

NEXT GENERATION BIOANALYSIS

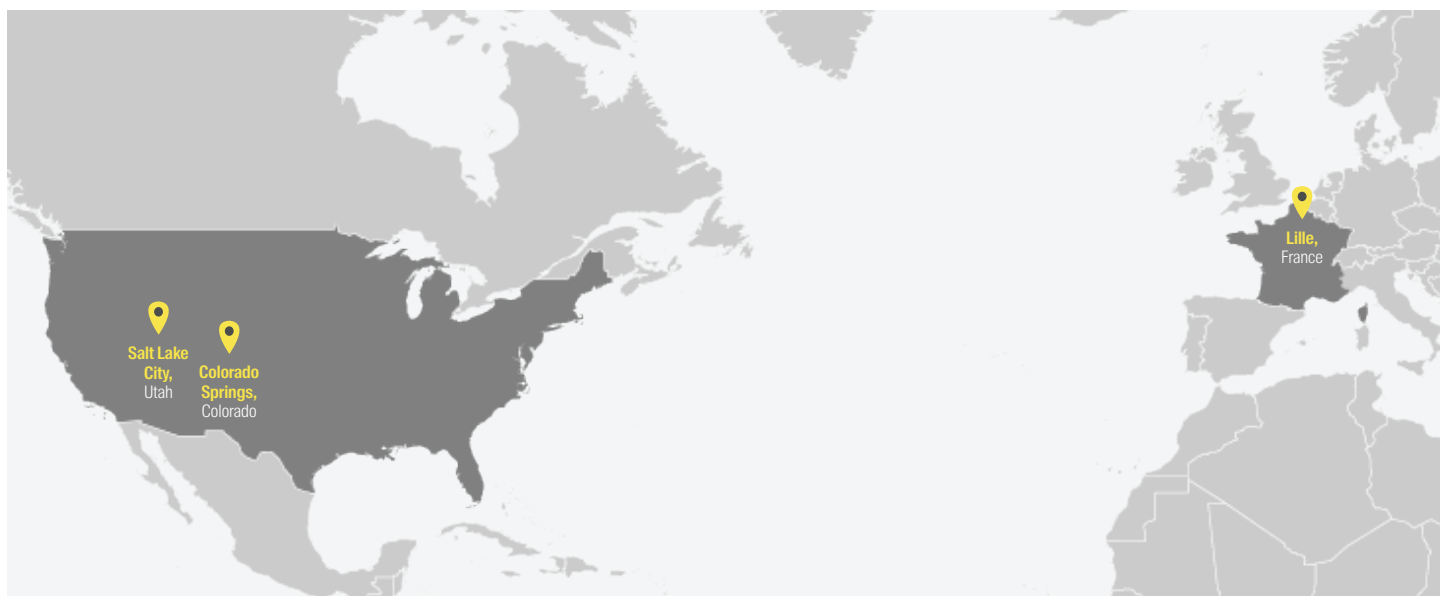
Revolutionizing your development needs



Advancing molecules with speed

Our solutions

- Bioanalytical lab
- Spatial bioanalysis
- Spatial biology



200+ EMPLOYEES ACROSS 3 FACILITIES

SALT LAKE CITY, COLORADO SPRINGS, AND LILLE

>40 MASS SPECTROMETERS

MASS SPECTROMETRY IMAGING/FLOW CYTOMETRY
HIGH MULTIPLEX IHC/NGS SEQUENCING/DIGITAL PATHOLOGY

20+ YEARS

OF EXPERIENCE IN PK/PD

STRONG EXPERTISE

IN RNA THERAPEUTICS AND SMALL MOLECULES

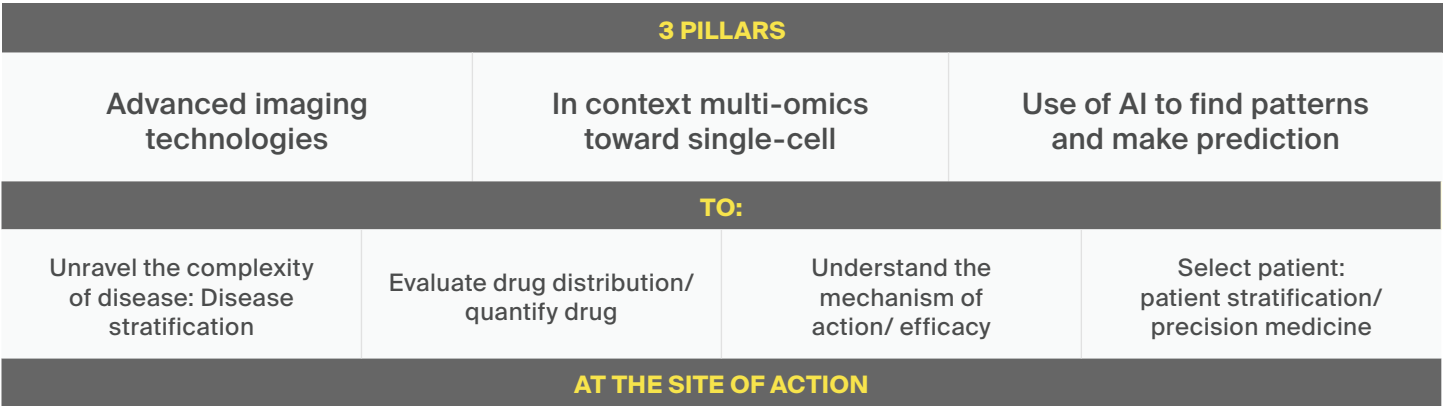
250 SPONSORS

WITH 15 OF THE TOP 20 PHARMACEUTICAL COMPANIES

QUALIFIED

FOR CLINICAL INVESTIGATIONS (NON-GLP, GLP & GLP-LIKE)

