

# Smart Diaspora 2023

Revoluții și evoluții ale științelor omice în epoca postgenomică

10 - 13 Aprilie 2023,  
Timișoara

[www.diaspora-stiintifica.ro](http://www.diaspora-stiintifica.ro)

Eveniment aflat sub înaltul patronaj  
al Președintelui României



# Visium - Dezvoltarea Transcriptomicii Spatiale

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Smart Diaspora 2023



# Despre Mine

**Absolvent Licenta în România - USAMVBT - Inginerie Genetică**

**Programe de Masterat-**

**România  
Suedia**

**- Cercetare biologica  
- Biologie Moleculara Biotehnologii**

**Doctorat/Cercetare sau industrie?**

**10x Genomics - din 2020**





**Chromium**



# Platforme

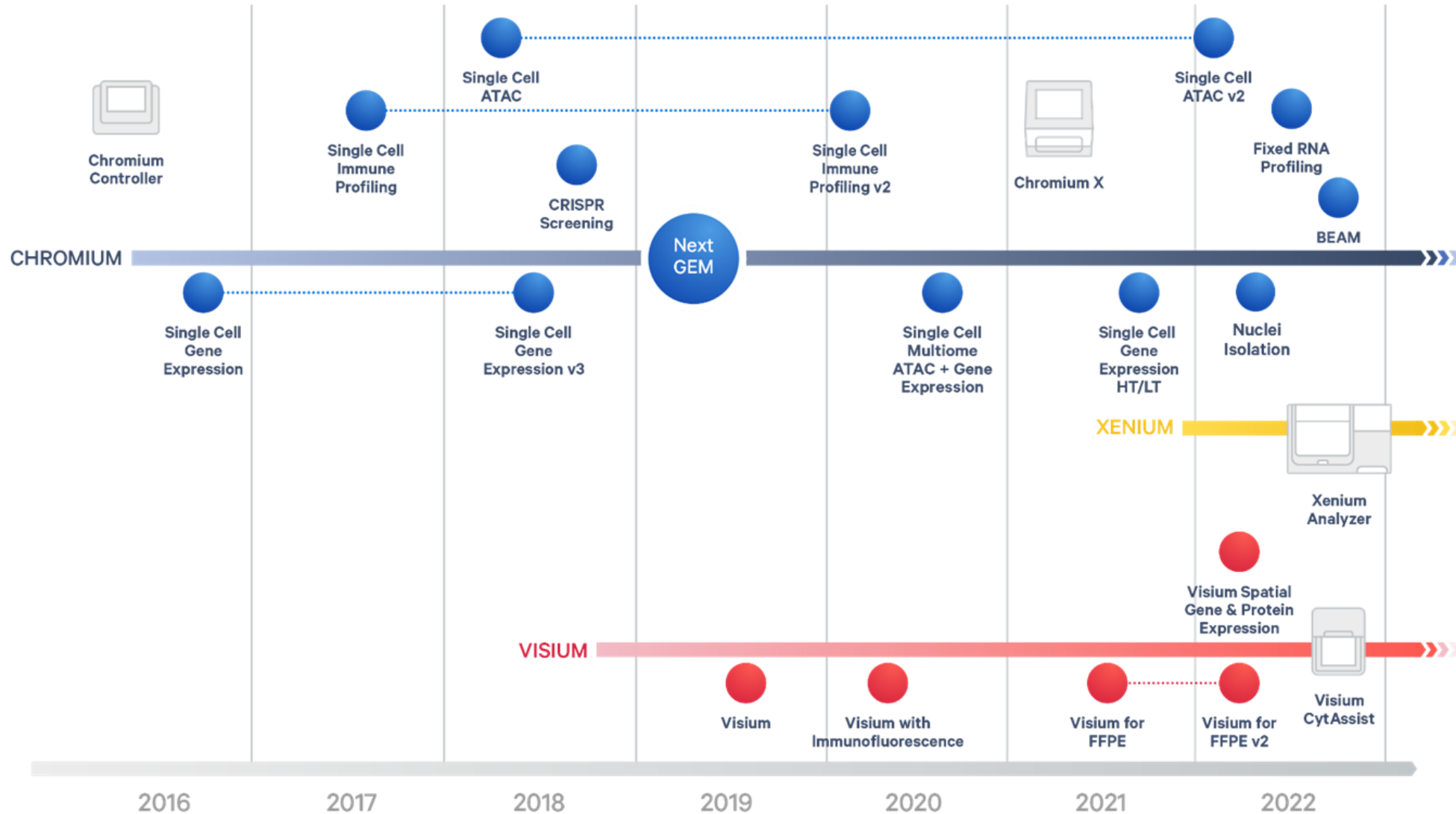


**Visium**

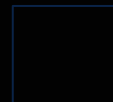
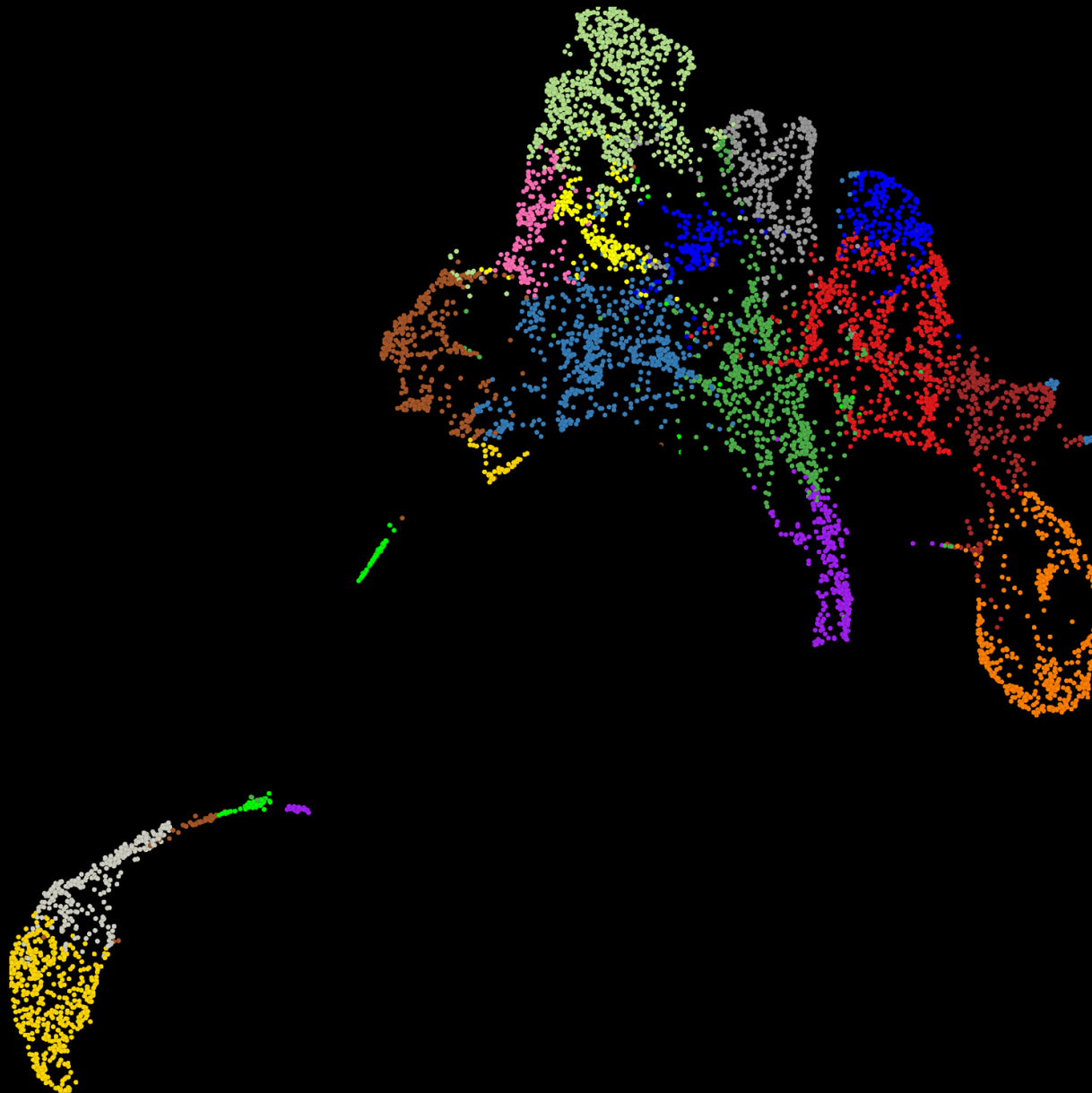


