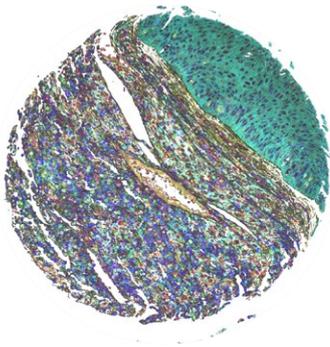


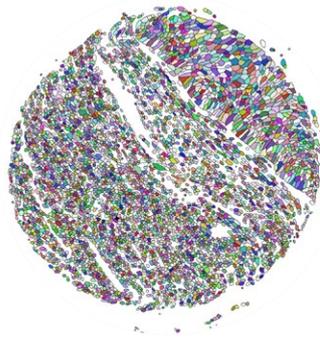
AI-powered cloud platform for cancer research and development

edge

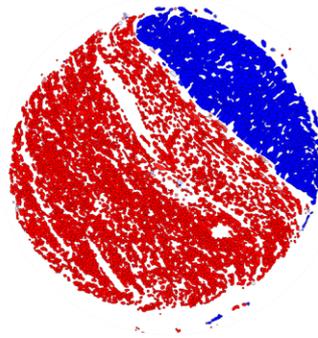
One-click hi-plex tissue analysis for spatial biology: transforming immuno-oncology, biomarker discovery and drug development



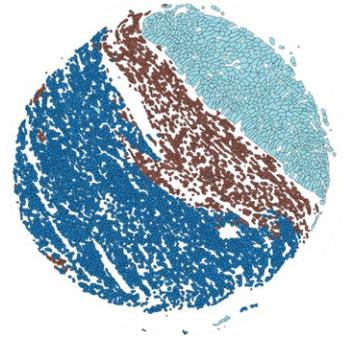
Original hi-plex image



Whole-cell segmentation
StarFlow



Marker positivity
MarkSense



Spatially-aware clustering
MorphoLeiden

Spatial biology at its best

Simplify your spatial biology workflow with Katana Edge

Introducing Katana Edge, the cloud-based platform for spatial biology that simplifies hi-plex image analysis. Our **end-to-end automated image analysis** and user-friendly interface empower you to visualize, explore, and analyze hi-plex whole slide images with unparalleled clarity and precision.

At its core, Katana Edge features **best-in-class whole-cell segmentation**, ensuring accurate and reliable analysis along with in-depth quantification of essential cell features, including fluorescence intensities and morphologies.

Visualize, assess, and share large-scale hi-plex whole slide images and analysis results through our easy-to-use web browser interface. Our **LLM-powered data chat interface** equips users at all technical skill levels to perform advanced exploratory and spatial data analyses, unlocking the full potential of your research.

With **integrated collaborative tools**, Katana Edge empowers spatial biology teams in CROs, pharmaceutical companies, and academic settings to annotate, analyze, and discuss results in real-time, fostering seamless and effective teamwork – **anywhere, anytime**.

Works with your familiar instruments and image formats

Edge supports a wide range of spatial proteomics image formats from various devices. These include **ultra-hi-plex images** (100+ channels), **high dynamic range** (HDR), **pyramidal whole slide images** (multiple gigapixel) and **very large files** (100+ GB).

Currently supported platforms include:

- **PhenoImager** from Akoya Biosciences
- **MACSima** from Miltenyi Biotec
- **CellScape** from Bruker Spatial Biology
- **COMET** from Lunaphore
- **MIBIScope** from Ionpath