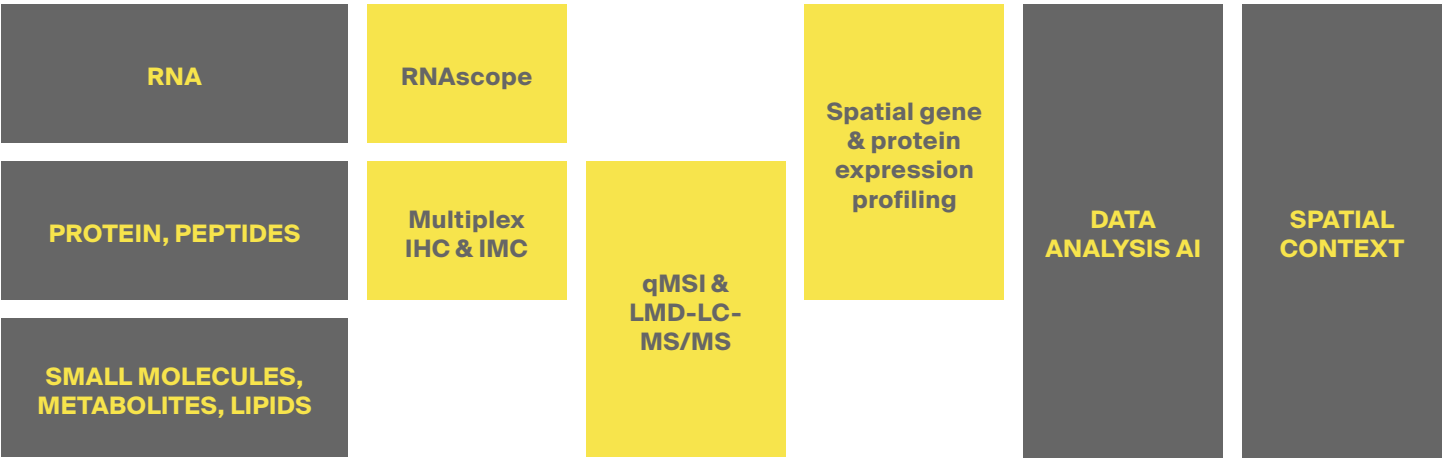
Spatial bioanalysis and spatial biology



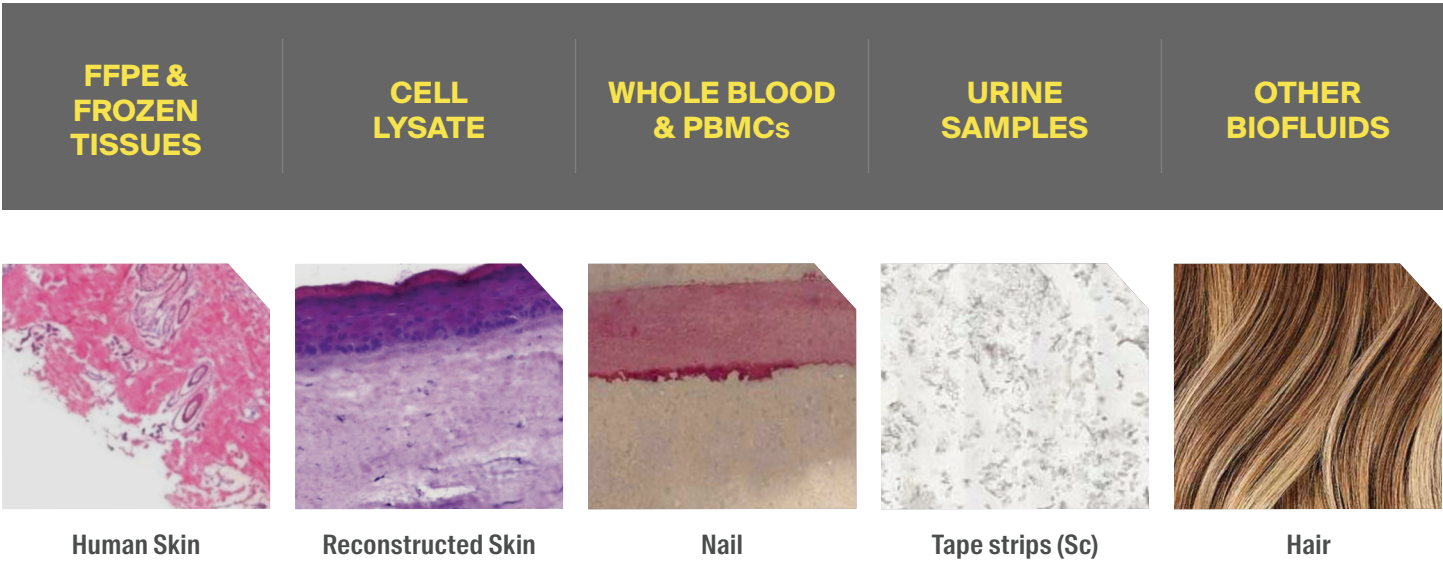
Unique spatial multimodalities platform

Next generation imaging services

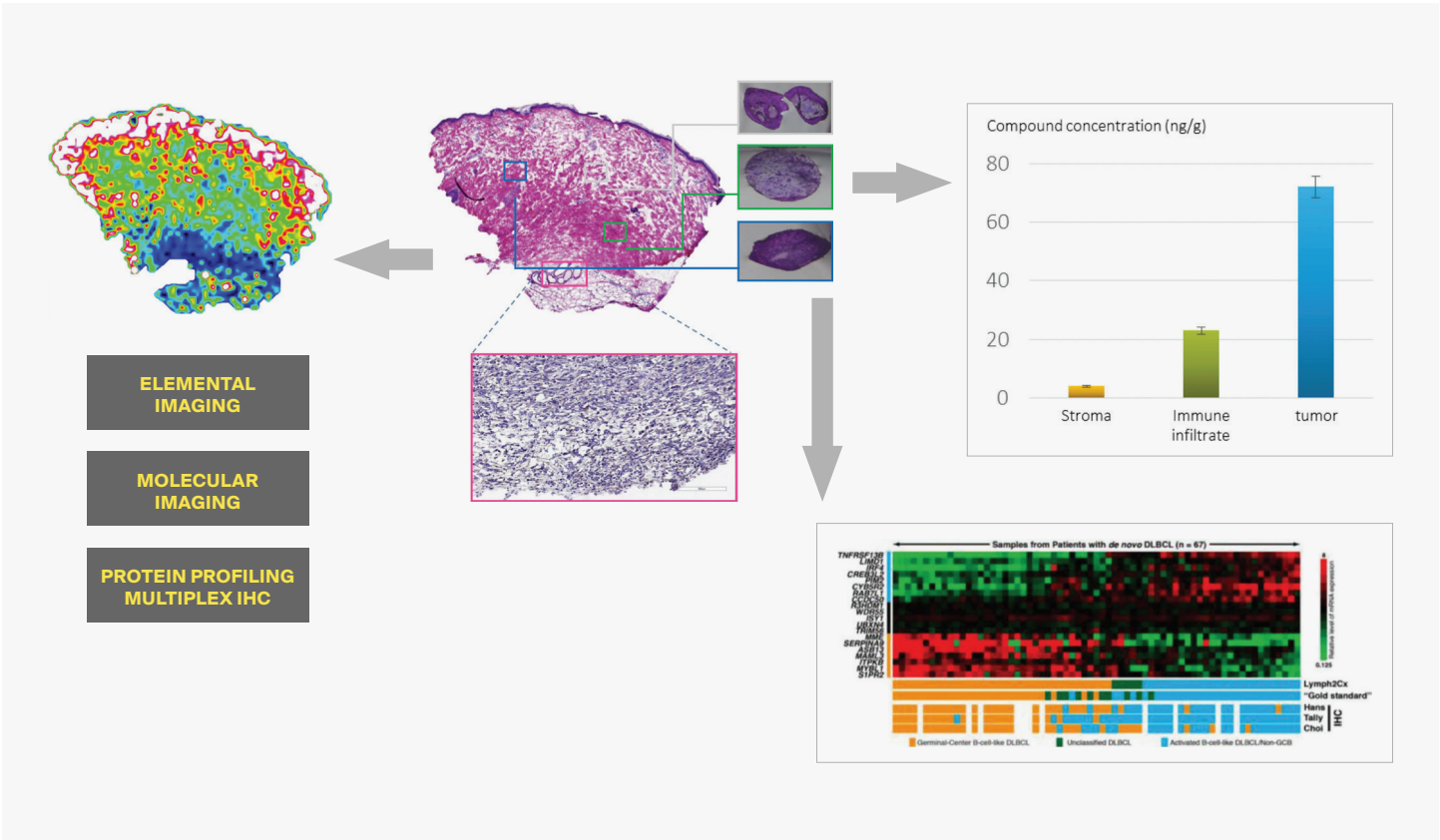
Our mission: Support key decisions in drug/cosmetics development with next generation bioanalysis in the spatial context of the tissue.



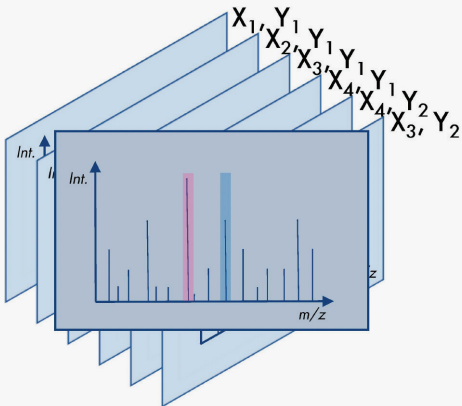
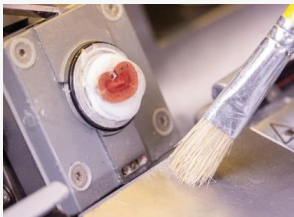
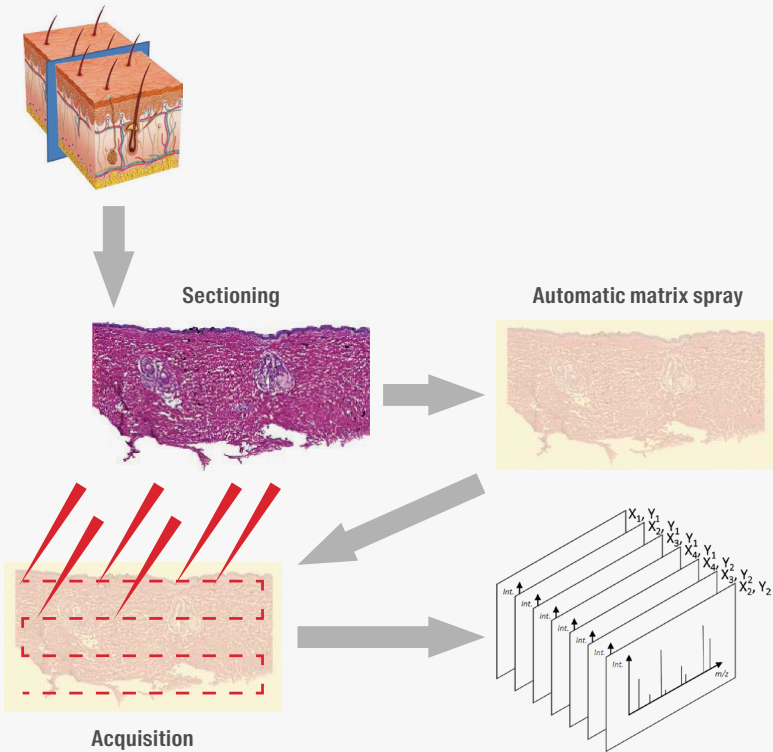
Samples



