

COMET™

High-throughput hyperplex
immunofluorescence made easy.



Accelerating Spatial Biology

PD-1 Tryptase Ki67 Granzyme B CD8

100 µm

A multiplexed image of tonsil sample (human FFPE) stained with a panel of 40 markers, 5 are shown here.



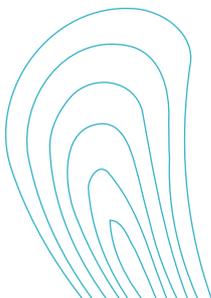
Spatial biology, the next frontier in life sciences

Extracting molecular and cellular information from tissues is critical to answer some of the underlying questions of complex diseases. Spatial biology redefines how this information can be contextualized on a map, adding a new dimension to assess co-expression or interactions between cells and their microenvironment.

The access to spatial information allows for a dramatic improvement in the comprehension of disease pathology in areas such as immuno-oncology, neuroscience and infectious diseases.

Today, barriers such as time requirements and complexity prevent the wide adoption of spatial biology in translational and clinical research. With Lunaphore's innovative chip technology, it is possible to elegantly transform any simple assay into multiplex spatial biology.

**Discover how Lunaphore
is enabling spatial biology
in any laboratory.**





From discovery to clinical research

Tissue Profiling



Sample in-spatial insight out

Acquire the immune profiles of your tissues. Assess region-to-region and cell-to-cell interaction seamlessly.



Biomarker discovery and validation



From hypothesis to screening results

Increase your chances of successful biomarker identification with multiplexing: Identify new biomarkers with potential prognostic value or involved in immune treatment response.



Differential Treatment Evaluation



From biomarkers to actionable results

Evaluate treatment impact on patient responsiveness or validate the effects of therapies on the immune environment.



We lower barriers of adoption

Learn how Lunaphore can enable spatial biology in your lab, even without prior knowledge. We support you every step of the way in setting up tissue staining and analysis workflows.

Simplify your work dramatically

Build new assays starting from optimized panels and add your validated, non-conjugated antibodies.



Integrate spatial biology with ease

Set up a scalable, fast, precision technology with training and guidance.



COMET™: HIGH-THROUGHPUT HYPERPLEX IMMUNOFLUORESCENCE MADE EASY.

“Lunaphore’s solution is intuitive and flexible: we were able to work up a 30-plex immunofluorescence panel using our existing primary antibodies over a number of weeks. The data we generated provided us with a spatial, high-dimensional overview of immune infiltrate in COVID-19 placentitis as well as insight into the processes driving the pathology.”

DAPI CD68 Vimentin SARS SMA CK

A multiplex image of a SARS-CoV-2 infected placenta sample (human FFPE).
The panel includes 24 markers; 6 of them are shown here.

Dr. Matthew Pugh
Institute of Immunology and
Immunotherapy
University of Birmingham

