

MARDI 16 SEPTEMBRE 2025

MAS, Paris 13e

10 rue des terres au curé



LA PROTÉOMIQUE
À LARGE ÉCHELLE
POUR L'ÉTUDE DU MICRO-
ENVIRONNEMENT TUMORAL

GROUPE MICROENVIRONNEMENT TUMORAL



CurieCoreTech Mass Spectrometry Proteomics

Florent Dingli



CurieCoreTech - Mass Spectrometry Proteomics

Single Cell

CurieCoreTech
Custom Single Cell Omics



Extracellular Vesicles (EV's)

CurieCoreTech
Extracellular Vesicles



Centre de recherche sur l'inflammation



CurieCoreTech – Mass Spectrometry Proteomics



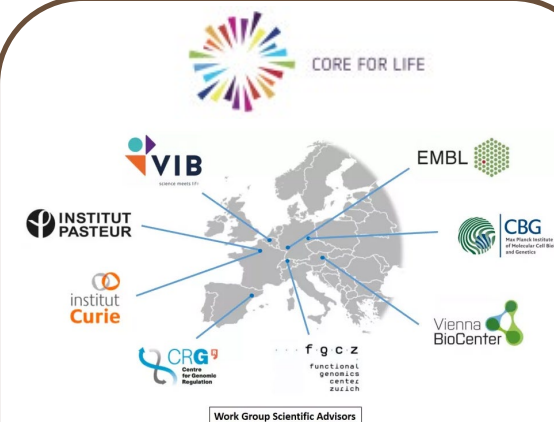
Complementarity and synergy of platforms

Bioinformatic

Curie U1331



Software development
Statistical analyses
Protein networks...



Sharing technology and methods

- Specialization in mass spectrometry applied to biology and cancer (thanks to our location and teams...)
- Support for academic and [clinical projects](#)
 - Pediatric Tumors : Medullo (Reference lab with 8 years of [tumors analyses](#) > 700 patients)
 - Liver-Track (RHU) : [Extracellular vesicles from plasma](#), to predict complications of cirrhosis and liver cancer (> 450 patients)
 - Plexfold (ANR) : Biomarkers from [Cerebrospinal fluid](#) to predict Intracerebral folate deficiency
 - Cell-ID (PEPR) : Research on pediatric brain cancer using [single-cell](#) analysis
 -

[Cutting edge technology](#)