**Xenium**

# 10x Genomics Process Innovation



# Visium Spatial

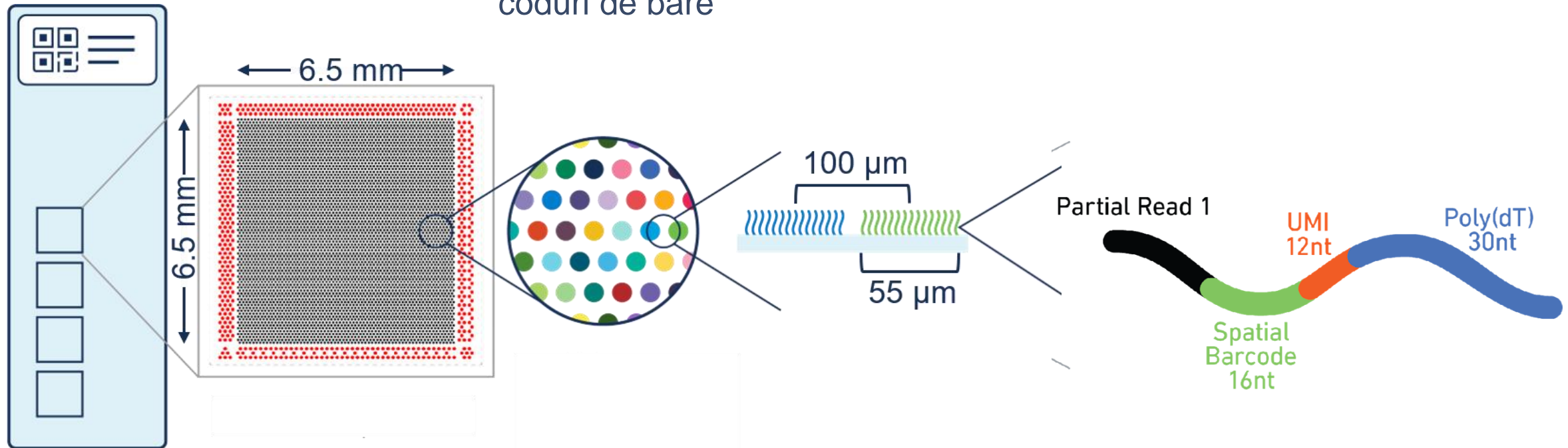


# Tehnologie de captare spațială pentru analiza întregului transcriptom FF și FFPE (Diagrama numai pentru FF)

Lamela Visium  
pentru Expresia  
Genetică Spațială

Zona de captură cu  
~5.000 de puncte cu  
coduri de bare

