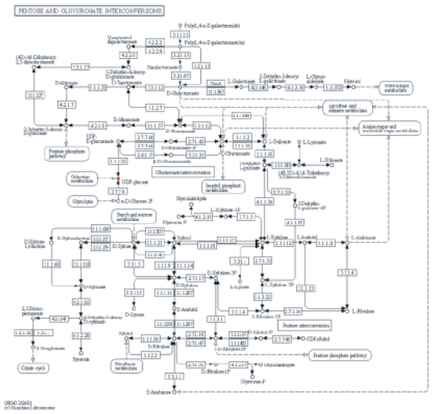
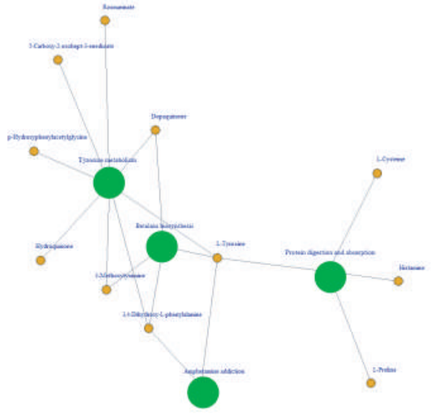


Pathway Map



Metabolic Pathway Network Map

Application Scope of Spatial Metabolomics

Spatial metabolomics can be applied in many research fields to find differential metabolites in situ from biological tissues.

Medical Field	Reproductive science, rare diseases of newborn　Tumor metabolism and immunity Disease biomarker screening　Precisionmedicine Drug evaluation and new drug development
Agriculture and Forestry	Location of components of medicinal plants　Seed and embryology Plant protection　Study on interaction between animals and environment Diagnosis and prevention of animal diseases
Industrial Field	Microbial fermentation　Bulk chemicals　Fine chemicals Food production and preservation　Food nutrition identification

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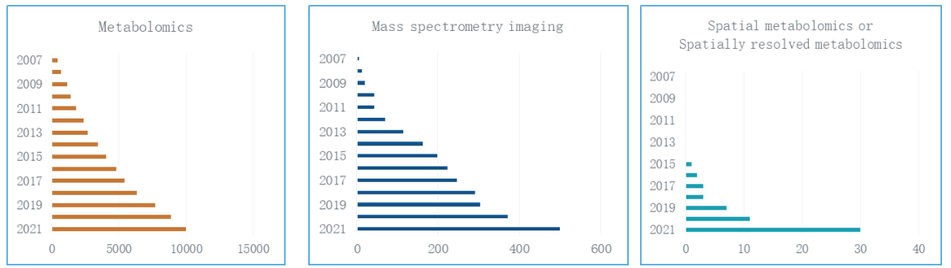
Suzhou PANOMIX Biomedical Tech Co., LTD

Spatial Metabolomics

Qualitative Quantitative Positioning

Product Introduction

Spatial metabolomics uses mass spectrometry imaging (MSI) and metabolomics technology to accurately measure the species, content and spatial distribution of metabolites in animals, plants and human tissues or cells, and explains the differences in biological metabolic processes from three dimensions: qualitative, quantitative and positioning.
From the trend of the number of papers published by metabolomics, mass spectrometry imaging and spatial metabolomics technology from 2007 to 2021 (expected), spatial metabolomics technology is one of the most popular research fields and has great development space.



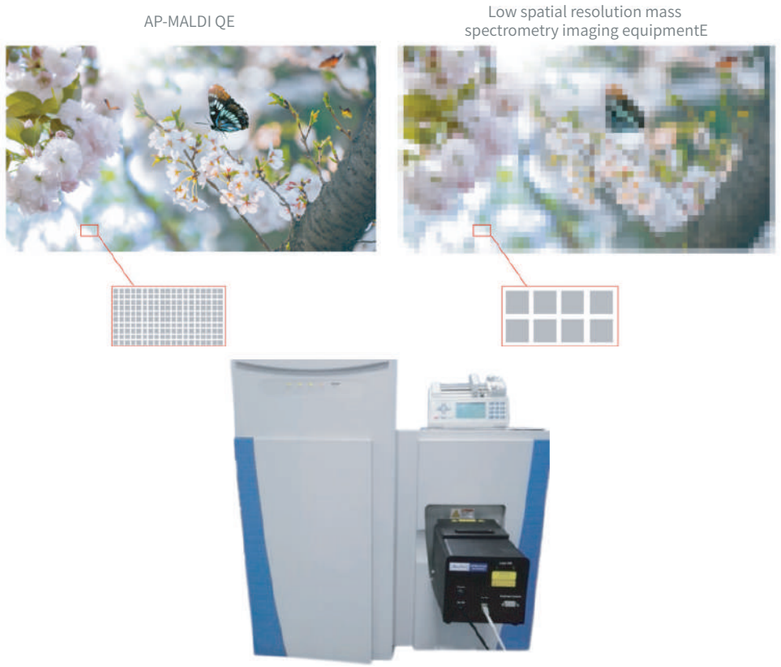
Product Advantage

- Spatial positioning, in-situ detection can be carried out without fluorescent labeling or other treatment
- All substances are detected at once without separate detection of each substance
- The company has its own AP-MALDI instrument combined with Thermo Scientific™ Q Exactive™, with ultra-high resolution up to 5 μm which issubcellular level HD
- Umap algorithm is adopted to retain the features of the original data to the greatest extent and greatly reduce the feature dimension. It is the gold standard for processing high-dimensional data such as spatial metabolome
- The analysis content is comprehensive and the data information is deeply mined

Instrument Platform

AP-MALDI Combined With Q Exactive™

Panomix adopts Thermo Scientific™ Q Exactive™ mass spectrometer, which makes full use of its high-resolution to realize the strong combination of (AP) MALDI + thermo scientificm Q exactivtm. Based on the instrument platform, the resolution of high-resolution spatial metabolome can reach 5um, and the average diameter of cells is between 10-20um, achieving cell-level sampling, and ultra-high resolution.