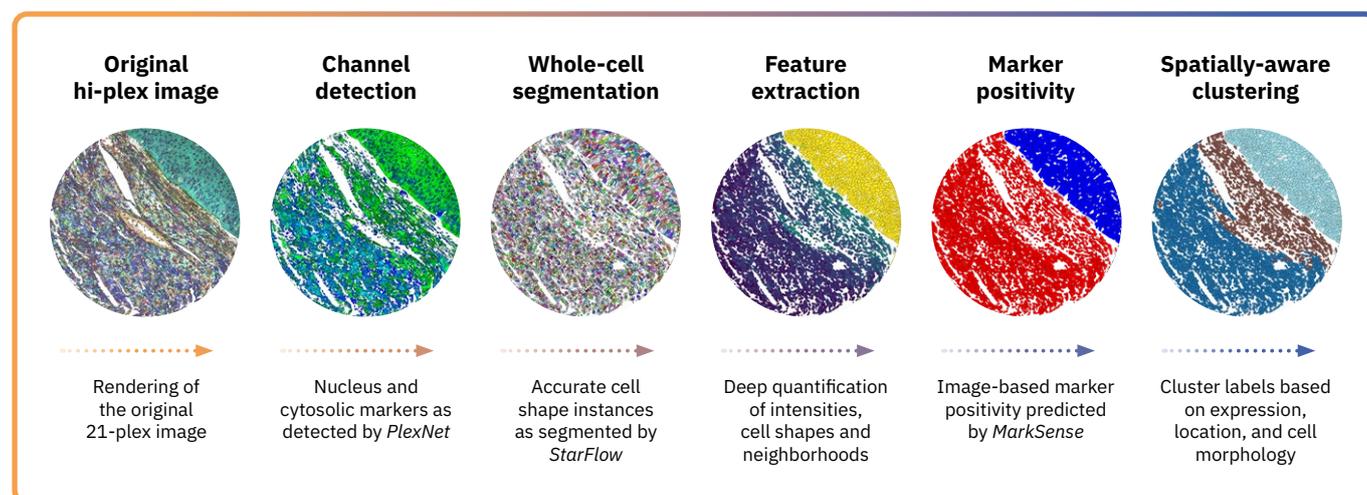
Support for other platforms is coming soon.

End-to-end automation for hi-plex image analysis

Edge automates the whole image analysis workflow, applying innovative AI-powered image analysis solutions while avoiding the need for elaborate configuration or manual tinkering.

After uploading, the data format, image resolution and channels are automatically detected and converted. Our AI-powered algorithm *PlexNet* automatically **discovers relevant channels** for nucleus and

cell segmentation. *StarFlow*, our best-in-class whole-cell segmentation (Figure 1) **provides accurate cell segmentations** that are used for in-depth cell quantification to extract cellular features. Besides quantification, our innovative *MarkSense* model **predicts marker positivity** directly from the images. Finally, cells can be phenotyped using our *MorphoLeiden* algorithm that provides **cell-shape-aware clustering**. Edge provides accurate results, **simple and fast**.



Best-in-class whole-cell segmentation to make your results count

Accurately segmenting cell shapes is crucial for reliable single-cell measurements and strongly affects downstream analyses such as phenotyping. However, the naive approach of nucleus expansion, whereby cell shape is approximated by dilation using a fixed radius, is still common practice.

Katana Edge performs whole-cell segmentation using *StarFlow*, the best-in-class AI model for cell segmentation. *StarFlow* is based on *StarDist*, the well-

known nucleus segmentation algorithm that was developed by the Katana team. *StarDist* reliably predicts star-convex shapes – our *StarFlow* algorithm adds flow-based shape refinement to accurately predict complex cell shapes.

As shown in **Figure 1**, *StarFlow* provides accurate shape predictions in both dense and sparse regions, in presence and absence of cytosolic staining, for a wide range of cell sizes and complex shapes.

