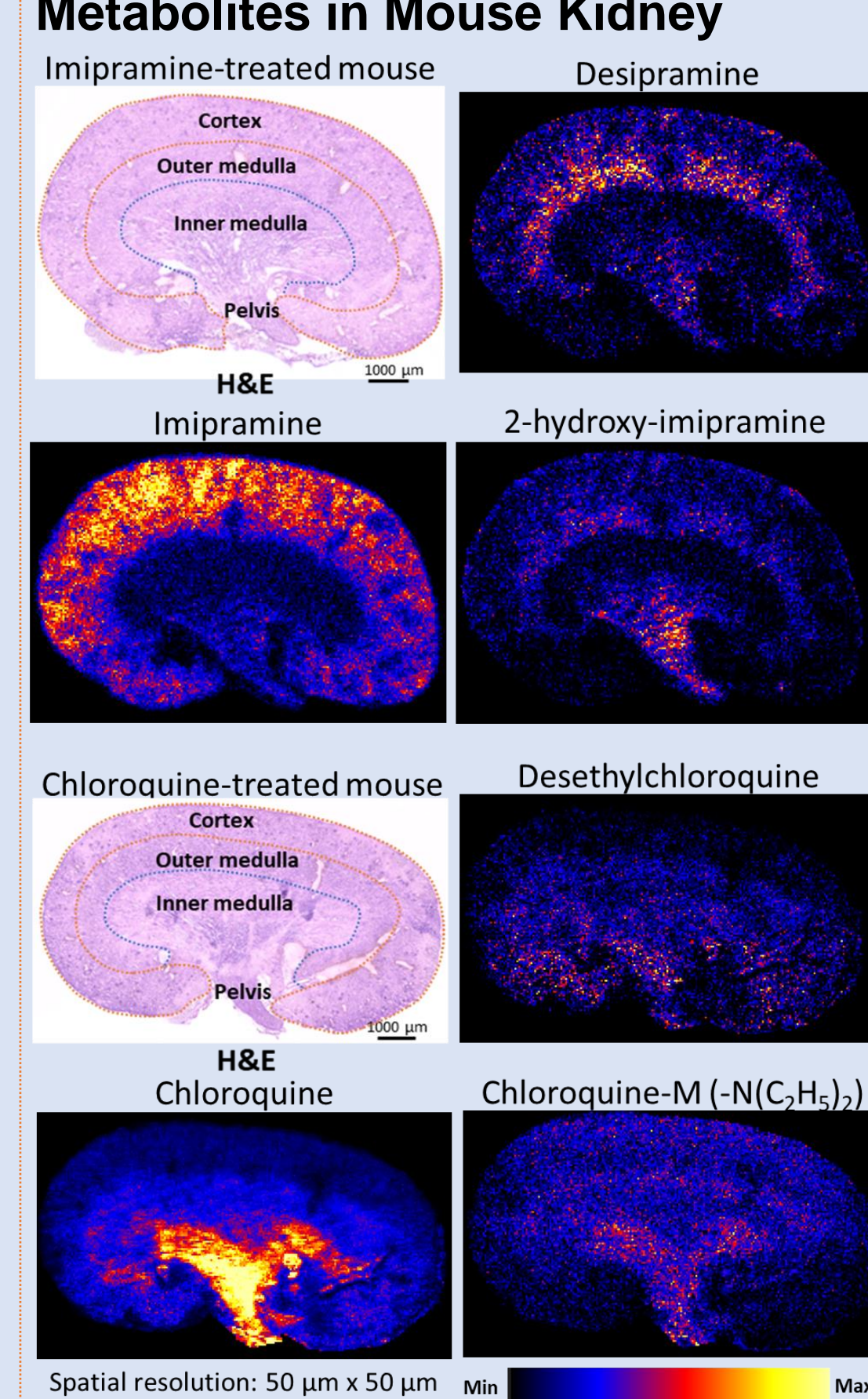
Spatial Metabolomics using DESI-MSI

Imaging of Small Molecules in Mouse Brain (amino acids, TCA cycle intermediates, neurotransmitters, fatty acids, lipids, etc.)



