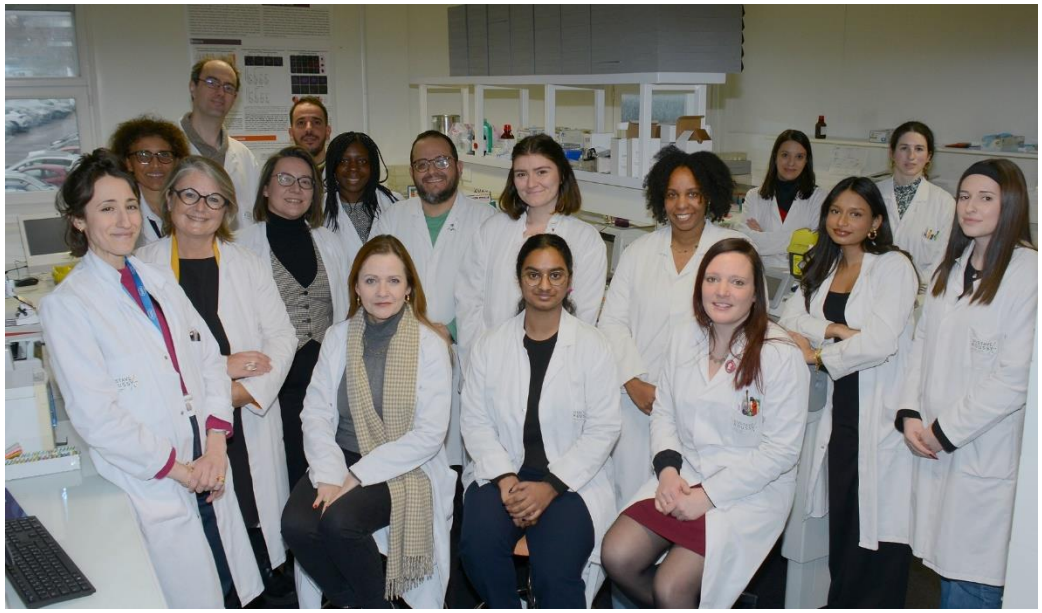
PETRA Core Facility
Experimental and Translational Pathology



PETRA Open Day
Tuesday, 16 December 2025

Prof. Cécile Badoual-Virginie Marty-Olivia Bawa
*Plateforme **P**athologie **E**xpérimentale et **TRA**nslationnelle (PETRA)*
Gustave Roussy