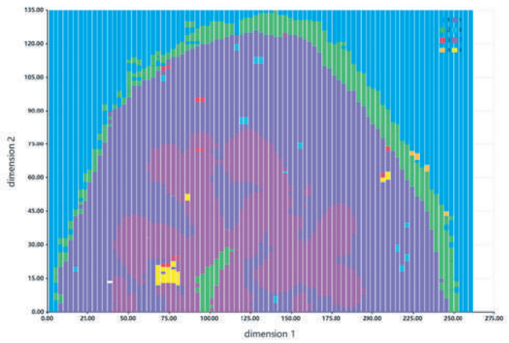


AP-MALDI QE

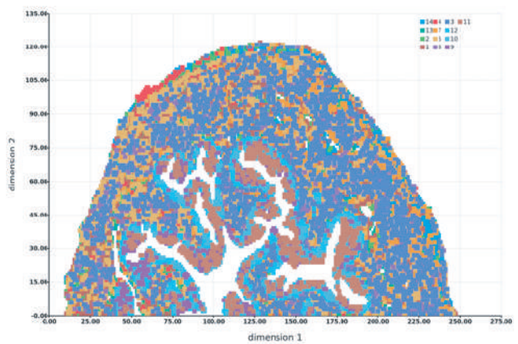
Data Analysis Conten

1. Algorithm

Umap, the best algorithm for processing high-dimensional data, is used for dimension reduction. Comparing with traditional k-means algorithm, dimensionality reduction with UMAP could provide more detailed classification.

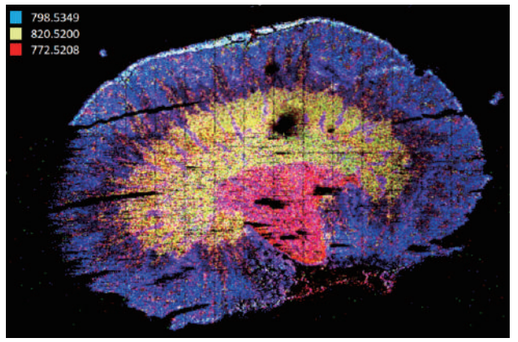


Kmeans

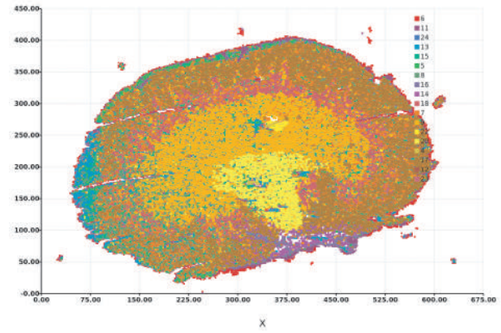


Umap

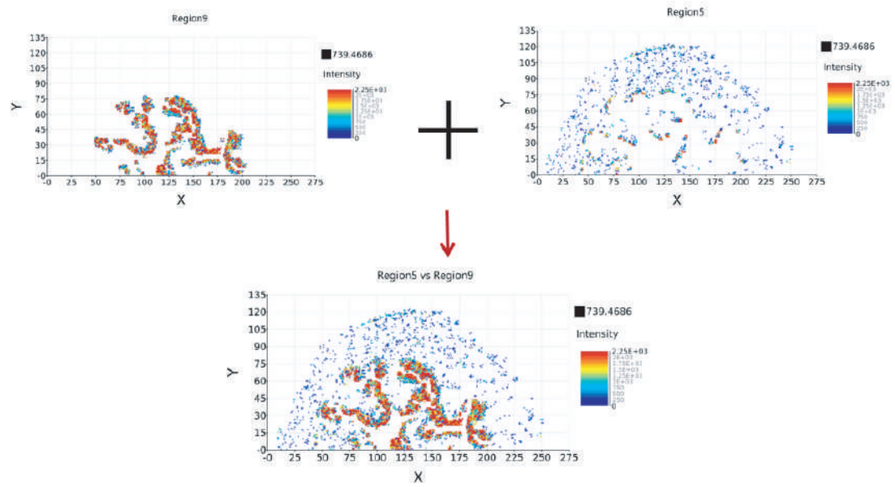
2. Display of Analysis Results



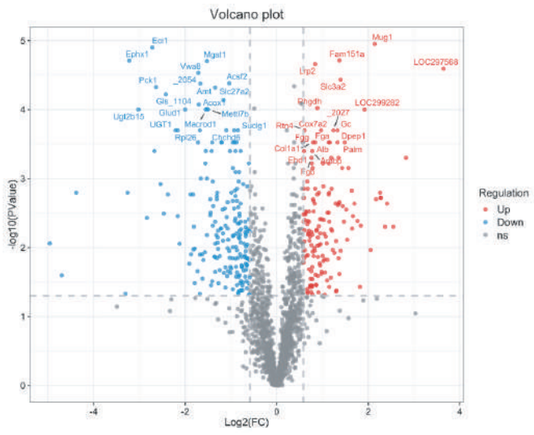
Microdomain Overlaps



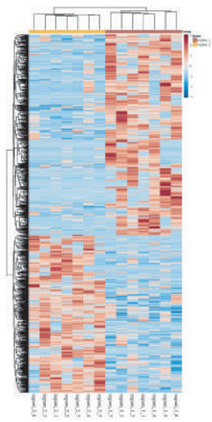
Tissue Morphology



Regional Overlay Map



Volcano Plot



Heart Map