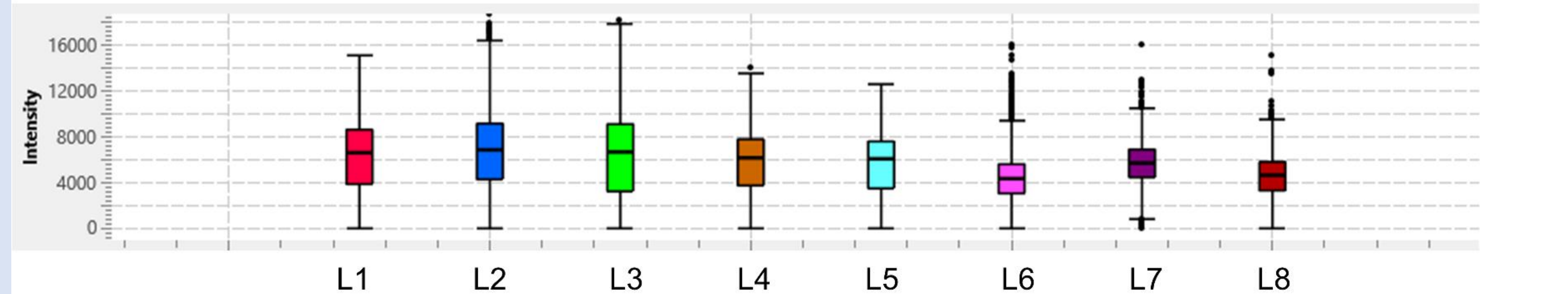
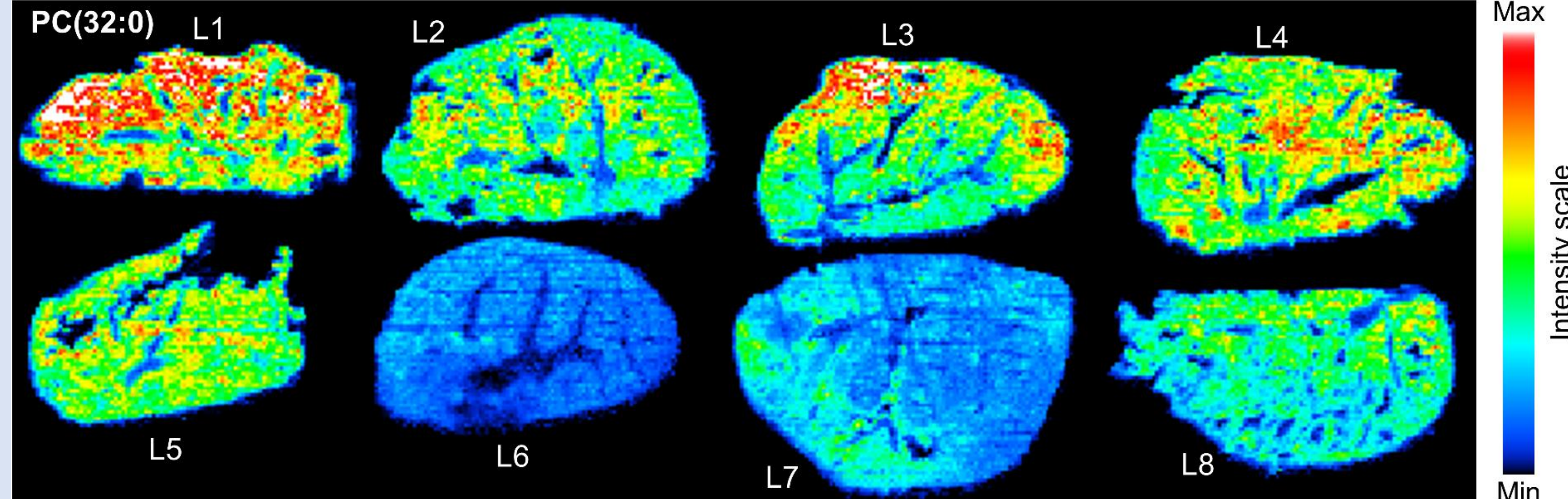
Spatial resolution: 50 μm x 50 μm