The Aliri France Platform: Testing Capabilities

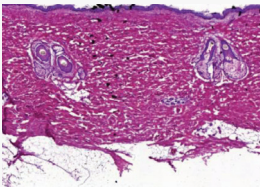


MALDI Imaging

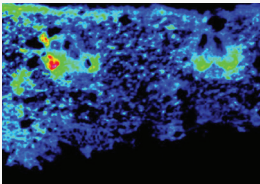


Main advantage: the specificity
Each detected ion = One specific image
Non-labelled technique
1000-1500 molecules in full scan mode

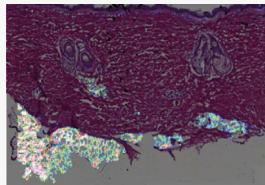
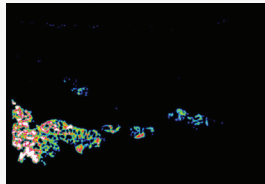
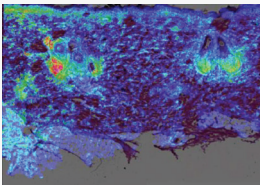
Histology



QMSI



Overlay



QMSI Evaluation of Human Toenail Clippings



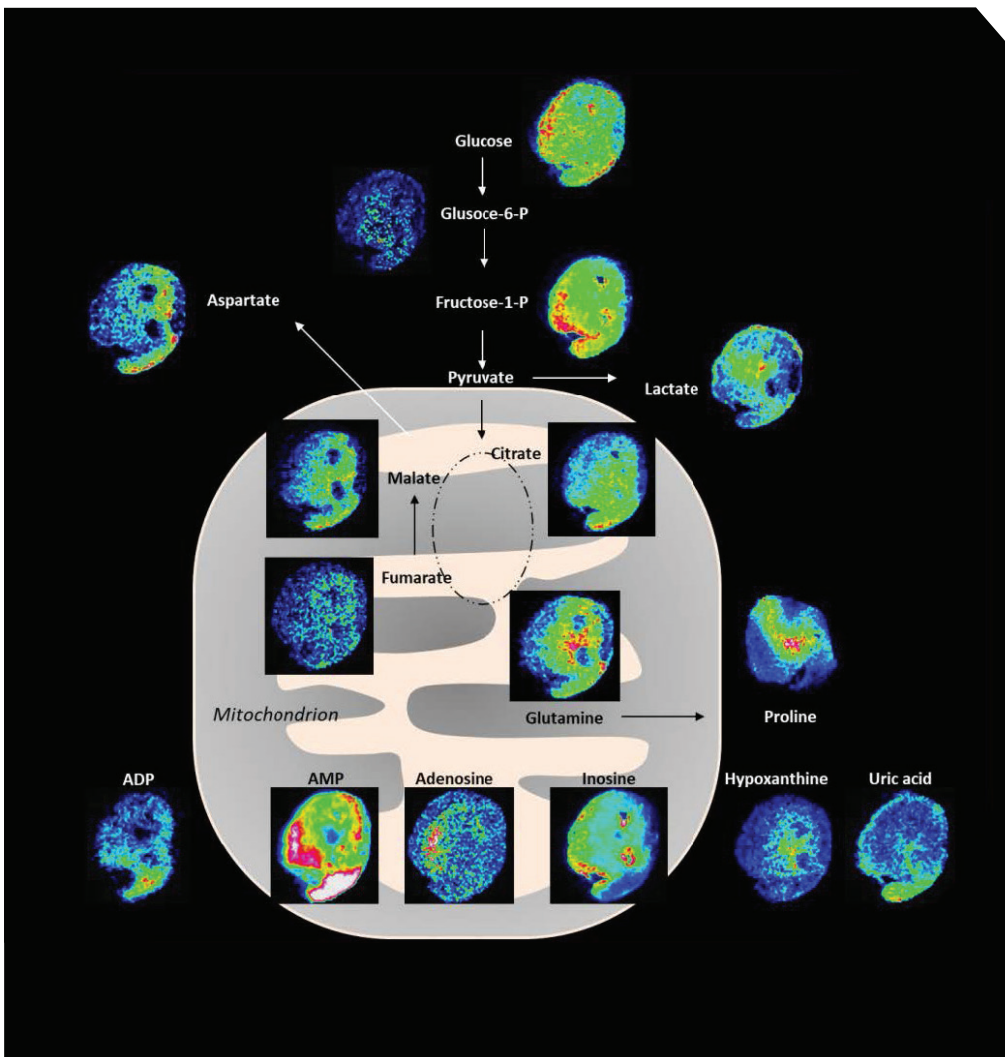
Microscopy image of toenail clipping



Overlay of microscopy + QMSI image to evaluate drug penetration

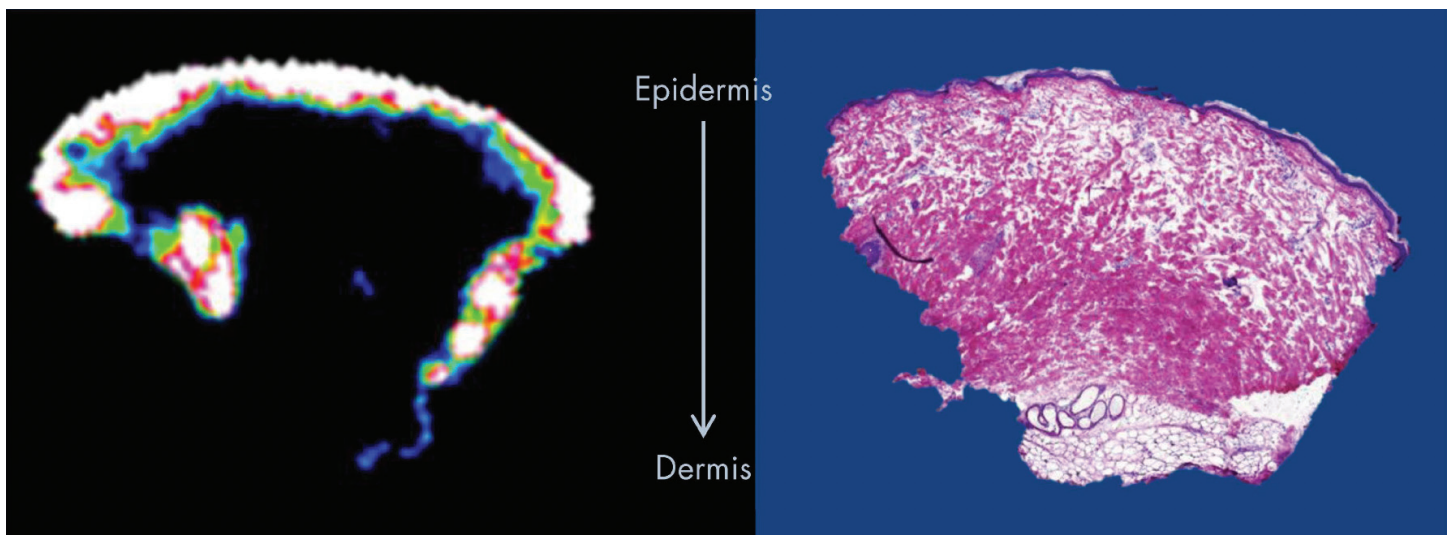
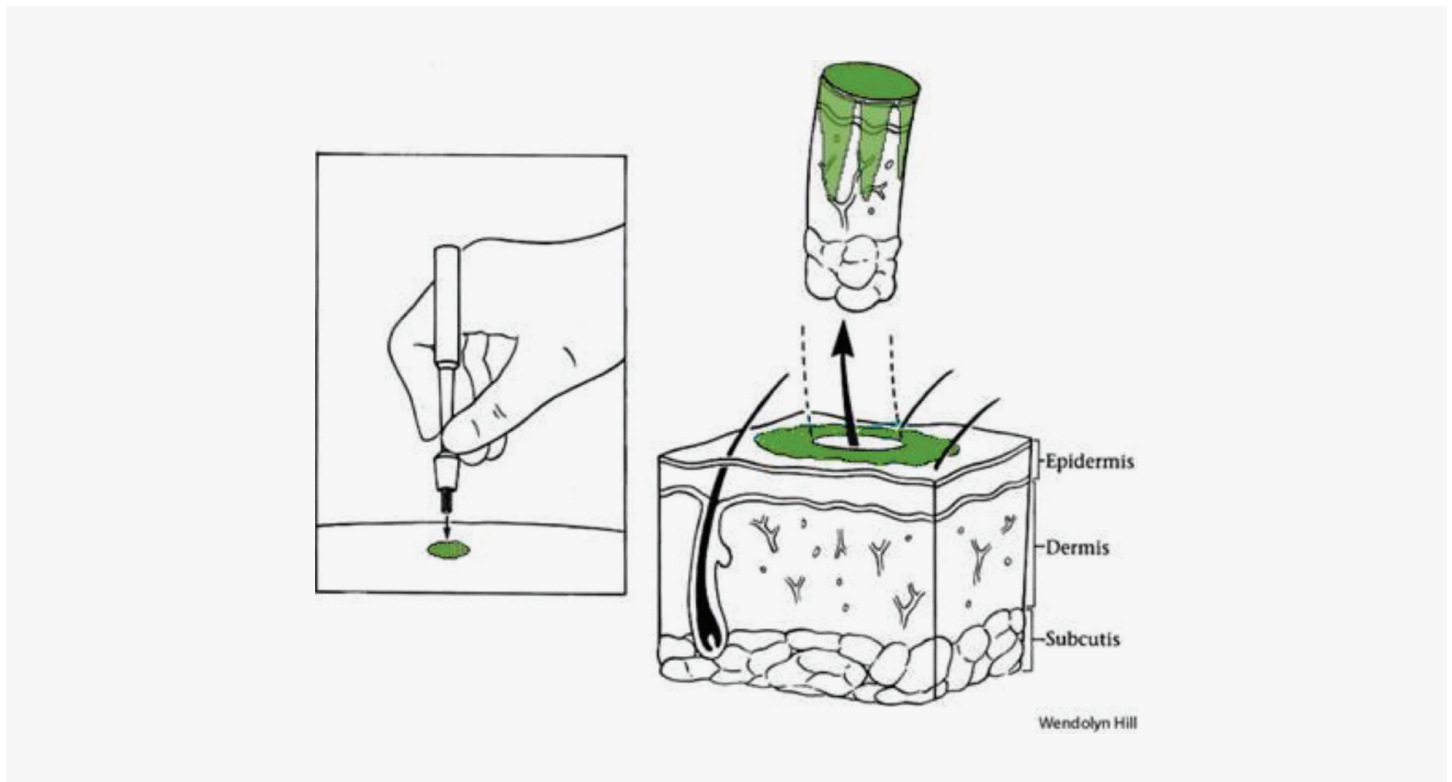
- Human toenail clippings evaluated by QMSI