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GRAND PARIS

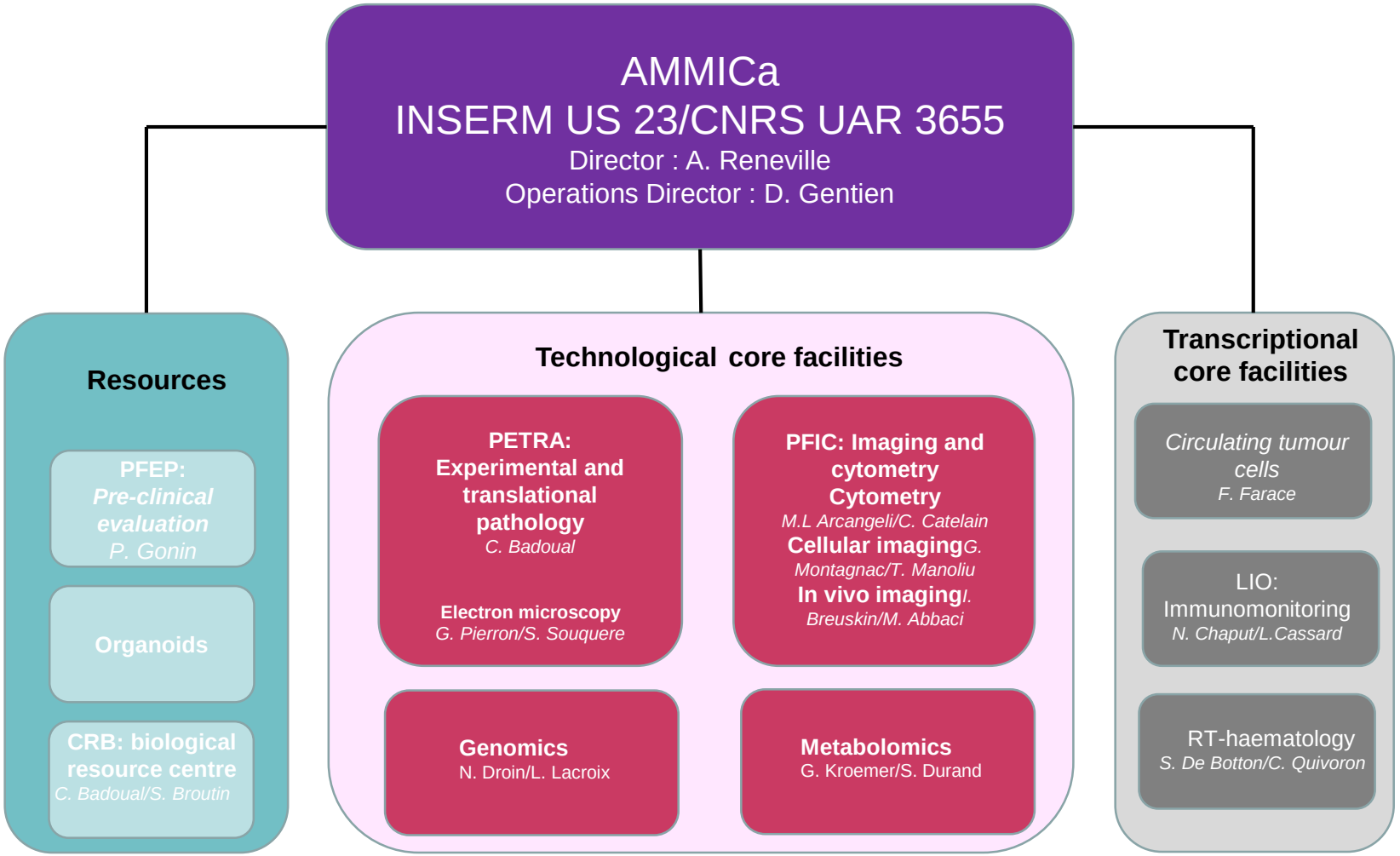
OUTLINE

- Who we are about us?
  - PETRA
  - Team organization
  - Module I : Research program
  - Module II : Experimental pathology
  - Module III : Clinical research
  - Module IV : Digitization, image analysis
- What do we offer?
  - Spatial Omics

  - Proteomics
  - Transcriptomics
  - MultiOmics (integrated)
  - How to contact us?

Who we are about us?