Imaging of Small Drugs & Drug Metabolites in Mouse Kidney

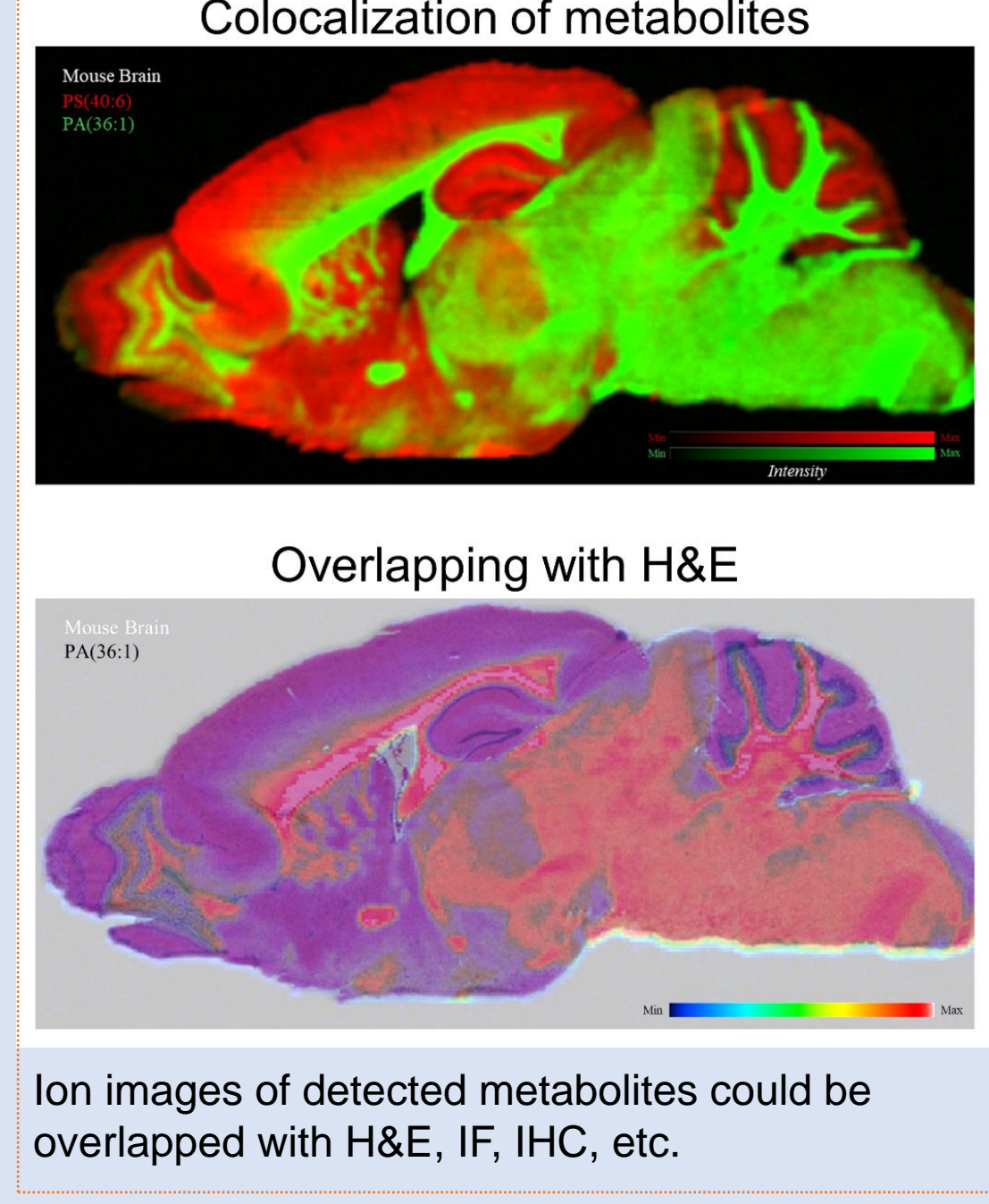


Spatial resolution: 50 μm x 50 μm

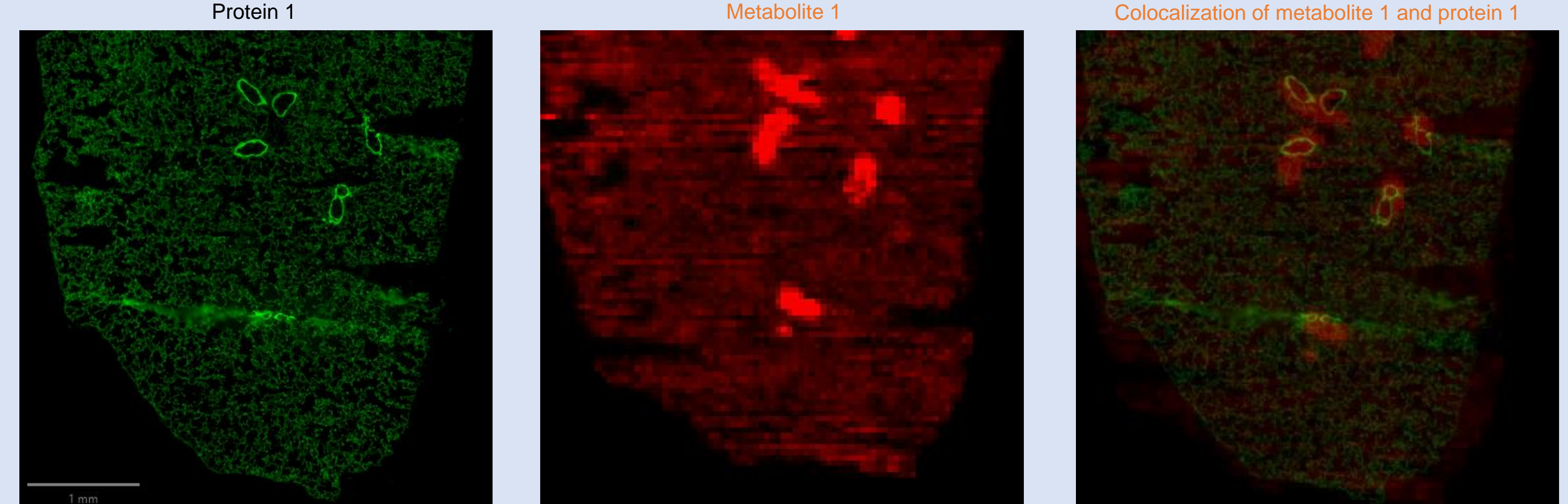
Metabolite Imaging with Qualitative Information (Mouse Lung)



