Going beyond bioinformatics

Our deep expertise in bioinformatics, machine learning, AI and software engineering enables us to develop optimal data analysis strategies that cover the full breadth of MSI applications. We leverage our team's multifaceted skills and knowledge to provide robust, reusable tools that streamline your critical data analysis workflows.

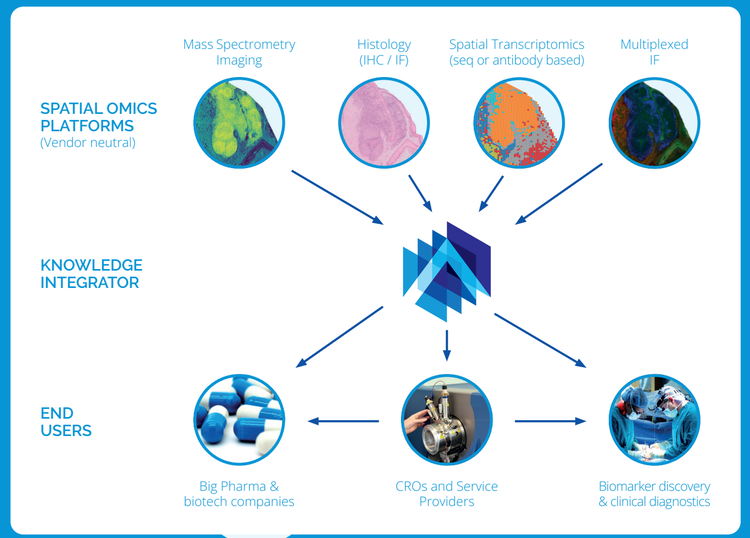
Aspect Analytics bridges the gap between algorithmic development in bioinformatics research and enterprise-grade software platforms to support key data analysis for spatial biology- based applications. We are convinced that dedicated software tools are pivotal unleashing the full potential of MSI and spatial multi-omics analyses.

State-of-the-art data analysis

- Advanced machine learning, AI and statistical approaches.
- Scalable towards large experiments and analyses across many tissues.
- Vendor neutral.

Streamlined workflows for standardized applications

- Optimal selection of algorithms per application.
- Dedicated UI for team members based on expertise and responsibilities.
- Built-in quality control, automation & guidance during data analysis.



Aspect Analytics

BEYOND BIOINFORMATICS

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company/aspectanalytics /AspectAnalytics **#AI4MSI**

Spatial Multi-Omics

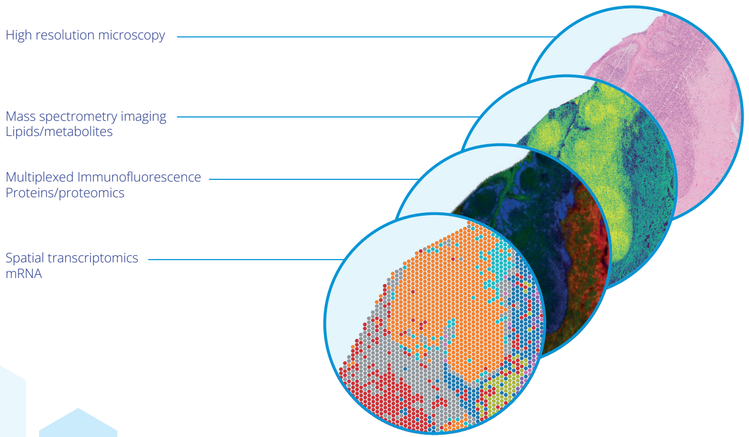
Put simply, tissues and organs are not a random collection of cells that operate in isolation! They are highly organized to facilitate specific functions, and this organization is disturbed in diseases, e.g. fibrotic scarring in cirrhosis or during tumor growth. It is necessary to know what cells are present and their spatial relationships to understand biological systems in health and disease.

Spatial multi-omics combines two research spearheads: spatial analysis of cells and tissues using various imaging techniques and multiple omics approaches to assess molecular composition. This analysis is now becoming a reality due to technological advances which enable spatial read-outs of various classes of biomolecules, including mass spectrometry imaging, multiplexed immunofluorescence and in-situ sequencing.