AMMICa : PETRA

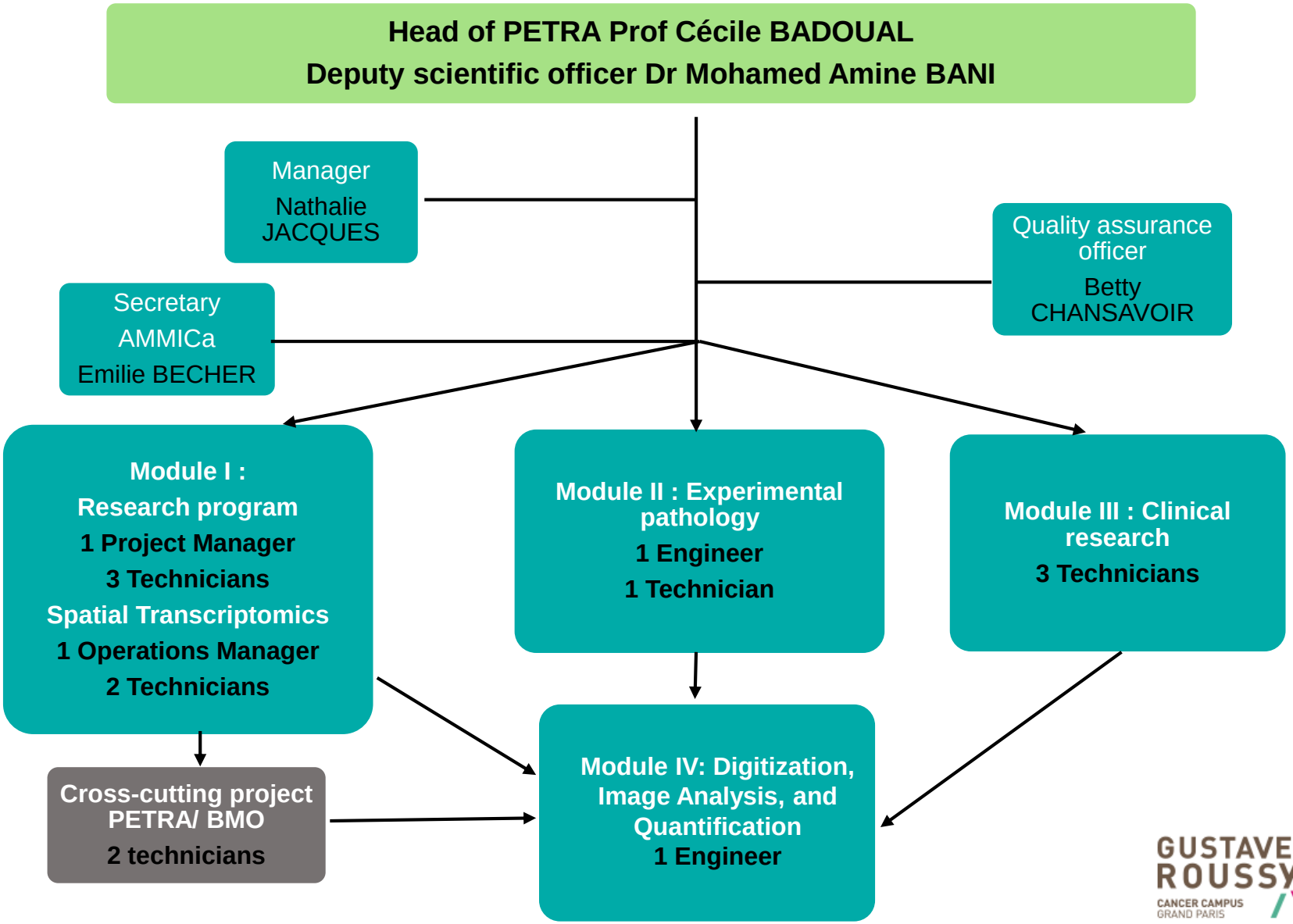


AMMICa : Molecular analysis, modeling, and imaging of cancer

Who we are about us?

- ISO9001 certified since 2015
- Member of the Rés'Hist network since 2023
- Our missions: To perform conventional histology, multiplex immunohistochemistry, spatial transcriptomics and image analysis techniques
- Our objectives: Consulting, monitoring and innovation in morphological and molecular in situ analysis techniques for research

Team organization



Module I: Research program 1/2

- Field of activity: Research projects and projects ancillary to therapeutic trials (82 projects in 2024)

- Team:

  - Project manager Virginie Marty: provides assistance in setting up research projects, cross-disciplinary expertise in transcriptomics and spatial proteomics, implementation of new technologies, training of interns

  - Technicians

    - ✓ Laëtitia Bordelet : conventional histology and multiplex IHC, PLA specialist
    - ✓ Elodie Edmond : conventional histology and multiplex IHC, FISH specialist
    - ✓ Karine Godefroy : conventional histology, expert in pre-analytical spatial transcriptomics techniques

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Module I: Research program 2/2

- Field of activity: Spatial transcriptomics (17 projects since the first machines were installed) in association with molecular biology and bioinformatics core facilities

« Possibility of mapping gene expression and improving understanding of tissue biology. »

- Team:

  - Operations Manager: Valérie Camara-Clayette: management of transcriptomics projects implementation

  - Technicians

    - ✓ AbdelHafidh Belakermi : expert in GeoMx and Visium technologies

    - ✓ Adsaya Rathakrishnan : Merscope technology expert

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Module II: Experimental pathology

- Field of activity: Pre-clinical studies (animal models, PDX, organoids and spheroids) (81 projects in 2024)

- Team :

  - Engineer Olivia Bawa: provides support in setting up experimental pathology projects with expertise in conventional histology and multiplex IHC (murine samples and organoids), development of multi-omics techniques (RNA + proteins), training of interns

  - Technicienne Lily Camus : specialist in conventional histology and development of new markers

Module III: Research clinical

- Field of activity: Phase I, II and III therapeutic trials (600 projects in 2024)

- Their missions :

  - Respond to institutional requests from Gustave Roussy's “Guichet unique”
  - Validate feasibility reports
  - Register samples belonging to a trial
  - Bio-banking
  - Perform conventional histology techniques and immunohistochemistry requests
  - Provide tutoring

- Team :

  - Technicians:
    - ✓ Betty Chansavoir : Quality Assurance Manager
    - ✓ Laura Cheron
    - ✓ Mailys Rolland

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Module IV: Digitization, image analysis

- Field of activity: all PETRA modules (100 projects in 2024)
- Engineer Nicolas Signolle: expert in digitisation, simple image analysis, multiplex, hiplex, LS multiomics, algorithm creation
- Training courses offered: Olympus slide scanner, QuPath