Colocalization/overlapping



Colocalization of Protein (detected by AKOYA) and Metabolites (detected by DESI-MSI) in Mouse Lung



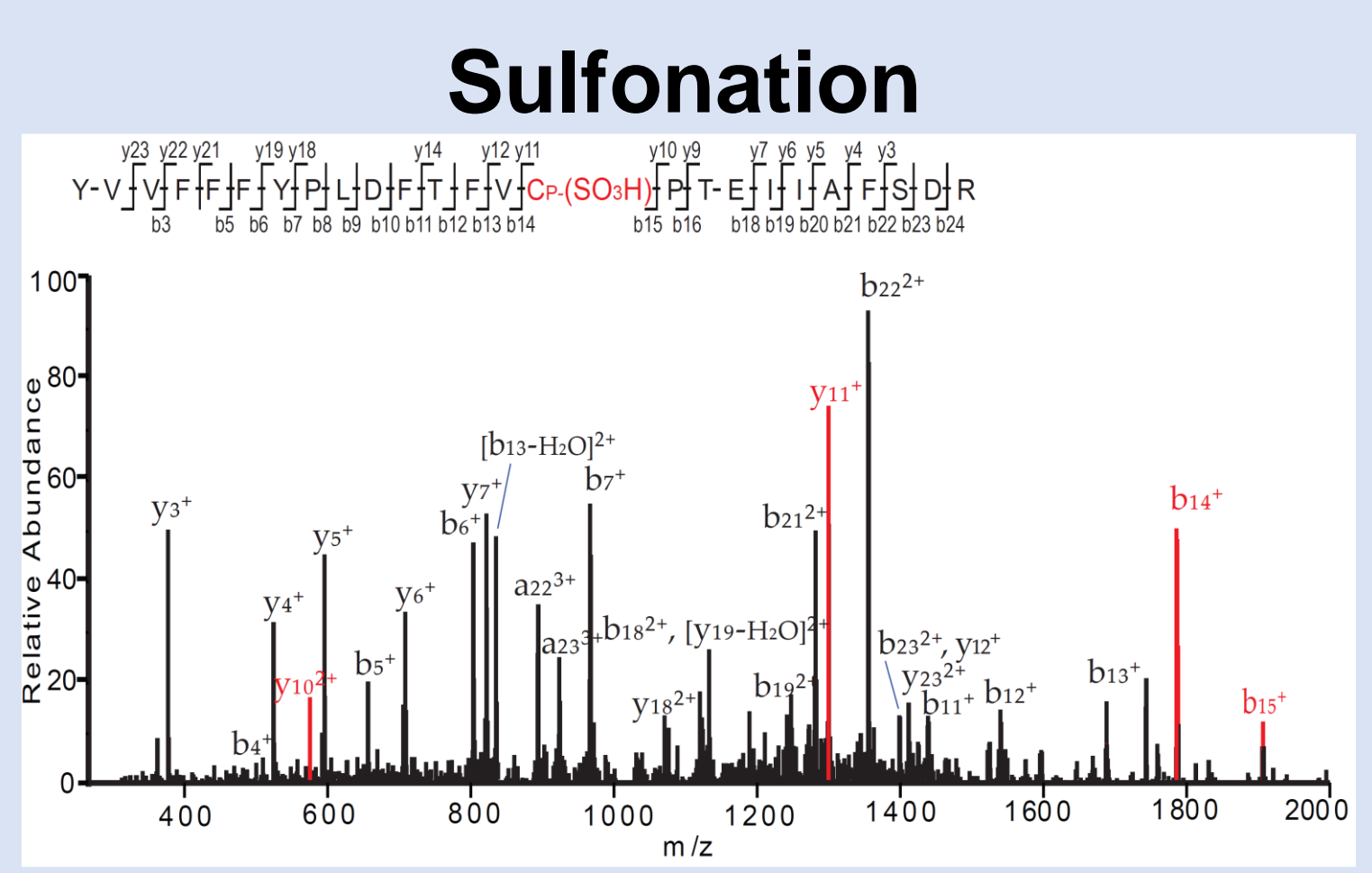
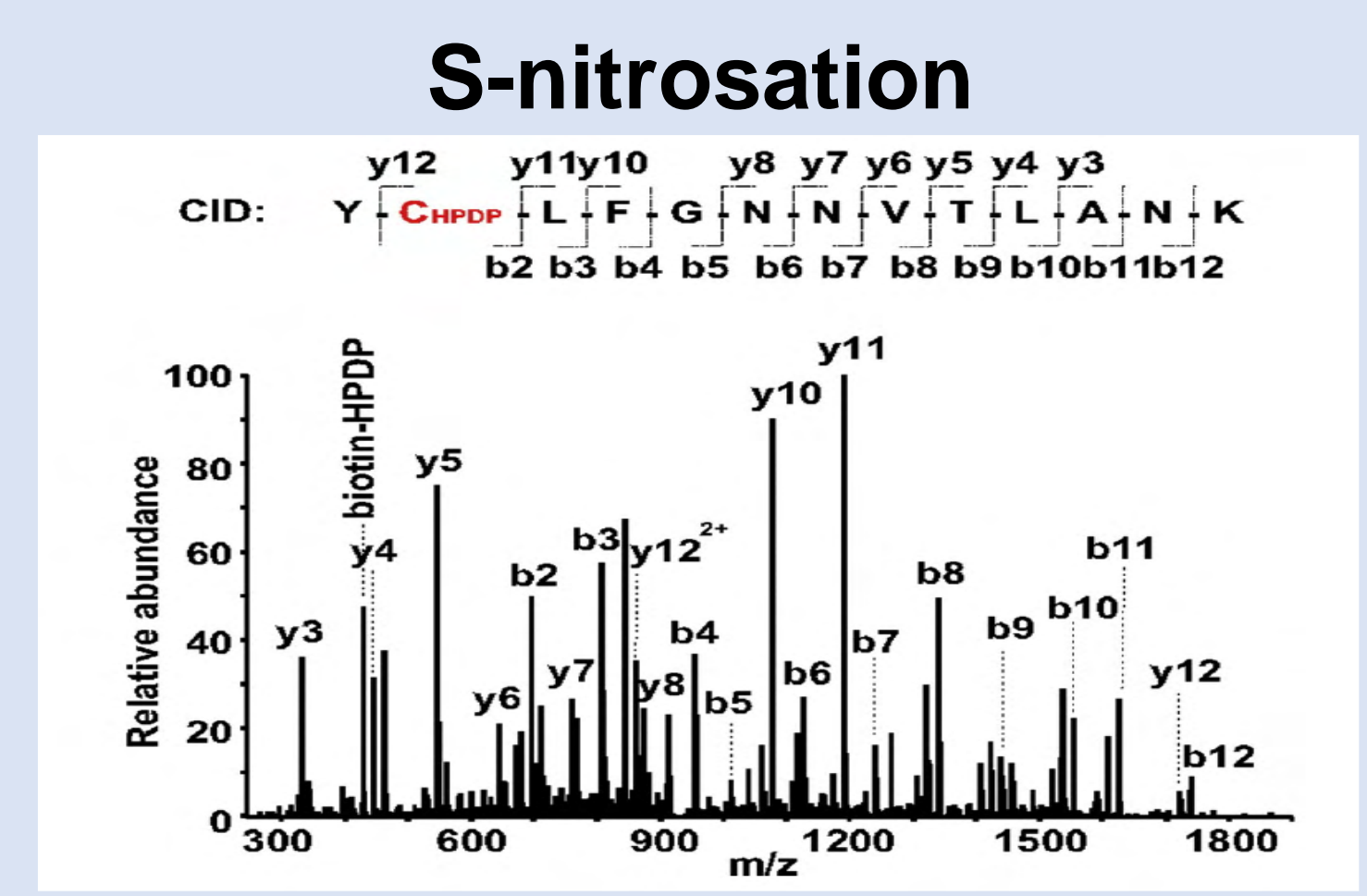
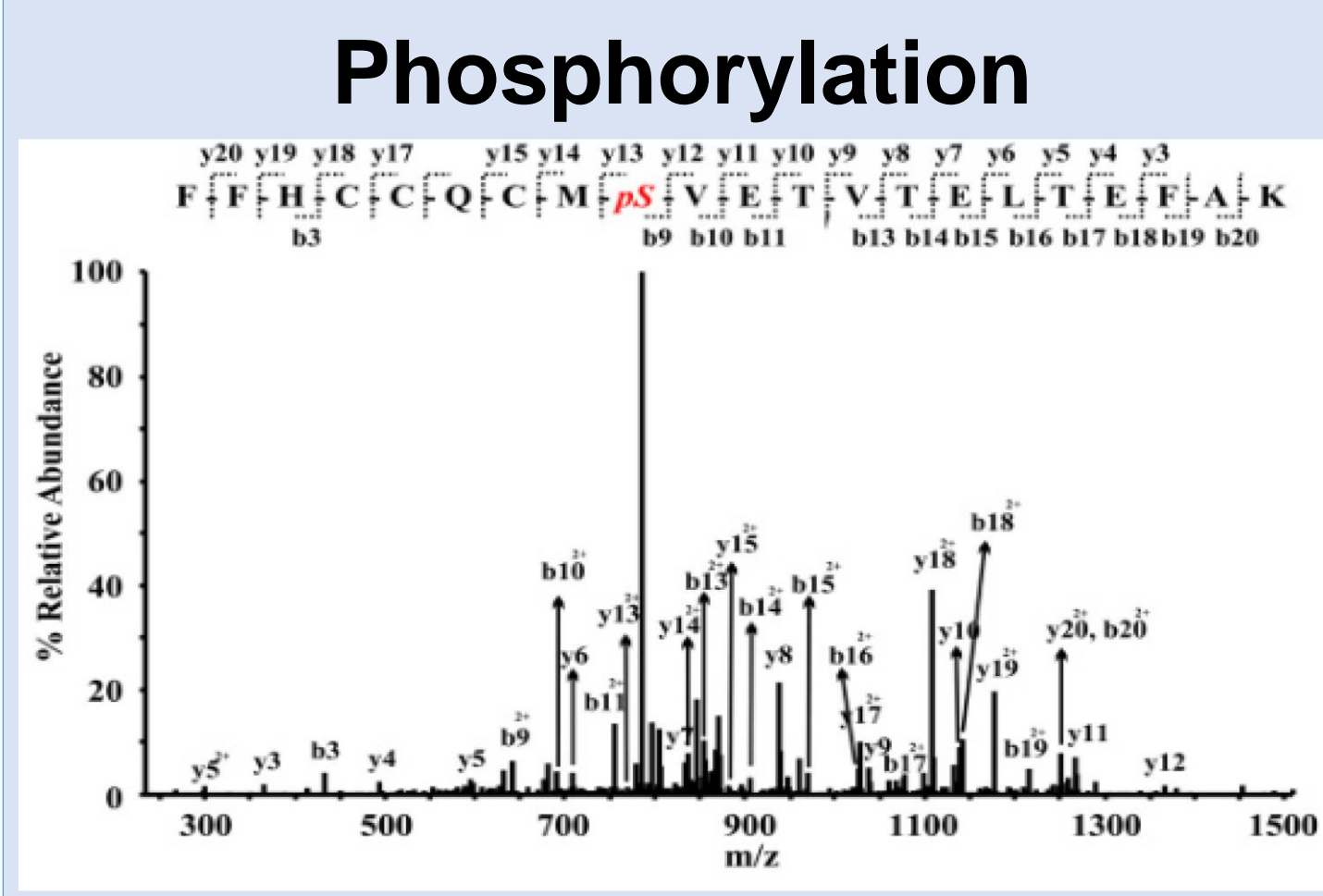
Scan QR code for more details about CAMPR