- Small molecule drug
- Topical treatment

QMSI: 2,500 molecules detected and quantified



- Glycolysis
- Trp pathway
- Krebs cycle
- Adenosine/inosine pathway
- Phenylalanine Biosynthesis
- Arginine Biosynthesis
- Amino Acids
- Neurotransmitters
- 450 Lipids (FA, TG, DG, gangliosides, etc.)
- Sterols
- Histone Acetylation

MALDI Imaging: Added value

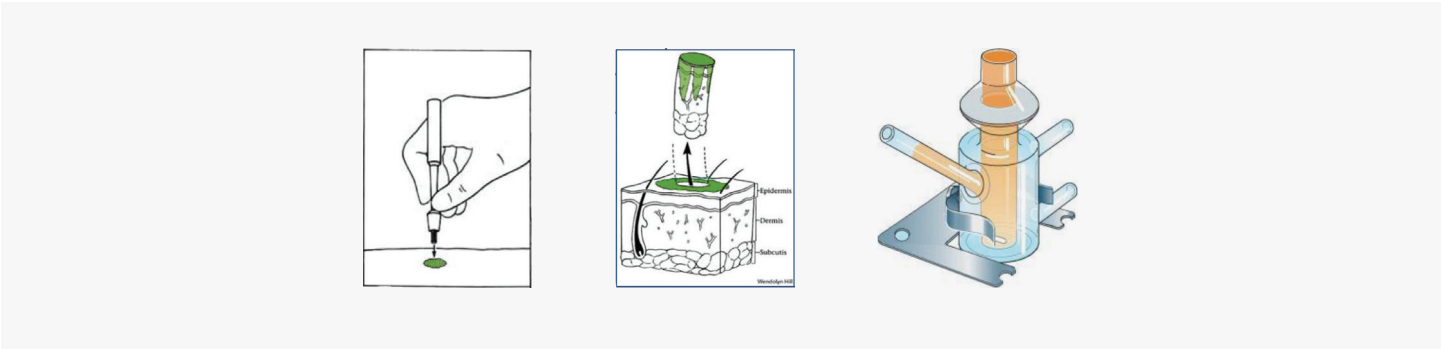


Punch contamination

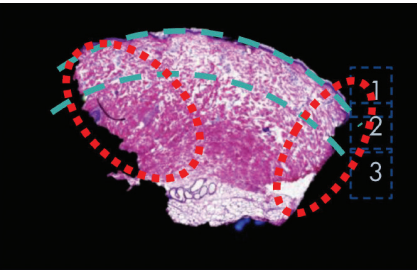
Contamination and
Franz Cells observed



Dermatology

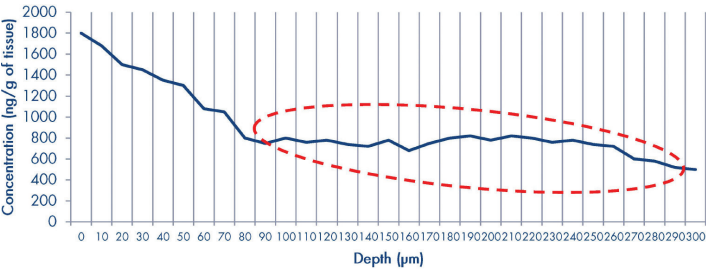
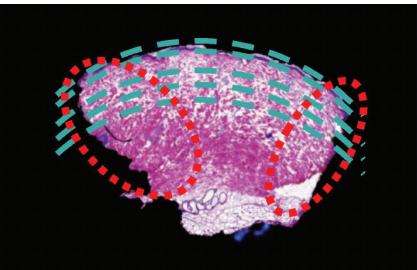


LC-MS/MS

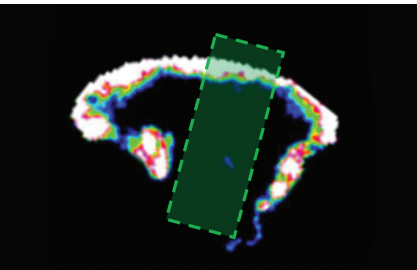


ROI	HISTOLOGICAL REGION	CONCENTRATION (ng/g OF TISSUE)
1	Stratum corneum	1500
2	Epidermis	1200
3	Dermis	800