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HISTOLOGY & SPATIAL BIOLOGY

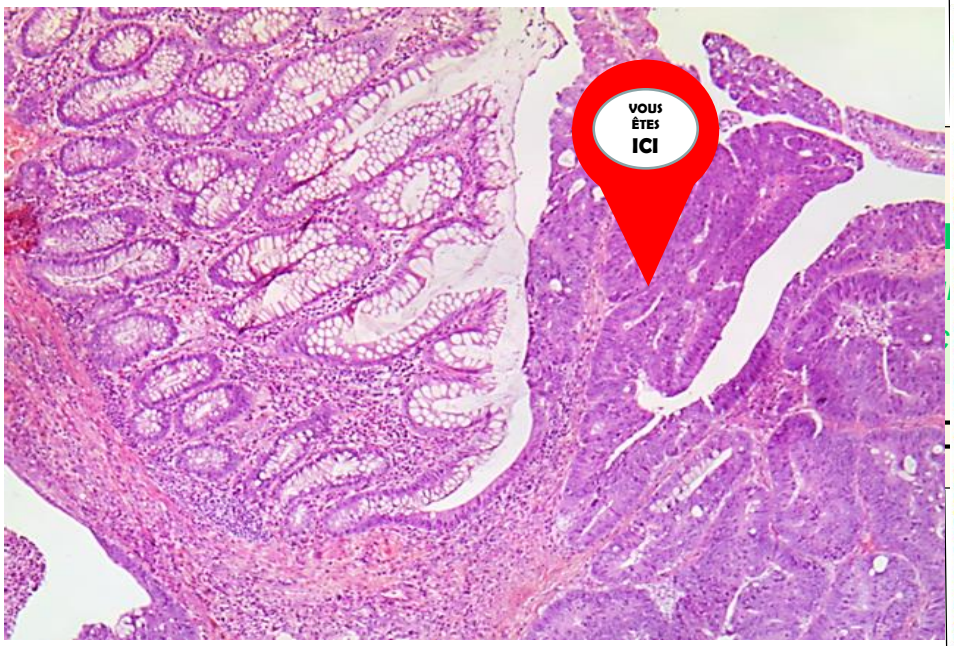
PRE-ANALYTICAL

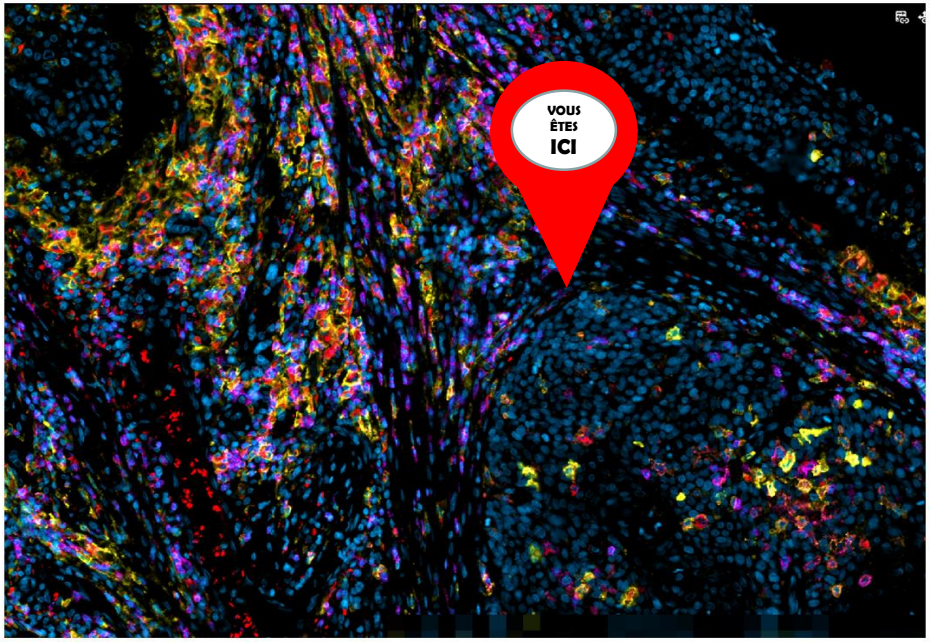
Sample inclusions

Media for analysis: Slides / Shavings

BMO Core facility

Bulk genomic & transcriptomic analytical techniques





POST-ANALYTICAL

Scanning, image analysis: quantification...