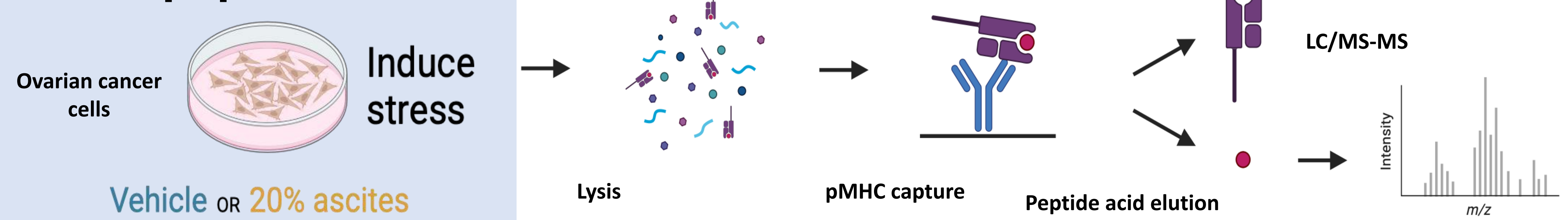
<https://njms.rutgers.edu/proweb/>

Thanks to Dr. Tania Wong Fok Lung @ Rutgers NJMS for collaborative studies on DESI-MSI presented in this poster.
Contact: Dr. Hong Li, Director of CAMPR, Rutgers University – New Jersey Medical School – Cancer Center Building F1226 (office), F1105 (lab), 205 South Orange Avenue, Newark, NJ 07103. Office phone: (973)-972-8396, Lab phone: (973)-972-5340, <https://njms.rutgers.edu/proweb/index.php>.