SLICING AND LC-MS/MS



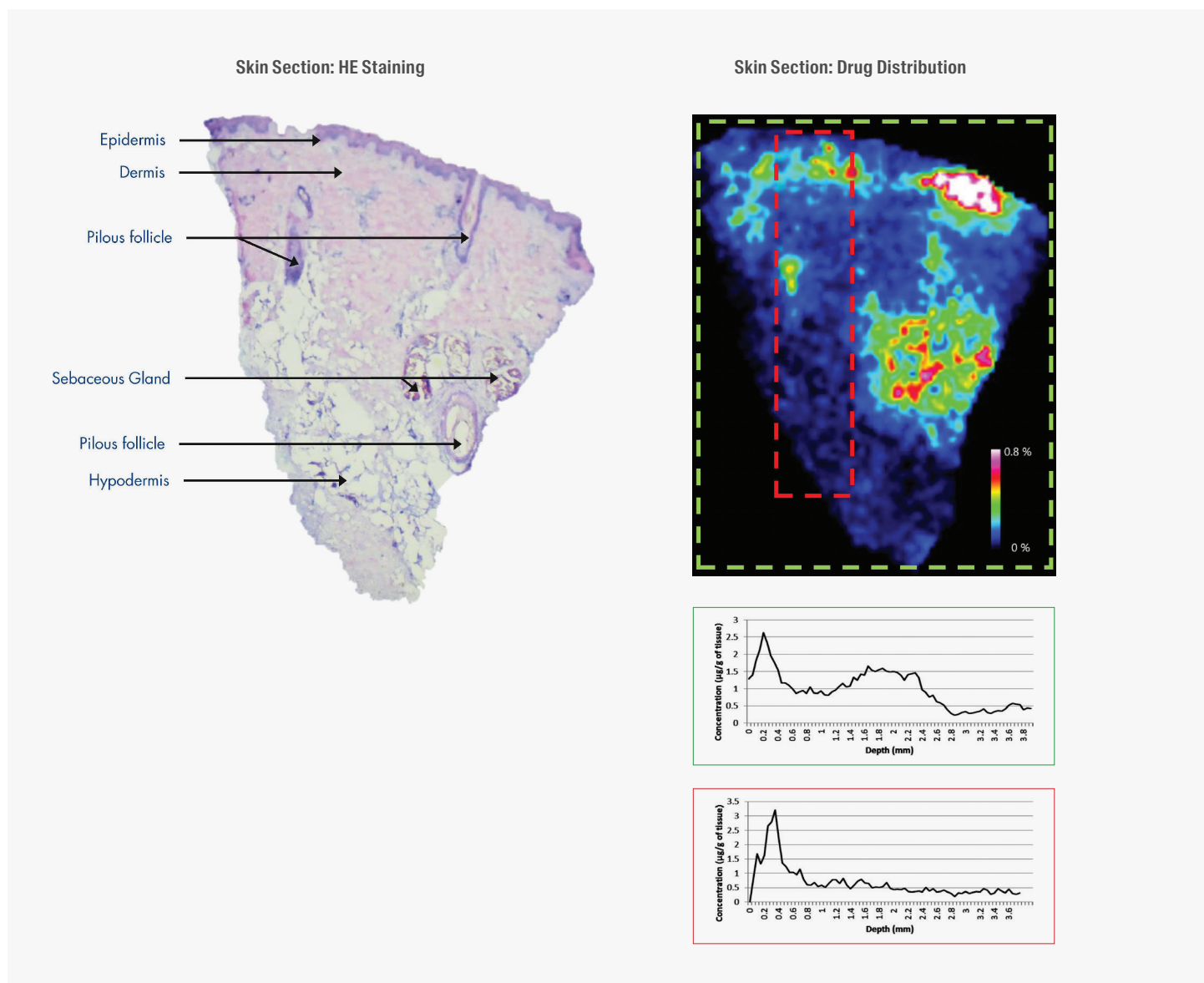
False positive risk without the imaging dimension!



ROI	HISTOLOGICAL REGION	CONCENTRATION (ng/g OF TISSUE)
1	Stratum corneum	1500
2	Epidermis	1200
3*	Dermis	nd

- Avoid false positive due to punch contamination and Franz cell systems (85%) with imaging
- Possibility to focus on histological features

Penetration profiling & penetration pathway



Analytical and Bioanalytical Chemistry
<https://doi.org/10.1007/s00216-018-0964-3>

RESEARCH PAPER



MALDI imaging facilitates new topical drug development process by determining quantitative skin distribution profiles

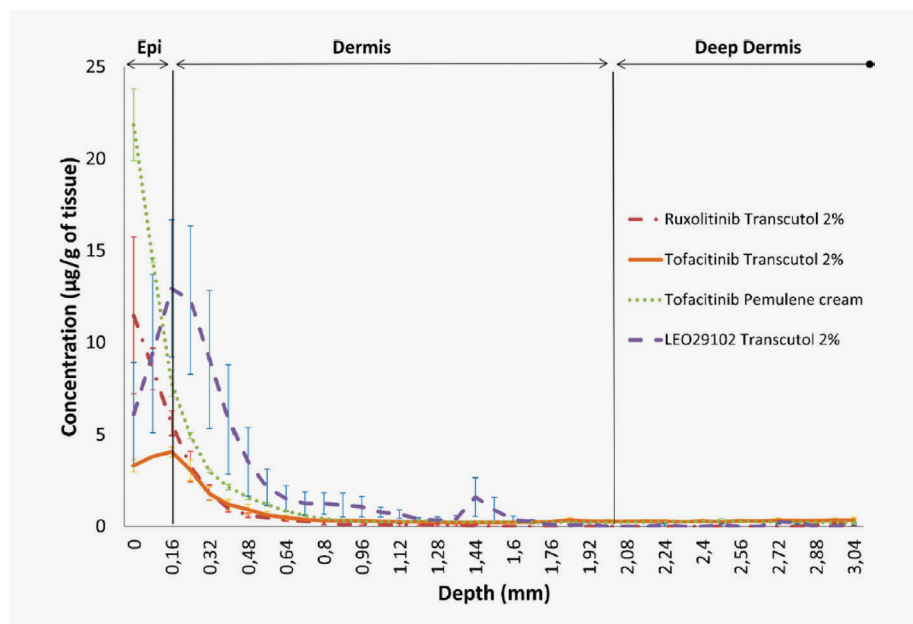
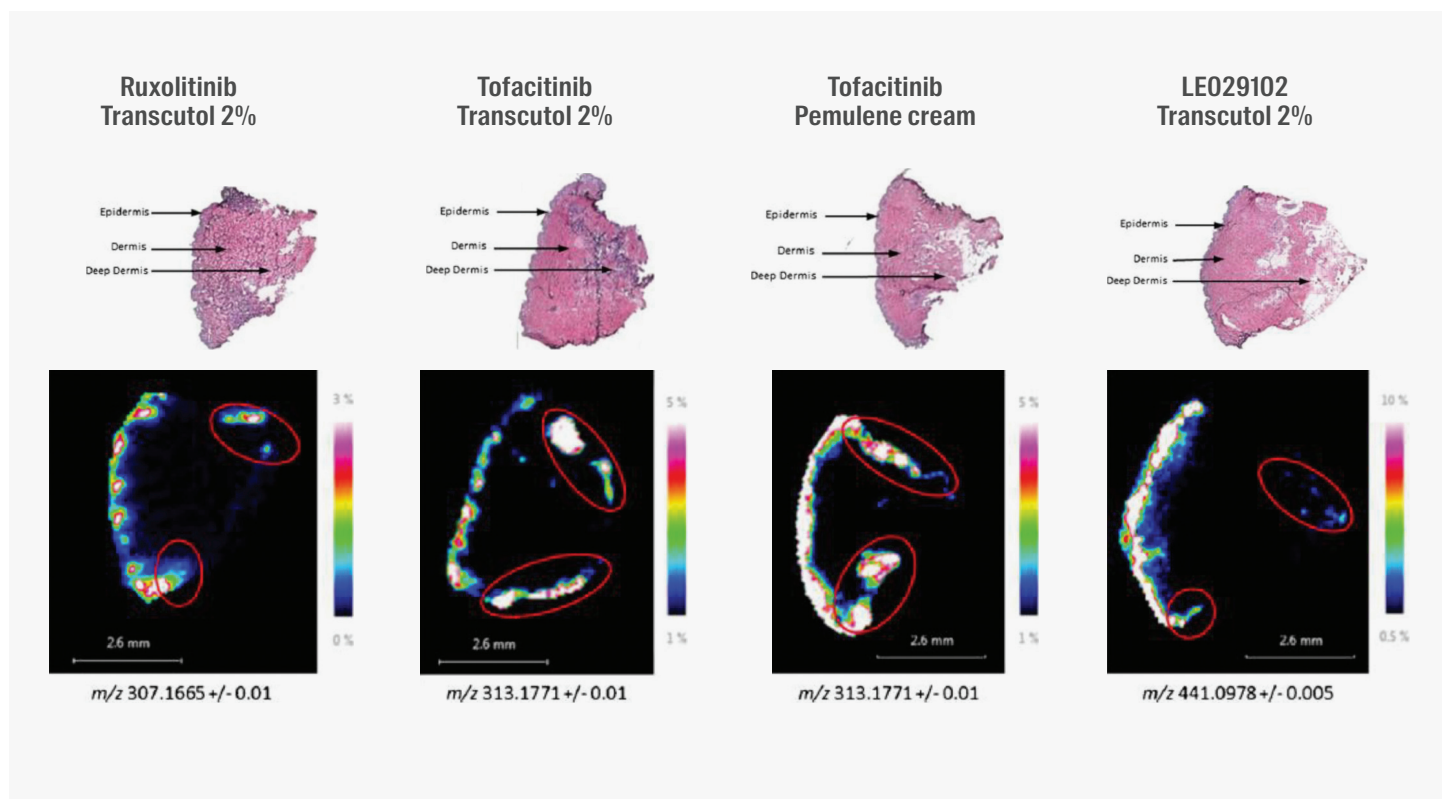
David Bonnel¹ ■ Raphaël Legouffe¹ ■ André H. Eriksson³ ■ Rasmus W. Mortensen³
 Fabien Pamelard¹ ■ Jonathan Stauber^{1,2} ■ Kim T. Nielsen³