Spatial Proteomic Landscape

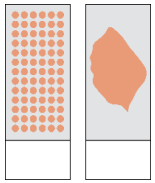
Plexing : from **2** to **1 200** proteins

Chromogenic

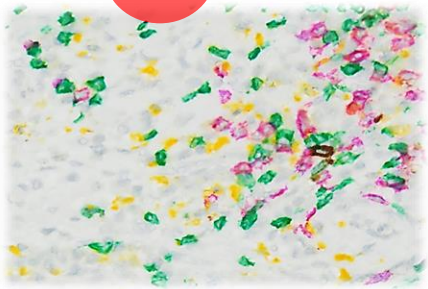
Single cell

1 protein

Benchmark UltraPlus & Bond-RX

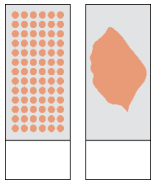


whole slide



Up to 5 proteins – Full custom

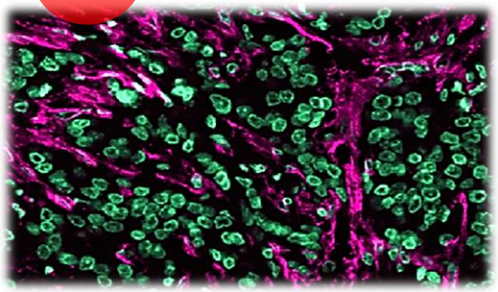
Discovery Ultra



whole slide

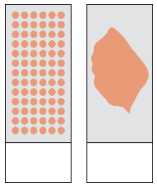
Fluorescence

Single cell



Up to 6 proteins

Bond-RX

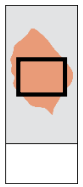


whole slide

Up to 40 proteins

COMET

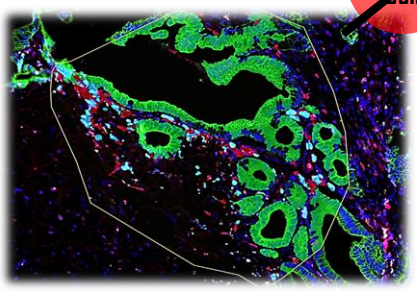
Full custom



12.5 x 12.5 mm

Proteomic Profile per ROI

Single cell



Up to 1 200 proteins – Fixed panel

GeoMx

35 x 14 mm

THROUGHTPUT

30 slides = 4h	30 slides = 17h	30 slides = 17h	4 slides = +/-48h	4 slides = 2j (without sequensing)

AVAILABLE in PETRA

190	492	17	36	42	18	3	0	5 morpho Abs

DEVELOPPEMENT TIME

15 days	2 mois	5 mois	3 mois	1 mois

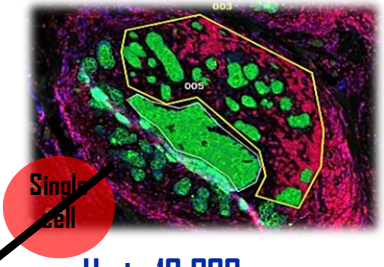
Spatial Transcriptomic Landscape

Panels : from **140** to **18 000** genes

Up to **12** RNA

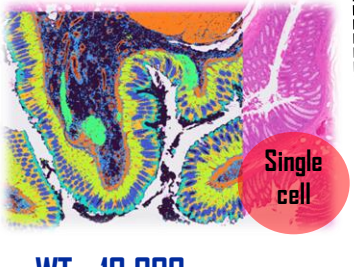
Discovery tools

NGS-based Spatial Transcriptomics



Up to 18 000 genes
Fixed panels
GeoMx

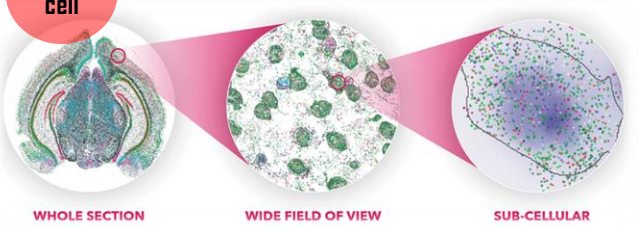
35 x 14 mm



WT - 18 000 genes
Visium-HD

6,5 x 6,5 mm

Imaging-based Spatial Transcriptomics



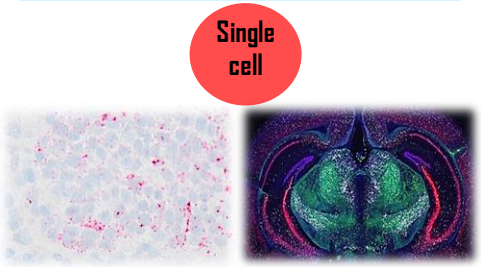
Up to 480 genes
100% custom
& mutations targeting
Xenium