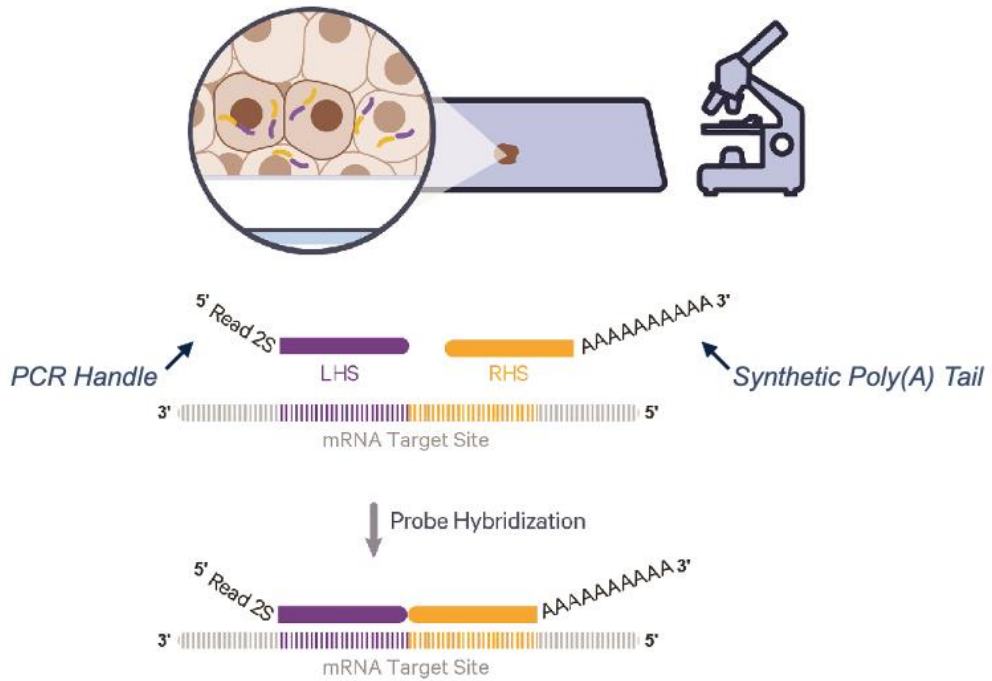
Visium Expresia  
Genelor per Punct



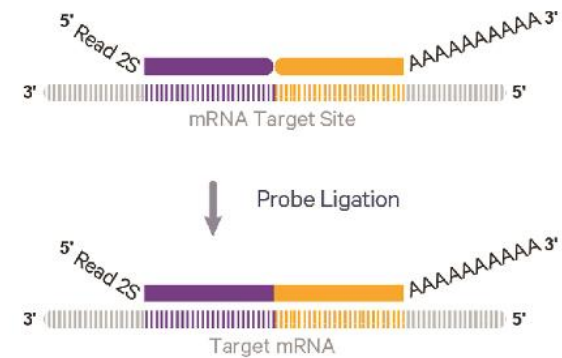


# Prepararea Tesutului- Sectionare, Amplasare, Colorare, Imagistica, Decrosslinking, & Permeabilization

## Hibridizarea Probelor



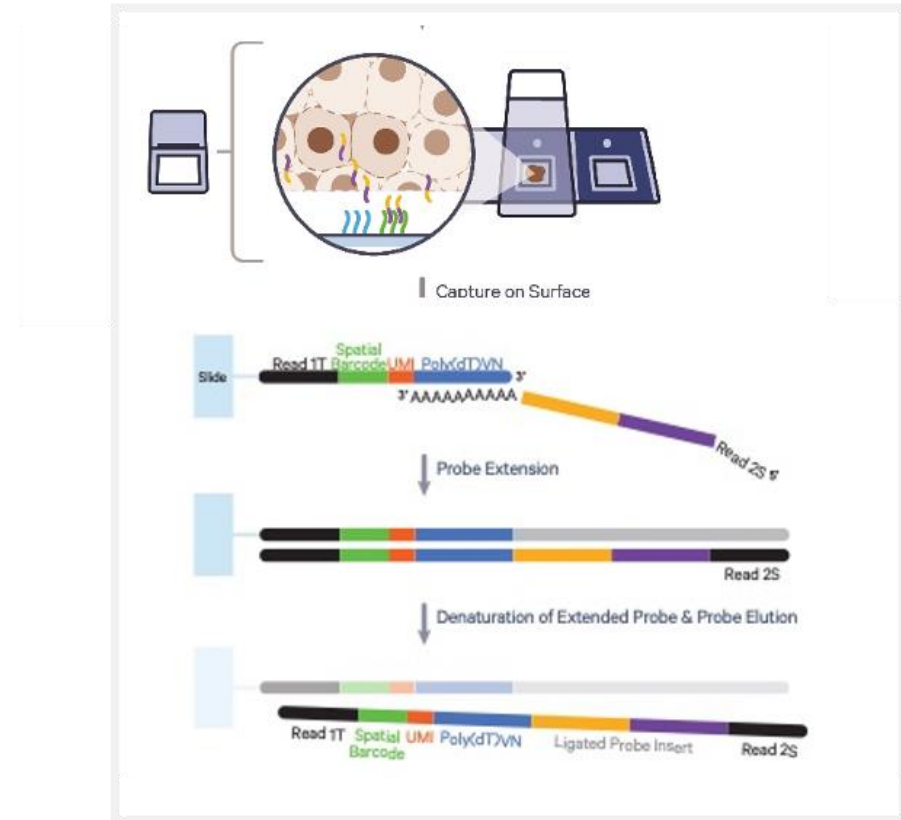
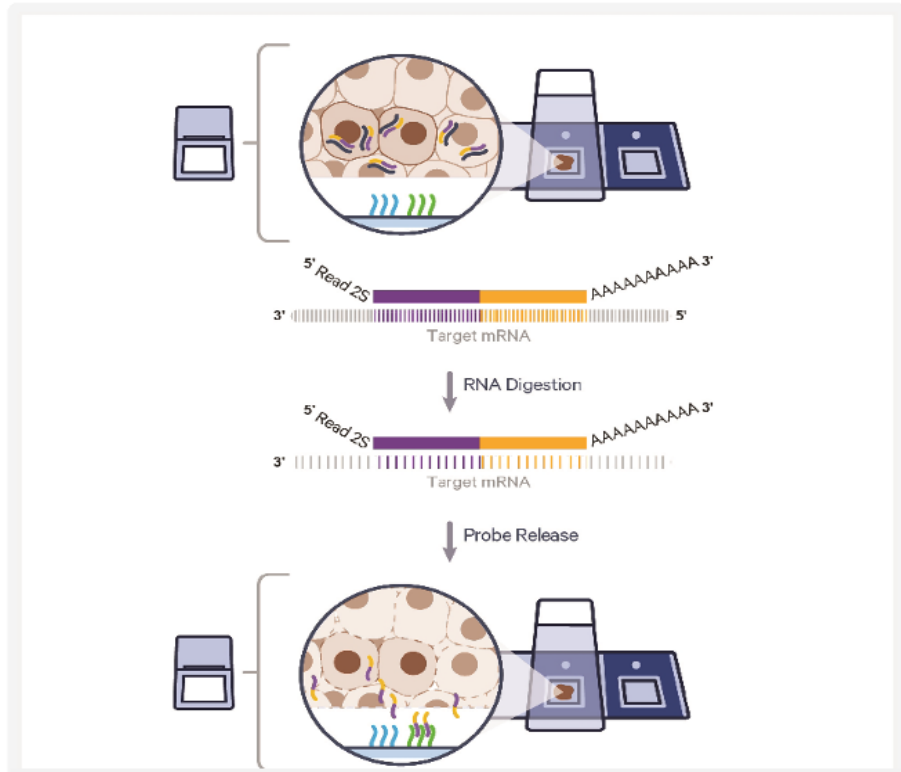
## Ligarea Probelor