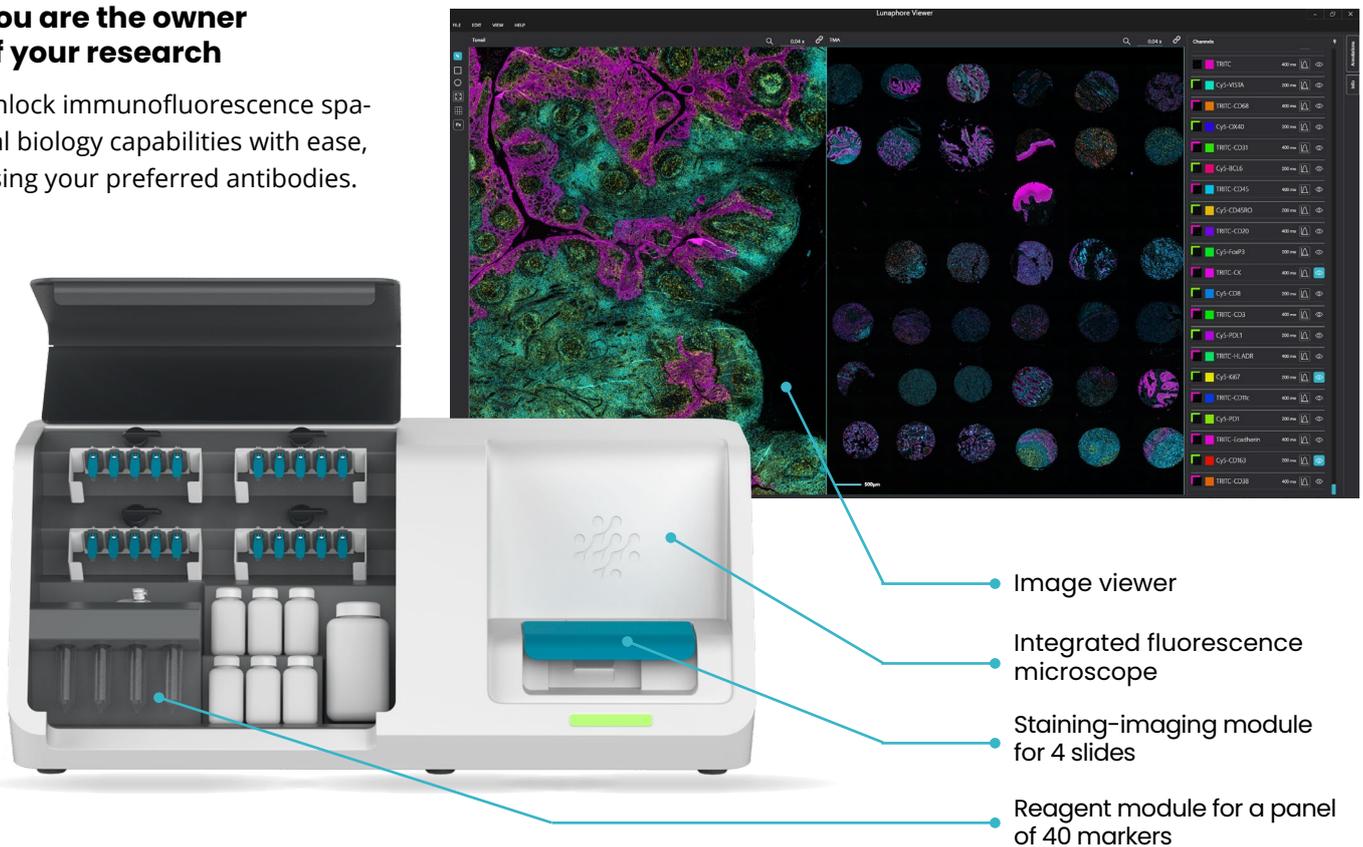
100 µm



Meet **COMET™** – the first **all-in-one,** **rapid hyperplex solution**

You are the owner of your research

Unlock immunofluorescence spatial biology capabilities with ease, using your preferred antibodies.



- Image viewer
- Integrated fluorescence microscope
- Staining–imaging module for 4 slides
- Reagent module for a panel of 40 markers

Instrument Specifications

Same day **sample-in** → **image-out**

Application	Multiplex sequential immunofluorescence (Multiplex SeqIF™)
Maximum plex level	40
Slide capacity	4
Staining technology	Patented microfluidic FFeX™ technology
Automation level	Fully automated: staining, image acquisition, stacking
Microscope objective	20X
Imaging area	9 x 9 mm ²
Slides	Compatible with standard histology slides - 75 x 25 mm, 1 mm thick
Sample compatibility	Optimized protocols available for FFPE samples System compatible with frozen sections
Software suite	COMET™ Control Software - For instrument operation Lunaphore Viewer - For image visualization and export



Hyperplex spatial biology made easy

Discover how COMET™ enables hyperplex analysis in your lab.

High-throughput hyperplex



Use your non-conjugated antibodies



Full-stack solution



How many slides can I process per week?

