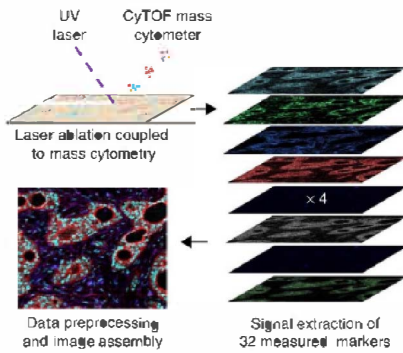# Imaging Mass Cytometry (IMC)

IMC introduction

Imaging Mass Cytometry (IMC) is a multiplexed image analysis of tissue achieved by the high content of mass cytometry enabled through the use of isotopically labeled probes and ICP-MS detection. Empowering researchers to interrogate up to 35 markers simultaneously on single section of tissue, IMC is an advanced single-cell proteomics technology and is a powerful tool to unveil new cell types, functions and biomarkers in cancer, immunology and more.

Validated panel of IMC antibodies

LIDE has developed a validated panel of IMC antibodies, including markers of cancer, matrix, immunology and more and provides basic bioinformatical analysis.

|			
a-SMA	LAG3	B7-H3 (CD276)	Nkp46
CD20	VEGF	CD28	β-catenin
CD8	CD11b	Collagen 1	CD138
HLA-DR	CD4	IL-10	CD45RO
PTEN	EGFR	TGF-B	GFAP
B2M	MGMT	B7-H4	PSMA
CD25	Vimentin	CD3	CD14
c-Myc	CD123	CTLA-4	CD47
IDO	CD45	Ki-67	GzmB
SMAD2	FOXP3	TIM-3	p53
CD34	CD68	beta-Catenin	CD163
E-cadherin	Histone H3	PD-L1	

Application Case of IMC

Representative mass cytometry image of a lung cancer patient's tissue section showing the overlay multiple markers. Up to 35 markers were detected and selected markers could be represented by pseudo-colored raw ion images.
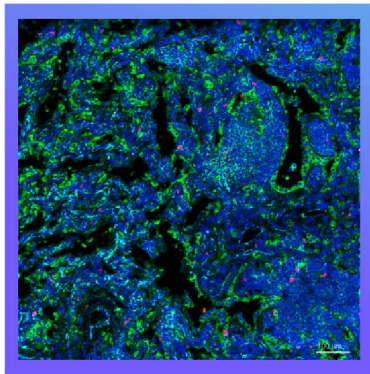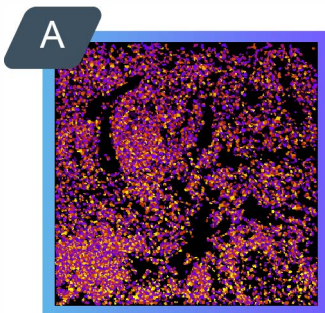

Vimentin/ HLA-DR/ Ki-67 / Histone H3
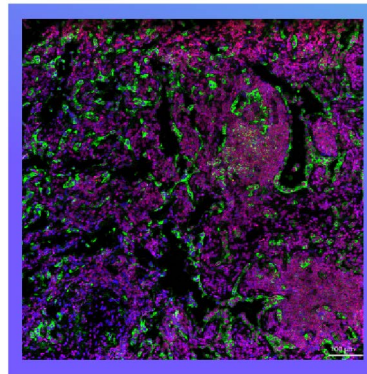
HLA-DR/ Histone H3 / DNA
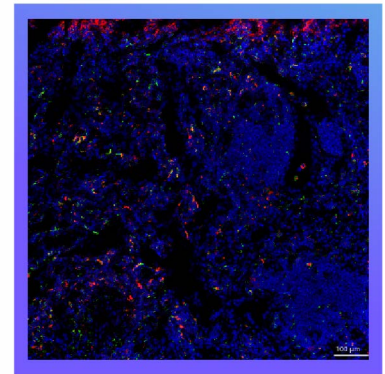
CD163/ CD68/ Histone H3

Single-cell features could be computationally segmented using an algorithm and the single-cell marker expression data could be extracted. These single-cell data could be used for downstream data analyses to investigate cell subpopulations and micro environment.

A. Single-Cell Identification and cell object image. The original data were segregated into single cells and the multiple markers were used to identify nuclei and cell membranes.
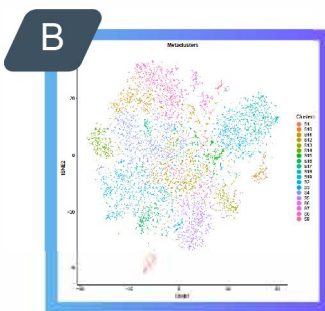
B. t-SNE map displaying single cells from each cluster identified in heatmap images colored according to cluster.
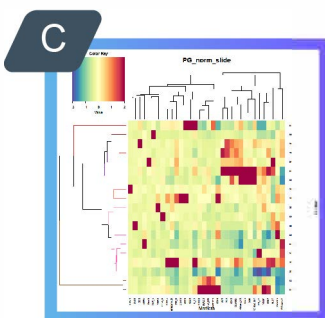
C. Heatmap showing the z-scored mean marker expression of the panel markers for each cluster.