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How to compare the impact of different formulations on skin permeability?

How to compare drug penetration through skin tissues?

Penetration profiling & penetration pathway



First layers of the dermis region, all compounds penetrates

LEO29102 shows the deepest penetration in the dermis (removal punch contamination)

Tofacitinib in the dermis > with Pemulene cream than the transcutol 2%

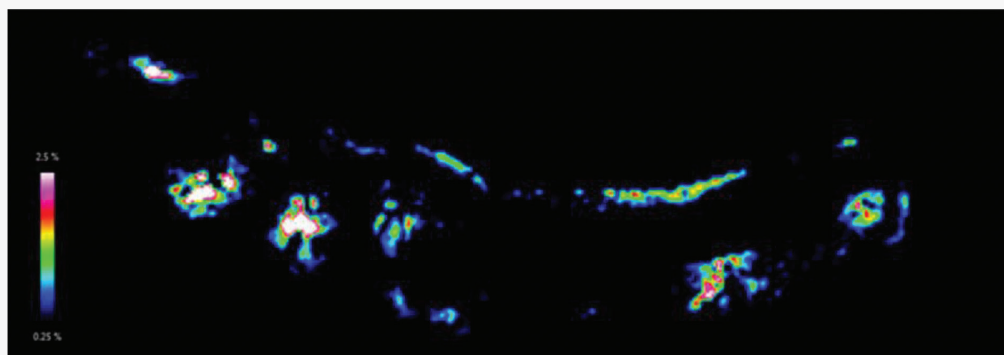
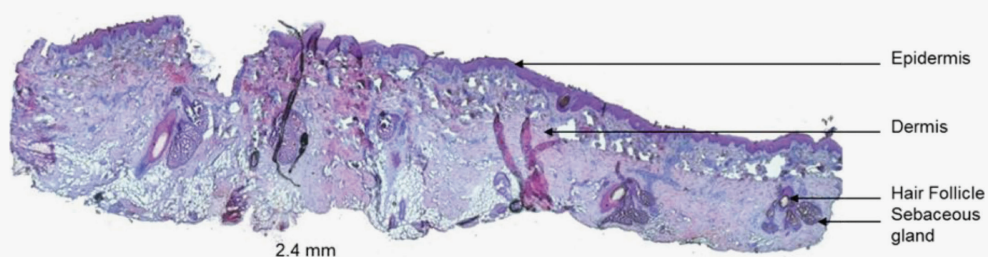
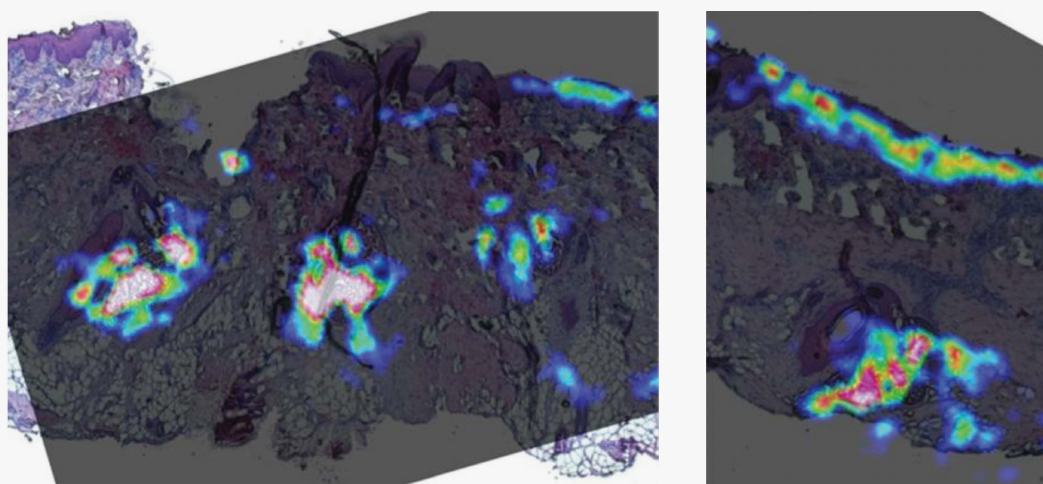
Target exposure

Inhibition of Sebum Production with the Acetyl Coenzyme A Carboxylase Inhibitor Olumacostat Glasaretil

David W. Hunt ^{1,5} ■ Geoffrey C. Winters ² ■ Roger W. Brownsey ³ ■ Jerzy E. Kulpa ³
Kathryn L. Gilliland ⁴ ■ Diane M. Thiboutot ⁴ ■ and Hans E. Hofland ¹



Journal of Investigative Dermatology (2017) 137, 1415 - 1423; doi:10.1016/j.jid.2016.12.031