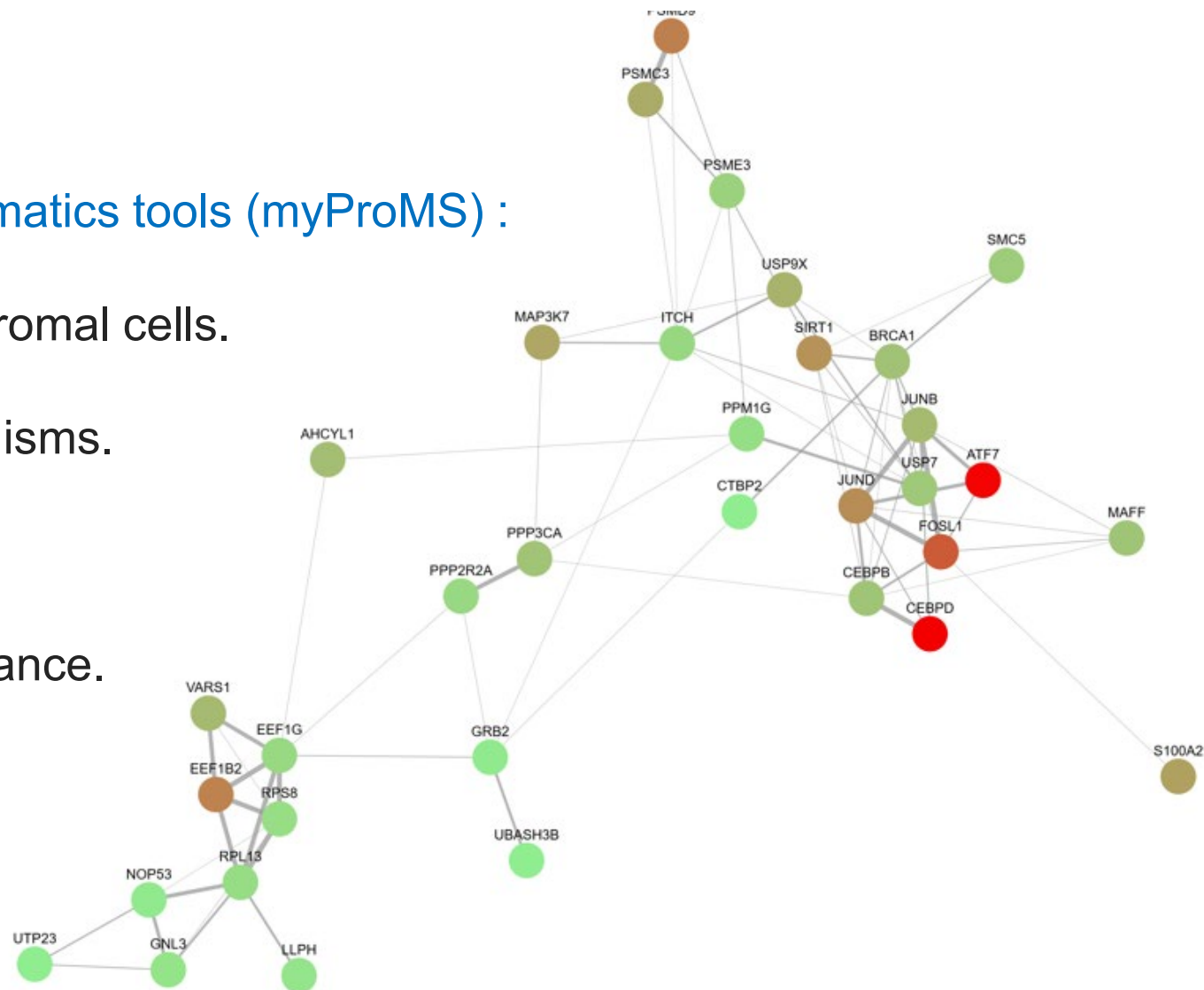
X 2 Orbitrap Astral (ThermoScientific)
mass spectrometers



Why proteomics in the tumor microenvironment ?

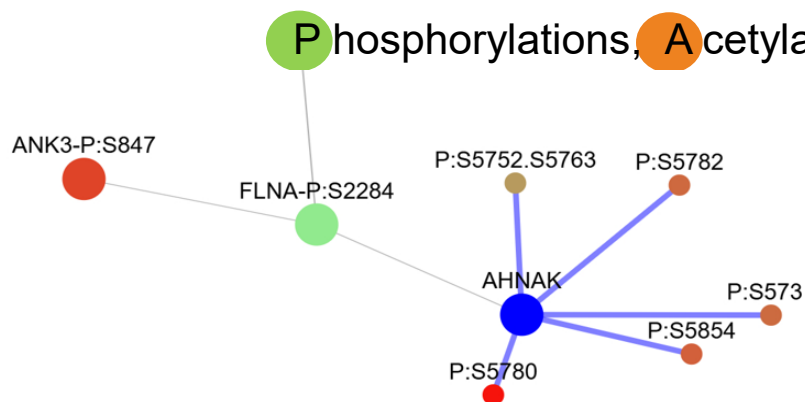
Key roles of mass spectrometry and bioinformatics tools (myProMS) :

- Identify protein signatures in tumor and stromal cells.
- Understand tumor communication mechanisms.
- Monitor responses to treatments.
- Detect biomarkers of progression or resistance.