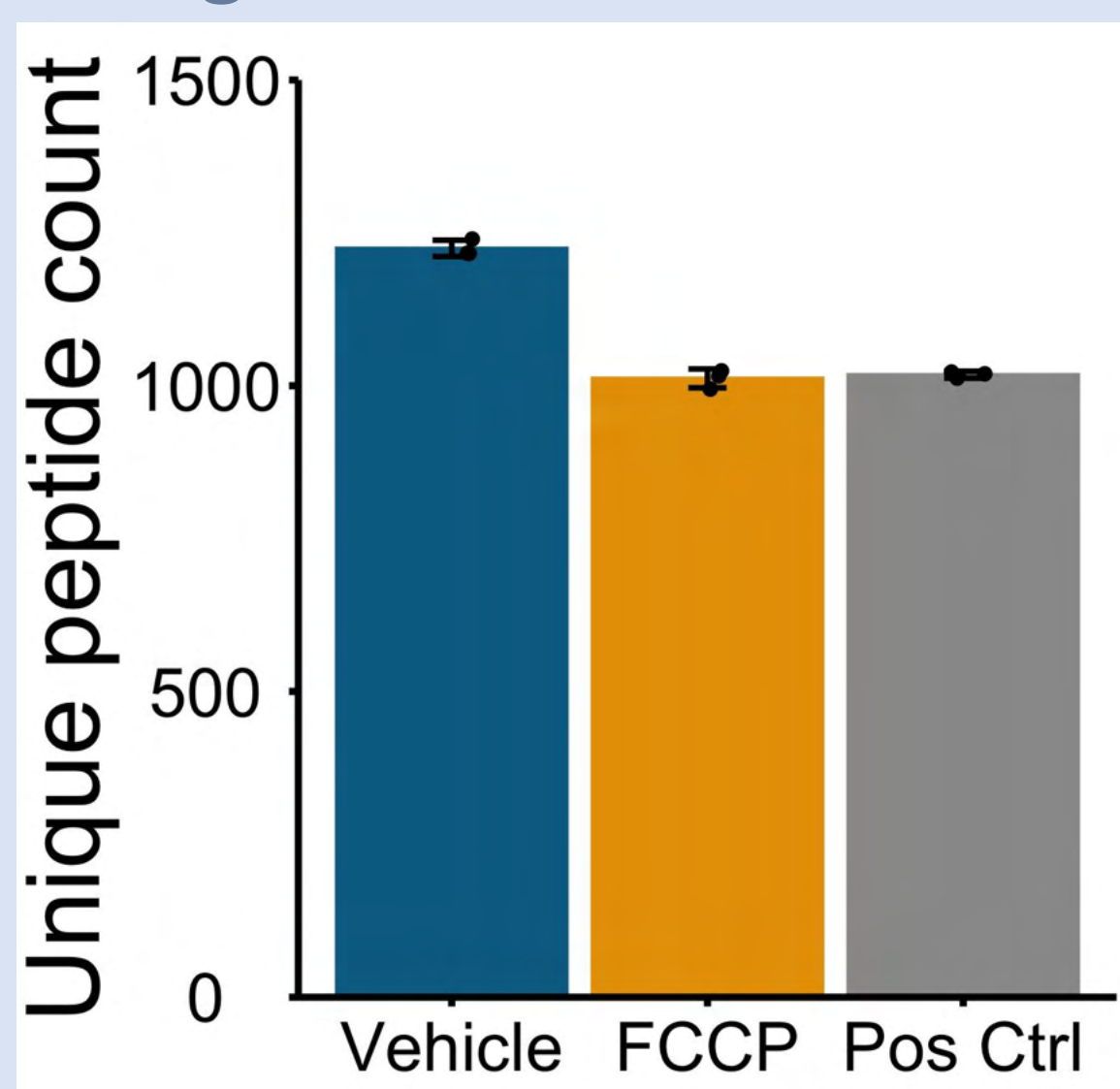
Protein PTM Identification



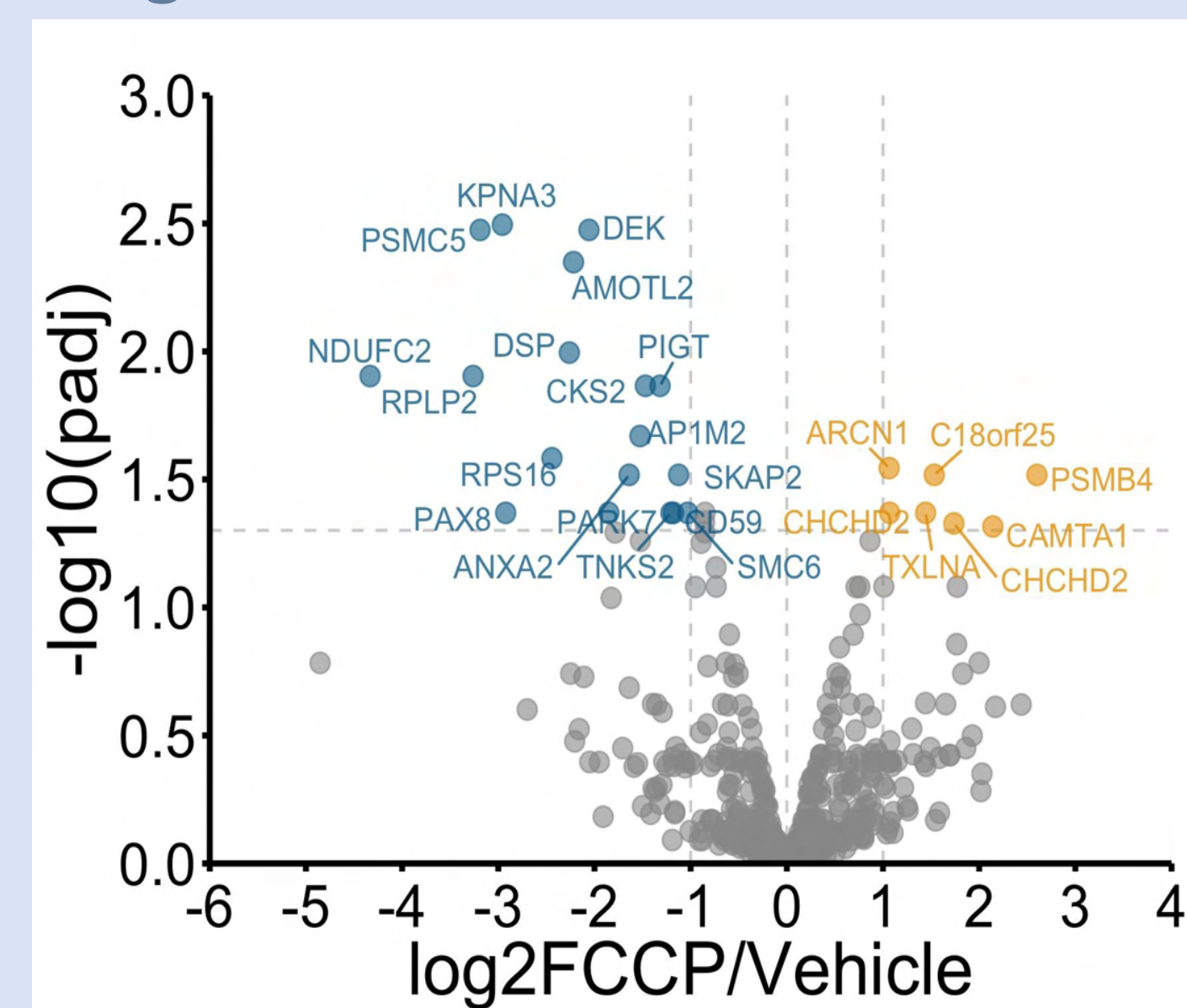
Immuno-peptidomics



Antigen identification



Target selection



Downstream Analyses

mqaegrgrtg
gstgdadgp
pgipdggpg
nagppgea
ggrgprgagagl
arasgppggg
prgphggaas