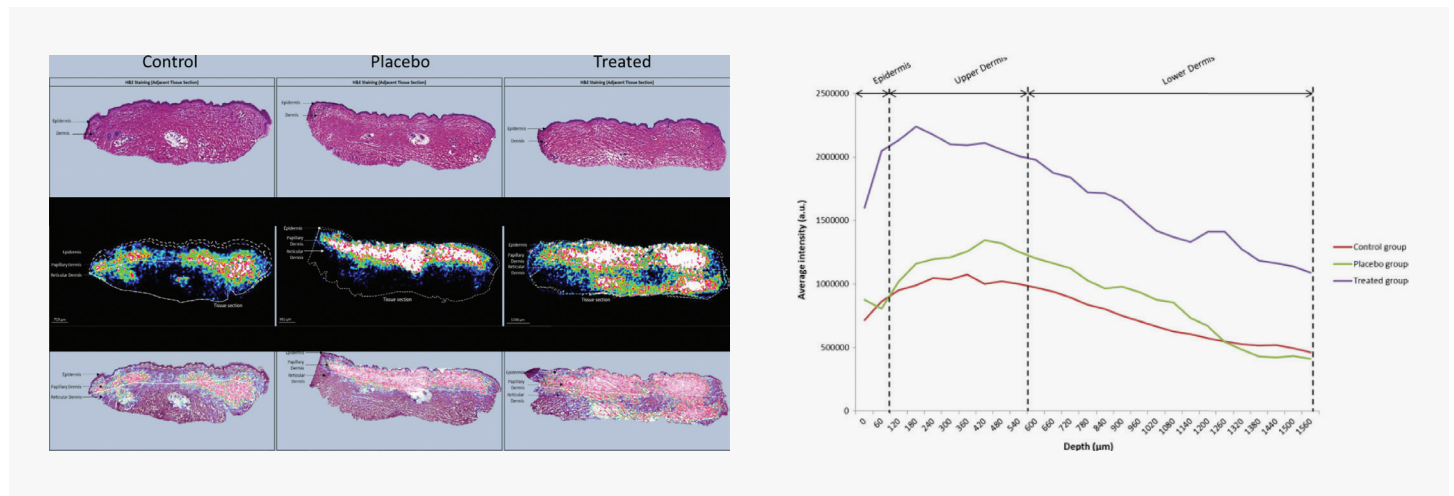


Hyaluronic Acid by QMSI

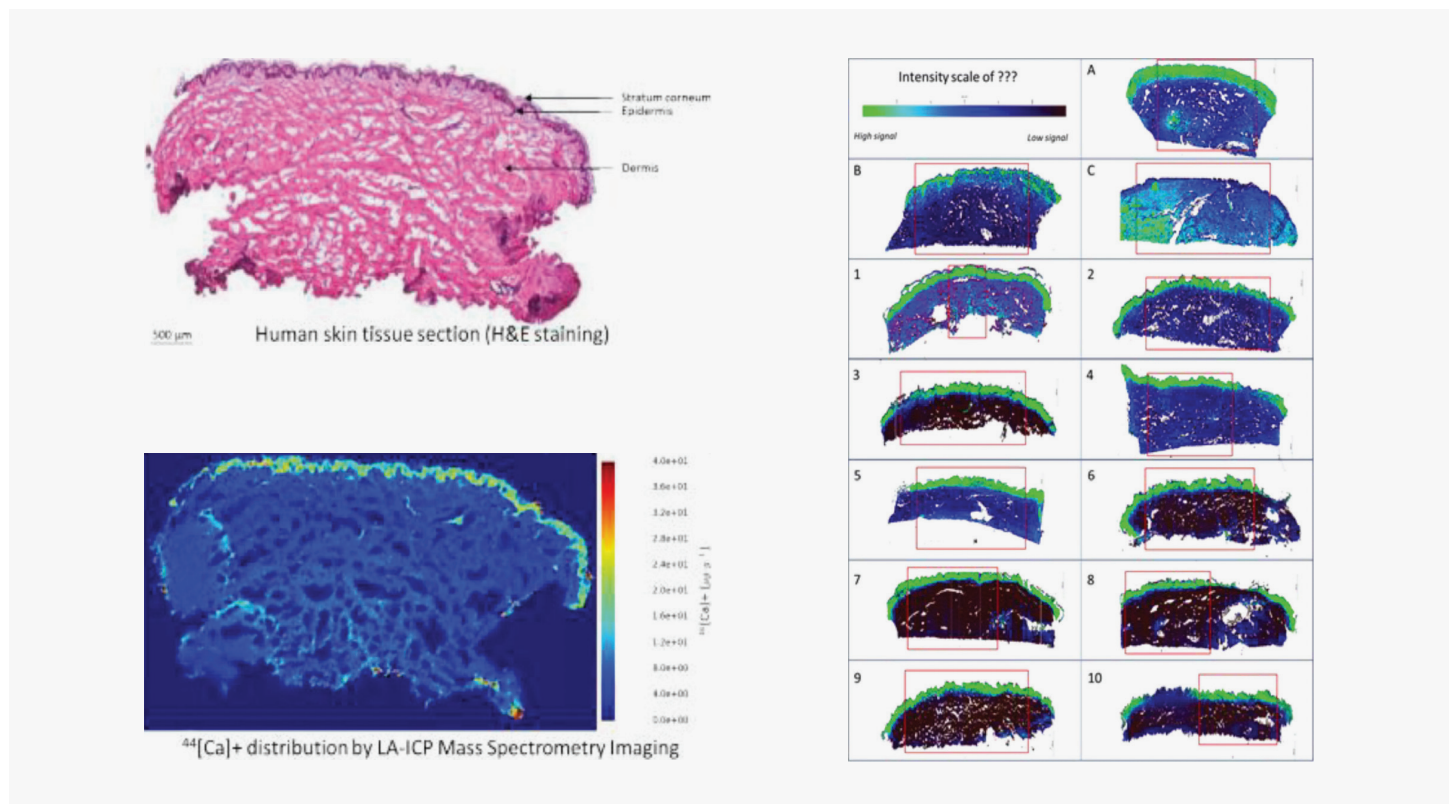
Hyaluronic acid detection and relative quantification by mass spectrometry imaging in human skin tissues

Raphael Legouffe¹ ■ Olivier Jeanneton² ■ Mathieu Gaudin¹ ■ Aurore Tomezyk¹ ■ Amandine Gerstenberg¹
 Marc Dumas² ■ Catherine Heuséle² ■ David Bonnel¹ ■ Jonathan Stauber³ ■ Sylvianne Schnebert²

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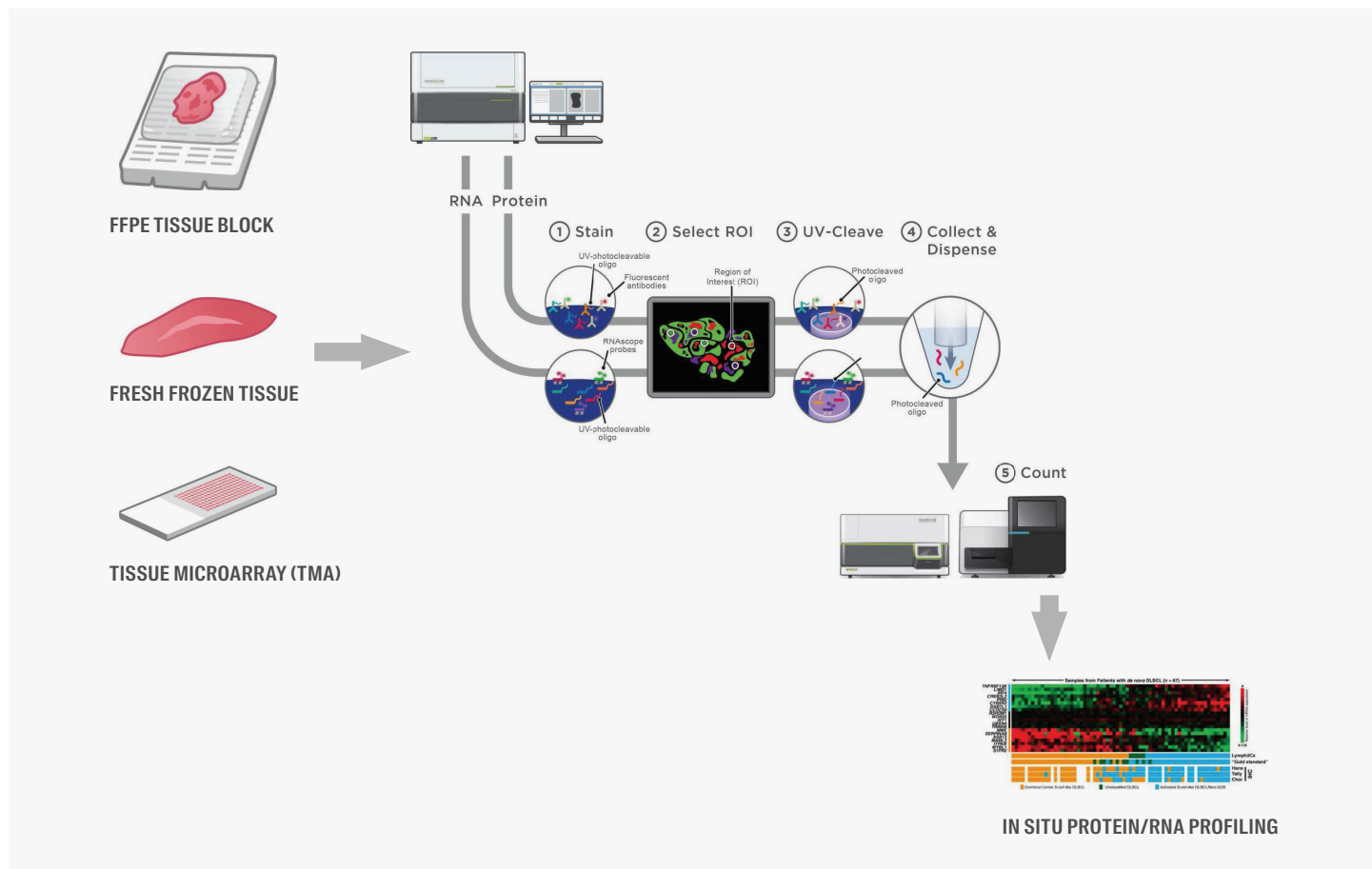