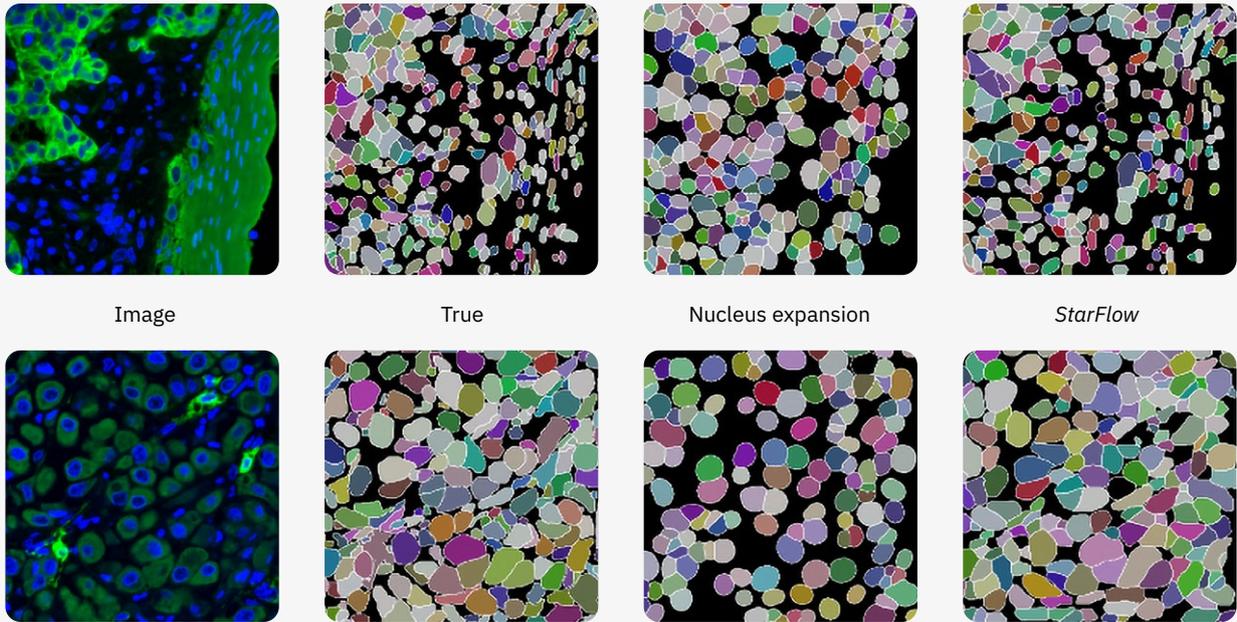
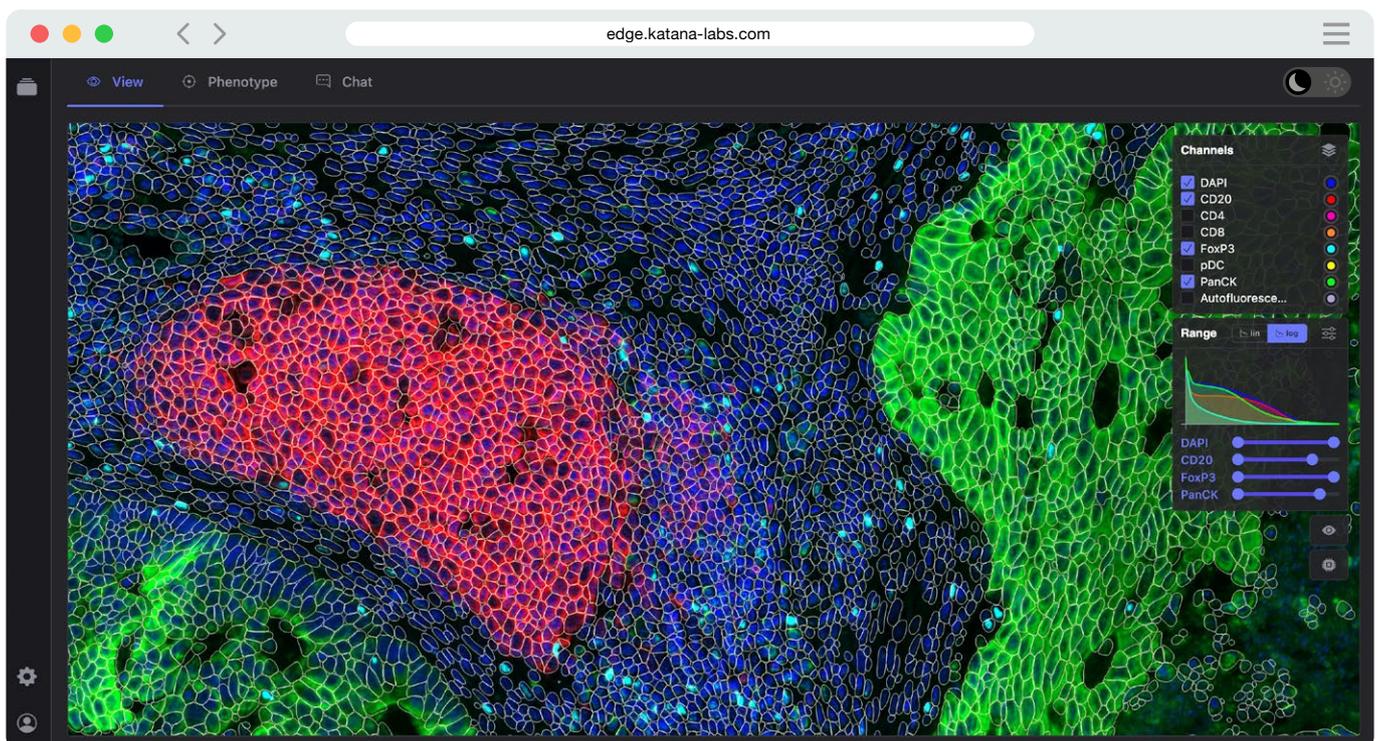


Figure 1: *StarFlow* accurately predicts cell shapes and vastly outperforms conventional segmentation based on nucleus expansion (images and annotations from Aleynick et al. 2023).