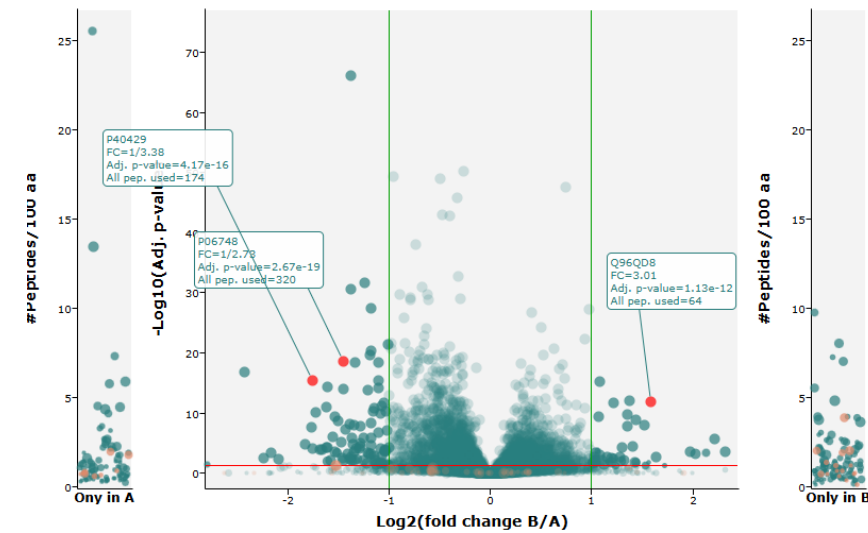
- Global Quantification : Label Free
- Targeted proteomics : PRM, DIA
- Post translational modifications analyses:

Phosphorylations, Acetylation, Ubiquitylation....



- A wide variety of samples :

Tissues from biopsies (Fresh, OCT, FFPE....), Secretomes, Exosomes/EV's, Immunopeptidomics...

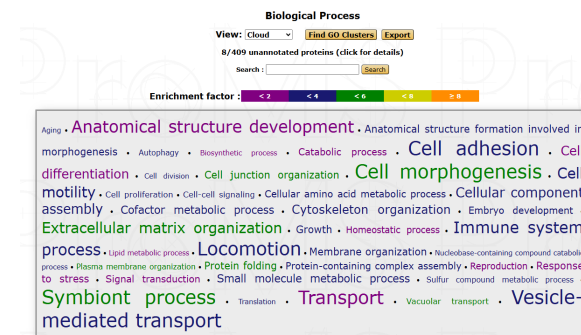
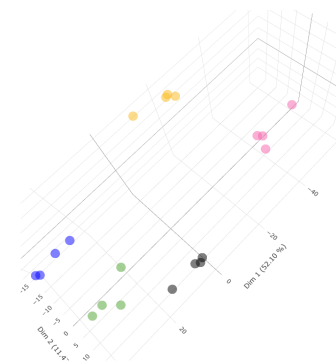
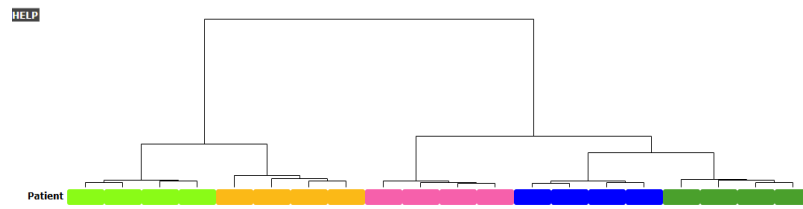
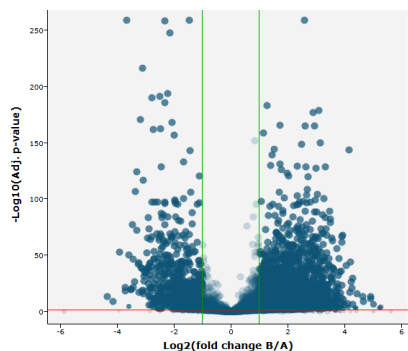


Work together

Our Services :

- From exploratory to clinical projects
- Help with experimental design (number of replicates...) & Sample prep. (buffers...)
- Data acquisition and analysis

myProMS v3.10.0
Developed at Institut Curie, France



- Bioinformatics and support for scientific development (bio-info and stat. team)
- Contact : plateforme.proteomique@curie.fr