COMET™ is designed to deliver maximum throughput for high-plex assays:

- ✓ Up to 40 markers in one automated run, on multiple slides.
- ✓ Average turnaround time of 40 minutes every 2 markers.
- ✓ 20 slides of 20-plex per week.

How can I perform multiplex assays using my current antibodies?

- ✓ The sequential immunostaining approach of COMET™ permits the use of any non-conjugated primary antibody.
- ✓ Use your validated library of antibodies and achieve hyperplex assays in days.
- ✓ Save time leveraging Lunaphore's modular pre-optimized panels and add new markers easily.

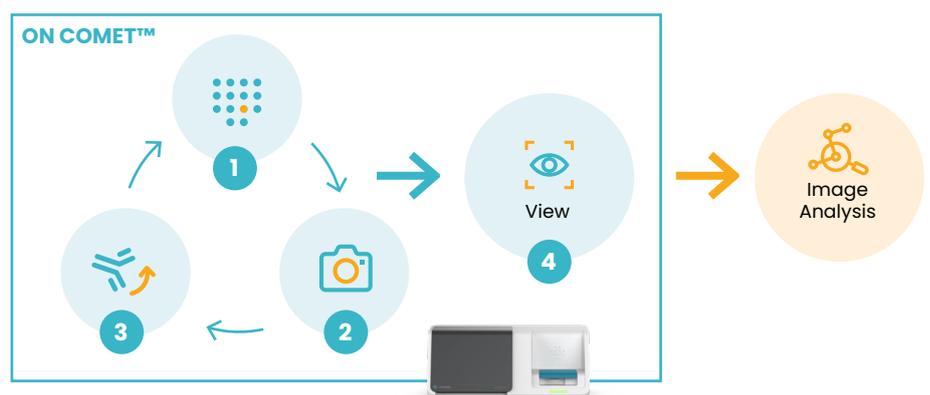
Which steps of the protocol are automated on COMET™?