Elemental Imaging by QMSI



Multiplex in situ profiling

- Up to 100 protein markers or 20,000 genes on a single tissue section
- Able to customize your panels
- In situ profiling of RNA, proteins, or both



- Imaging Mass Cytometry platform
- Up to 40 protein markers on a single tissue section
- Able to tag your own antibody with a metal and image distribution
- Image Segmentation
- Statistical analysis to perform the identification of cell subpopulations within the tissue structure



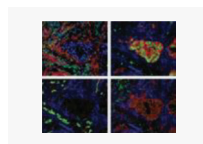
Design
panels using
pathologist-verified
Maxpar antibodies
conjugated to
metal tags.



Stain
tissues (FFPE or
frozen) or fixed
cells using familiar
IHC protocols.



Image
protein markers
at subcellular
resolution using
the Hyperion
Imaging System.

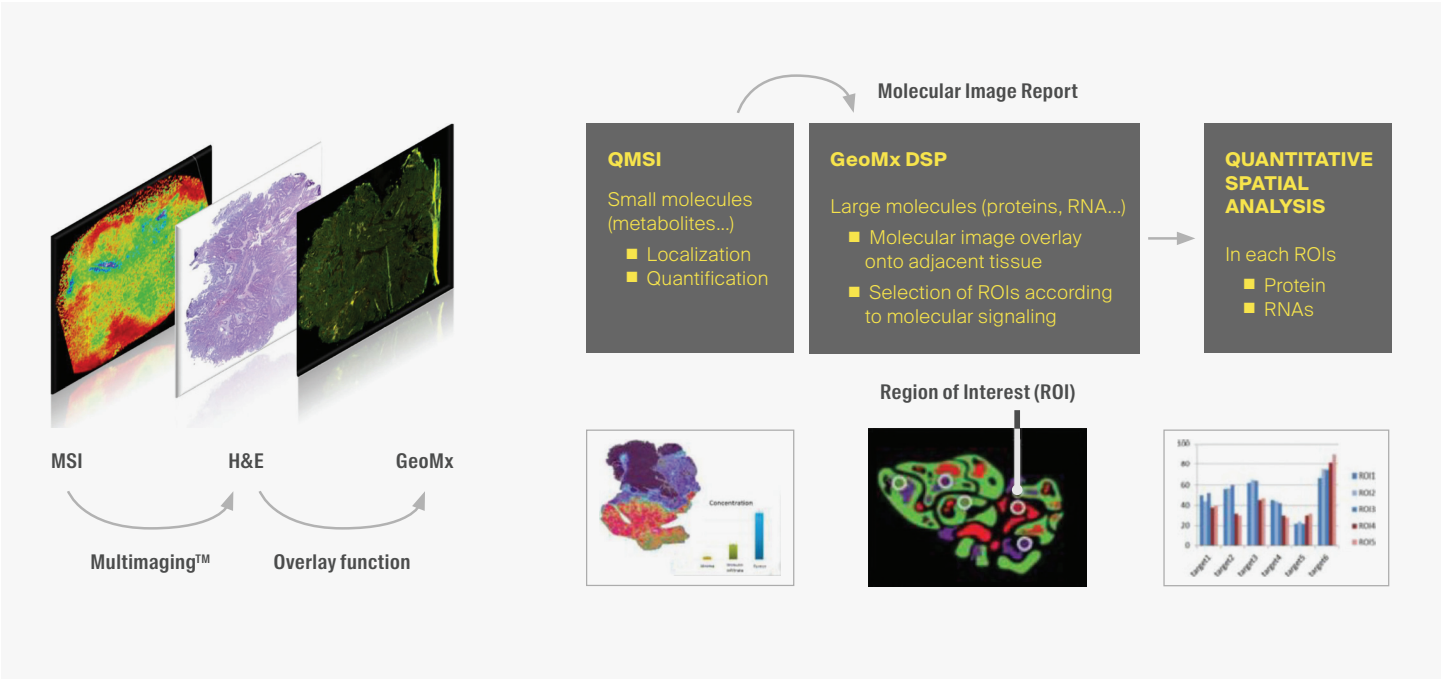


Analyze
images in minutes
using the MCD
Viewer and
easily export for
secondary analysis.

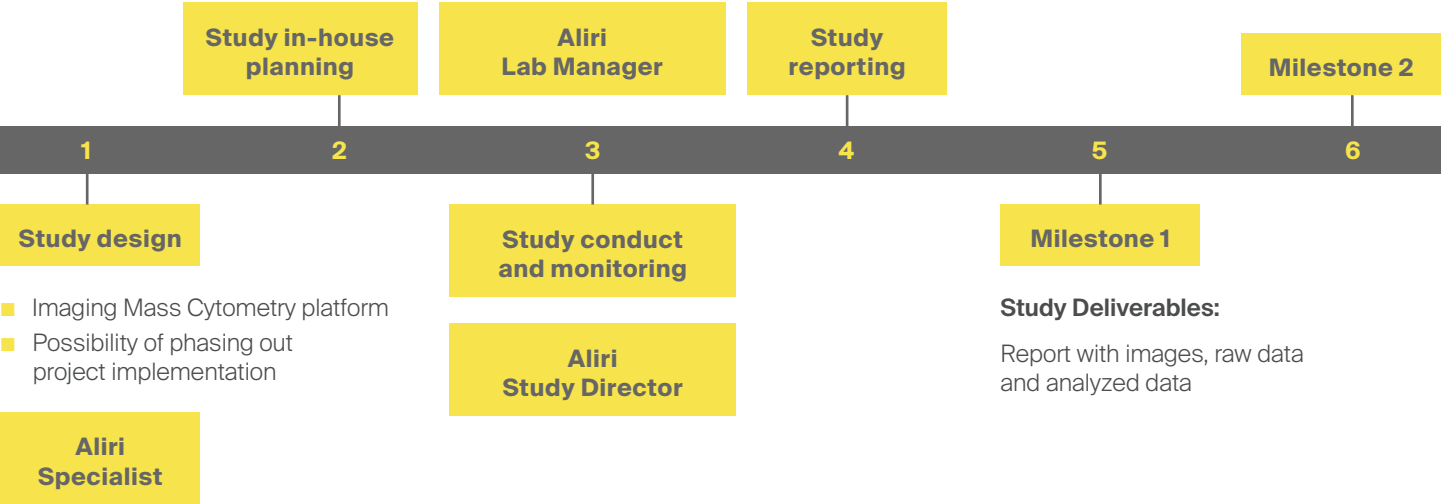
**Able to visualize and
quantify distribution
of markers with 1µm
spatial resolution**

**Phenotyping and
cellular interaction
driven by Region of
Interest selection**

Platforms combinations



Study Outline



[Contact us](#) for more information.



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data for **life** >