Acknowledgment

Mass Spectrometry Proteomics Team

Damarys Loew: director
Bérangère Lombard : HPLC / MS
Florent Dingli : HPLC / MS
Vanessa Masson : bio / MS
Léonie Dec: HPLC / MS

Michael Richard : biostatistics
Damien Maclard : software dev.
Henri Guilhon : bioinformatics

Bionformatics U1331

Patrick Pouillet : director
Stéphane Liva : dev. & analysis







Examples of applications in the tumour microenvironment : Case studies



Cancer-associated fibroblasts induce metalloprotease-independent cancer cell invasion of the basement membrane

Alexandros Glentis¹, Philipp Oertle², Pascale Mariani³, Aleksandra Chikina¹, Fatima El Marjou¹, Youmna Attieh¹, Francois Zaccarini¹, Marick Lae³, Damarys Loew⁴, Florent Dingli⁴, Philemon Sirven⁵, Marie Schoumacher¹, Basile G. Gurchenkov¹, Marija Plodinec^{2,6} & Danijela Matic Vignjevic¹



VC-resist glioblastoma cell state: vessel co-option as a key driver of chemoradiation resistance

Cathy Pichol-Thieuvend, Oceane Anezo, Aafrin M. Pettiwala, Guillaume Bourmeau, Remi Montagne, Anne-Marie Lyne, Pierre-Olivier Guichet, Pauline Deshors, Alberto Ballestín, Benjamin Blanchard, Juliette Reveilles, Vidhya M. Ravi, Kevin Joseph, Dieter H. Heiland, Boris Julien, Sophie Leboucher, Laetitia Besse, Patricia Legoix, Florent Dingli, Stephane Liva, Damarys Loew, Elisa Giani, Valentino Ribecco, Charita Furumaya, Laura Marcos-Kovandzic, Konstantin Masliantsev, Thomas Daubon, Lin Wang, Aaron A. Diaz, Oliver Schnell, Jürgen Beck, Nicolas Servant, Lucie Karayan-Tapon, Florence M. G. Cavalli & Giorgio Seano

> Nature. 2025 Jun;642(8067):492-500. doi: 10.1038/s41586-025-08974-4. Epub 2025 May 7.

Activation of lysosomal iron triggers ferroptosis in cancer

Tatiana Cañeque^{# 1}, Leeroy Baron^{# 1}, Sebastian Müller^{# 1}, Alanis Carmona², Ludovic Colombeau¹, Antoine Versini¹, Stéphanie Solier^{1 3 4}, Christine Gaillet¹, Fabien Sindikubwabo¹, Julio L Sampaio¹, Marie Sabatier², Eikan Mishima⁵, Armel Picard-Bernes¹, Laurène Syx⁶, Nicolas Servant⁶, Bérangère Lombard⁷, Damarys Loew⁷, Jiashuo Zheng⁵, Bettina Proneth⁵, Leishemba K Thoidingjam¹, Laurence Grimaud⁸, Cameron S Fraser², Krystina J Szylo², Emma Der Kazarian⁹, Caroline Bonnet⁹, Emmanuelle Charafe-Jauffret⁹, Christophe Ginestier⁹, Patricia Santofimia-Castaño¹⁰, Matias Estaras¹⁰, Nelson Dusetti¹⁰, Juan Lucio Iovanna¹⁰, Antonio Sa Cunha¹¹, Gabriella Pittau¹¹, Pascal Hammel¹¹, Dimitri Tzanis¹², Sylvie Bonvalot¹², Sarah Watson¹³, Vincent Gandon¹⁴, Aditya Upadhyay¹⁵, Derek A Pratt¹⁵, Florêncio Porto Freitas¹⁶, José Pedro Friedmann Angeli¹⁶, Brent R Stockwell^{17 18 19}, Marcus Conrad^{5 20}, Jessalyn M Ubellacker², Raphaël Rodriguez²¹