Proven capabilities for multimodal multi-omics integration

Since our inception, Aspect Analytics has been developing state-of-the-art software solutions to process rich spatial data. We are perfectly poised to be your partner for integrating different types of spatial multi-omic analyses.

- Proficiency in designing and producing scalable methods for large datasets.
- Interactive, non-rigid image registration between spatial omics modalities.
- Extensible design for multidisciplinary data integration.
- Experience in creating highly interactive visualizations of complex multidimensional data and holistic molecular atlases.



Platform solution

Aspect Analytics delivers enterprise-grade solutions that truly empower your lab and collaborators. Our software unifies all MSI data-related tasks into a single, streamlined workflow, ranging from data storage and analysis up to efficient reporting towards downstream stakeholders.

Modern, future-proof software architecture

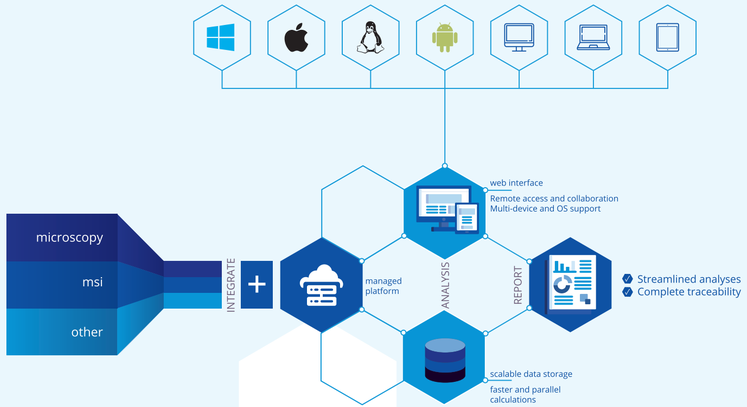
- Scalable by design to support large, high-throughput data analyses.
- Web-based, enabling remote data analysis / collaboration / trainings.
- Best-in-class cyber security and cryptographic routines.

Comprehensive, integrated solution

- Data storage and management, including traceability and auditing features.
- User management, access control and team management.
- Hosted IT infrastructure — no expertise or maintenance required on your end!

Manage and leverage experimental metadata

- Sort, store and organize all experiment data based on in-depth analytical metadata. - e.g., specific protocols, instrument settings, ...
- Track wet-laboratory tasks and analytical workflows for QC purposes.
- Define roles and permissions to enable easier collaboration across project member laboratories and locations.



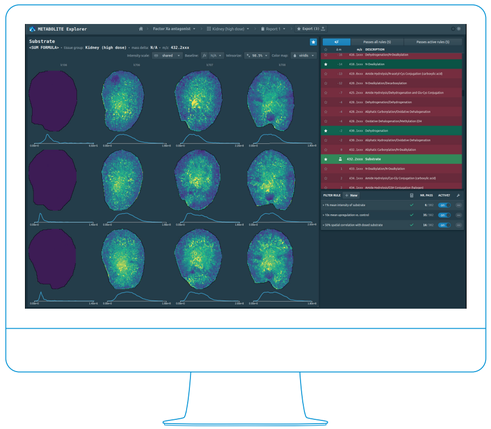
Custom development

Software solution to your problem not offered? We also offer custom development to fully address the specific challenges inherent to your applications. Tailored workflows maximize the insights gained from your experiments, streamline the entire data analysis process and optimize human operator time. Furthermore, we can provide seamless integration with your existing systems, including other omics or imaging modalities, lab information management software and more.

Our custom development can draw upon the modular and API-driven design of our existing components, which enables (i) rapid development of custom data analysis pipelines and (ii) integration with the external software you currently use.

An example of our custom development

Metabolite Explorer is a solution co-developed with a large pharmaceutical company, to streamline metabolite screening from mass spectrometry imaging experiments. Experimental metadata is leveraged to define flexible filter rules and enables automated generation of structured reports of retained candidates. The tool natively supports panels of tissues and accounts for information such as compound dosage levels, technical replicates and more.



Curious about our custom development projects?
Check out our Application Notes for more details.