Katana Edge: the cloud platform for intuitive data visualization and seamless collaboration

Katana Edge provides a streamlined solution to view, segment, analyze, and share images **directly from your web browser**. No need to concern yourself with infrastructure; we manage all necessary **compute, GPUs, networks, and storage**. Experience instant access to your projects, ensuring a smooth workflow without installation or configuration.

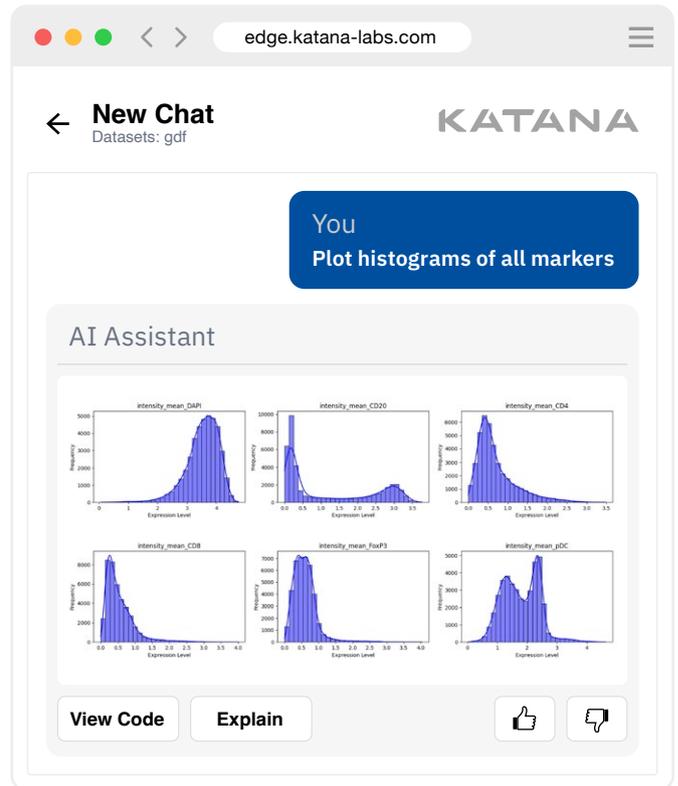
With **global reach**, you can connect from any location at any time, facilitating collaboration like never before. Additionally, you will benefit from **continuous updates**, ensuring that you always have the latest features readily available. Embrace a new benchmark of convenience and efficiency in your spatial biology workflows.



Chat with your data: LLM-powered data analytics for everyone

Edge provides an innovative LLM-powered data chat. This allows users to perform exploratory data analytics regardless of their technical skill level.

-  **Effortless:** Explore your data with ease using natural language.
-  **Flexible:** View and transform data, calculate metrics, create plots.
-  **Secure:** Only metadata are processed by LLM while your data is kept safe and secure.
-  **Transparent:** Review the Python code that generated your responses, ensuring clarity and understanding.
-  **Integrated:** Enhance your data workflow by exporting your chats as Jupyter notebooks for further analysis.



Simplify your spatial biology workflow

- ▶ **Upload**
- ▶ **Visualize**
- ▶ **Analyze**
- ▶ **Share**
- ▶ **Download**

Effortless uploads:
Upload large 100+ GB files directly through your web browser.

Resume anytime:
Seamlessly resume unfinished uploads.

Secure storage:
Safeguard your data with reliable cloud storage solutions.

High-quality image viewing:
View hi-plex whole slide images right in your web browser.

HDR support:
Enjoy 16-bit high dynamic range for exceptional image clarity.

Insightful:
Overlay cell segmentation and quantification results for enhanced analysis.

In-depth insights:
Gain comprehensive results from end-to-end image analysis to drive informed decisions.

Integrated data chat:
Utilize a powerful chat app for intuitive data exploration.

Interactive dashboard:
Perform manual bivariate gating in an interactive dashboard.

Share with precision:
Create deep links that store exact view settings for easy reference.

Effortless sharing:
Share links and analysis results effortlessly with your colleagues for enhanced teamwork.

Annotate with ease:
Create and annotate regions of interest to highlight key findings collaboratively.

Own your results:
Download your results of cell segmentation and deep quantification.

Integrated workflows:
Start analysis in the cloud and continue locally using your favorite tools.

Common data formats:
Convert results into common data format for further analysis such as csv, anndata, fcs, tif.

Get in touch

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AI-powered cloud platform for cancer research and development