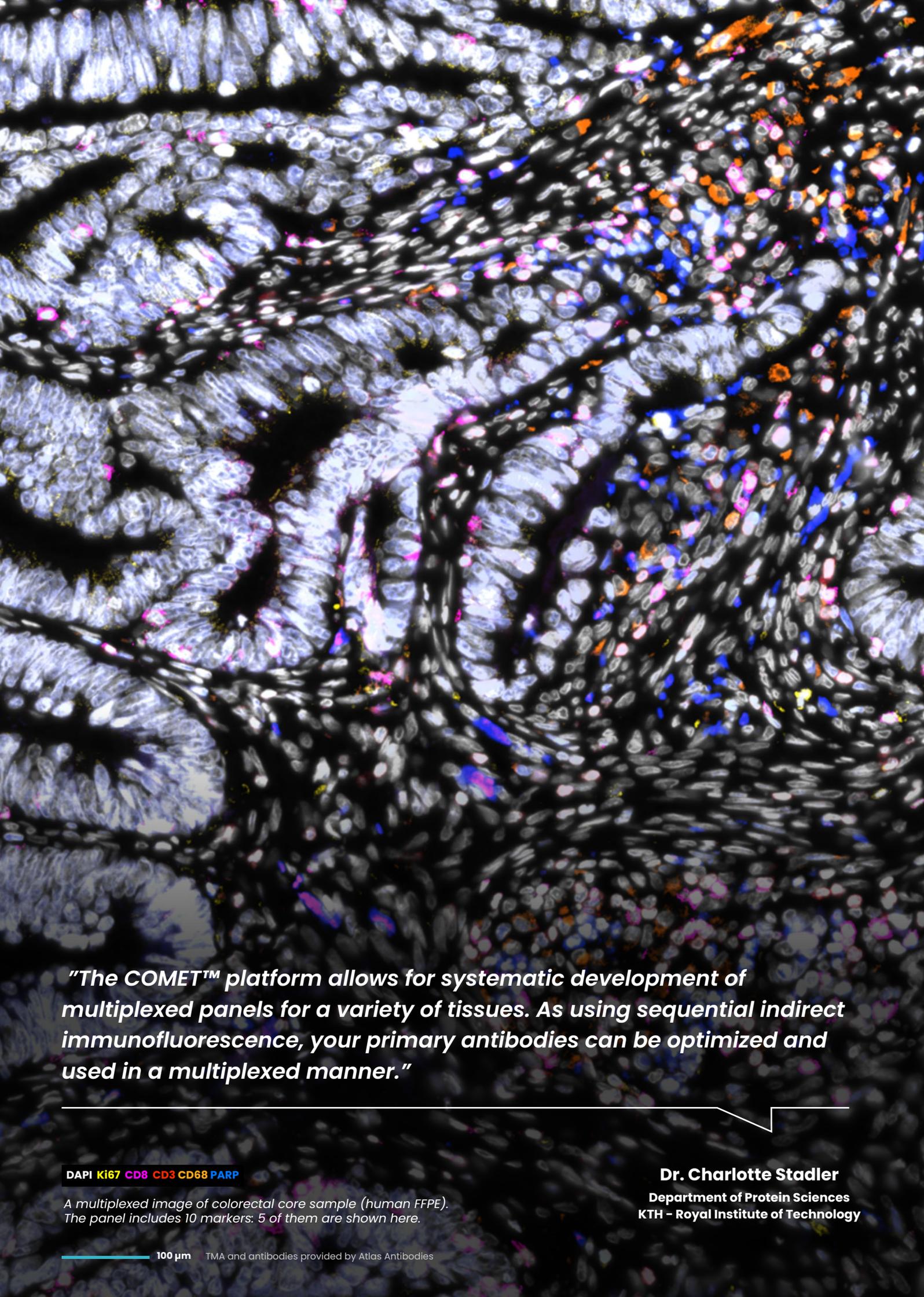
- ✓ COMET™ enables full staining and imaging automation on 4 slides.
- ✓ After loading the slides the user can walk away. The acquired images are already accessible during the protocol run.

The COMET™ workflow

The instrument's highly multiplexed immunofluorescence assays consist of protocols of sequential immunofluorescence: repeated cycles of staining, imaging and elution followed by an automated stacking of the images.

- 1 Slides are stained in the stainer module.
- 2 The integrated microscope acquires the image through the Imaging Chip.
- 3 The signal is then removed with a dedicated elution buffer and a non-destructive temperature cycle.
- 4 Images are automatically stacked together to be viewed and exported.





“The COMET™ platform allows for systematic development of multiplexed panels for a variety of tissues. As using sequential indirect immunofluorescence, your primary antibodies can be optimized and used in a multiplexed manner.”

DAPI Ki67 CD8 CD3 CD68 PARP

A multiplexed image of colorectal core sample (human FFPE).
The panel includes 10 markers: 5 of them are shown here.

Dr. Charlotte Stadler
Department of Protein Sciences
KTH - Royal Institute of Technology

Available as of today through a Priority Access Program

Join our next VIRTUAL DEMO



Scan the QR code to see the next dates for a COMET™ virtual demo. You will be able to join our scientists in the lab, see them operate the instrument live, and ask questions.

Service Lab

If you are interested in the COMET™ platform, our Service Lab is the solution to generate cost- and time-efficient proof-of-principle data using your samples and reagents.

Learn more at: lunaphore.com/service-lab

Talk to our scientists

Discover how we can help you bring hyperplex spatial biology to your lab and learn more about our Priority Access Program.

Send your request to info@lunaphore.com. Our team will be happy to support you.

Browse our Resources

Access our bibliography, technical notes, markers library and much more by visiting our Resource Center.

Learn more at: lunaphore.com/resource-center



COMET™ will be for Research Use Only.
Pilot units now available through a Priority Access Program.