10 x 22 mm

Up to 960 genes
Full custom
Merscope

10 x 10 mm

Hypothesis-driven tools



From 1 to 5 RNA
chromo / fluo
Bond Rx

whole slide

Up to 12 RNA
fluo
COMET

12.5 x 12.5 mm

THROUGHTPUT

4 slides = 2 days	1 slide = 2 areas = 3 days	2 slides = 1 week	1 slide = 1 week	30 slides = 17h	4 slides = 50h
(without sequensing)					

AVAILABLE in PETRA

5 morpho Abs			9	0	

DEVELOPPEMENT TIME

1 mois	NO	NO	1 mois / new tissu type	15 jours	1 mois

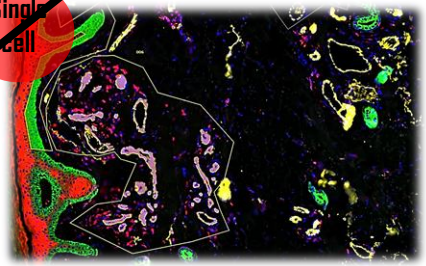
Spatial MultiOmics Landscape

Spatial MultiOmics Landscape

Discovery tools

NGS-based
Spatial Transcriptomics & Proteomics

~~Single cell~~

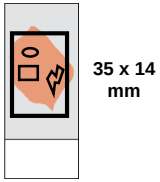


Up to 18 000 genes

+ 1 200 proteins

Fixed panels

GeoMx



4 slides = 2j

(without sequensing)

5 morpho Abs

1 mois

Imaging-based
Spatial Transcriptomics & Proteomics

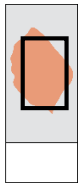
Single cell

Up to 480 genes

+ 27 proteins

Fixed & Custom panels

Xenium



2 slides

NO

Up to 960 genes

+ 5 proteins

Full custom

Merscope

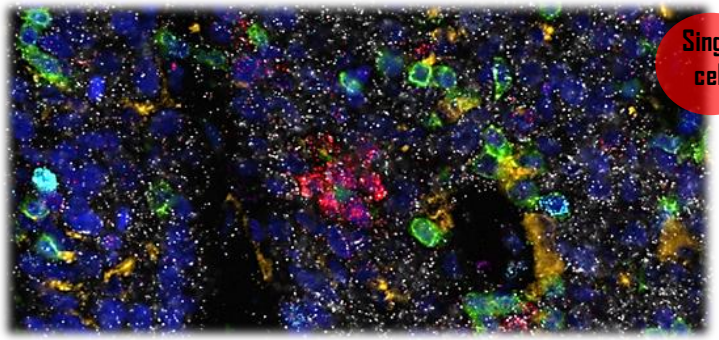
1 slide = 1 week

0 0

NA

Hypothesis-driven tools

Imaging-based RNAscope and multiplex IF

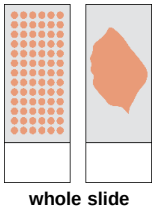


Single cell

Up to 4 RNA

+ 2 proteins

Bond-RX



30 slides = 20h

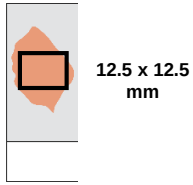
0 1

3 mois

Up to 12 RNA

+ 24 proteins

COMET



4 slides = 66h

1 0

3 mois

THROUGHTPUT

AVAILABLE in PETRA

DEVELOPPEMENT TIME

How to contact us? 1/2

Student,
Researcher,
Oncologist,
Pathologist

Fill in the contact form

Send to the following address :
contact-petra@gustaveroussy.fr

Research Project Module: complete a project form

Experimental Pathology Module: complete a project form

Image digitization and analysis module: complete a project form

Signing the quotation in accordance with the charter

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How to contact us? 2/2

PETRA

Preparation of the quotation

Presentation of the project if necessary at the PETRA meeting: Wednesday in the Crystal Room at B2M, attended by Professor Cécile Badoual and Dr Mohamed Bani.

Technical deadlines, choice of technologies, advice from our expert pathologists

Implementation of techniques, reporting of results, invoicing

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