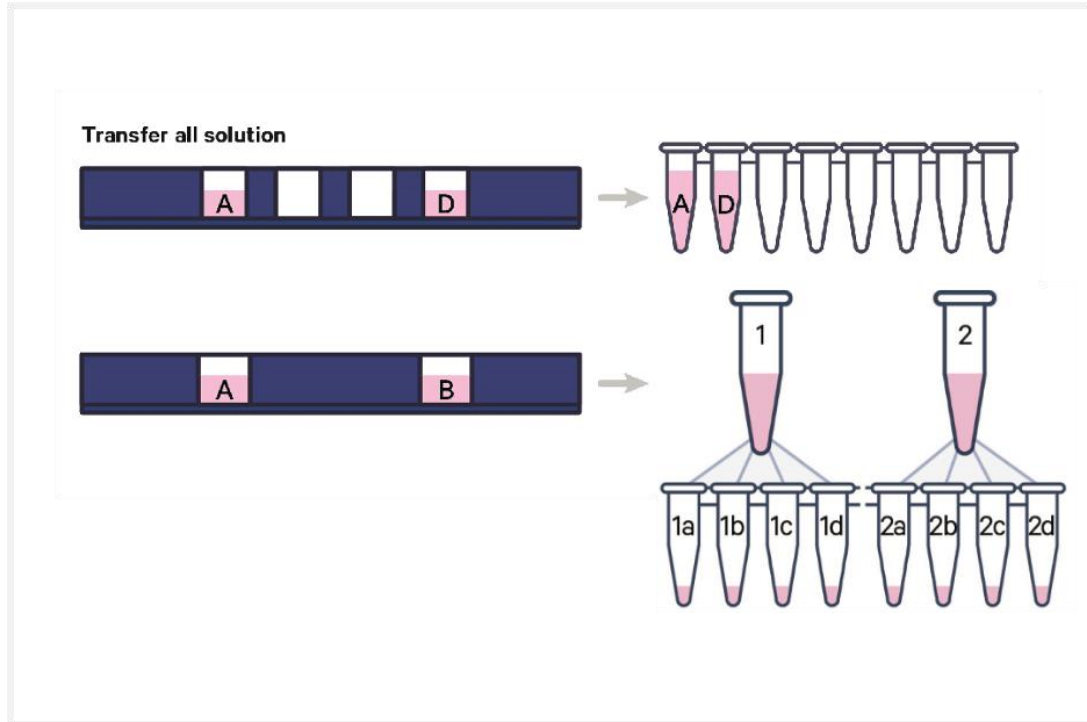


# CytAssist Permite Digestia ARN-ului, & Eliberarea Probelor

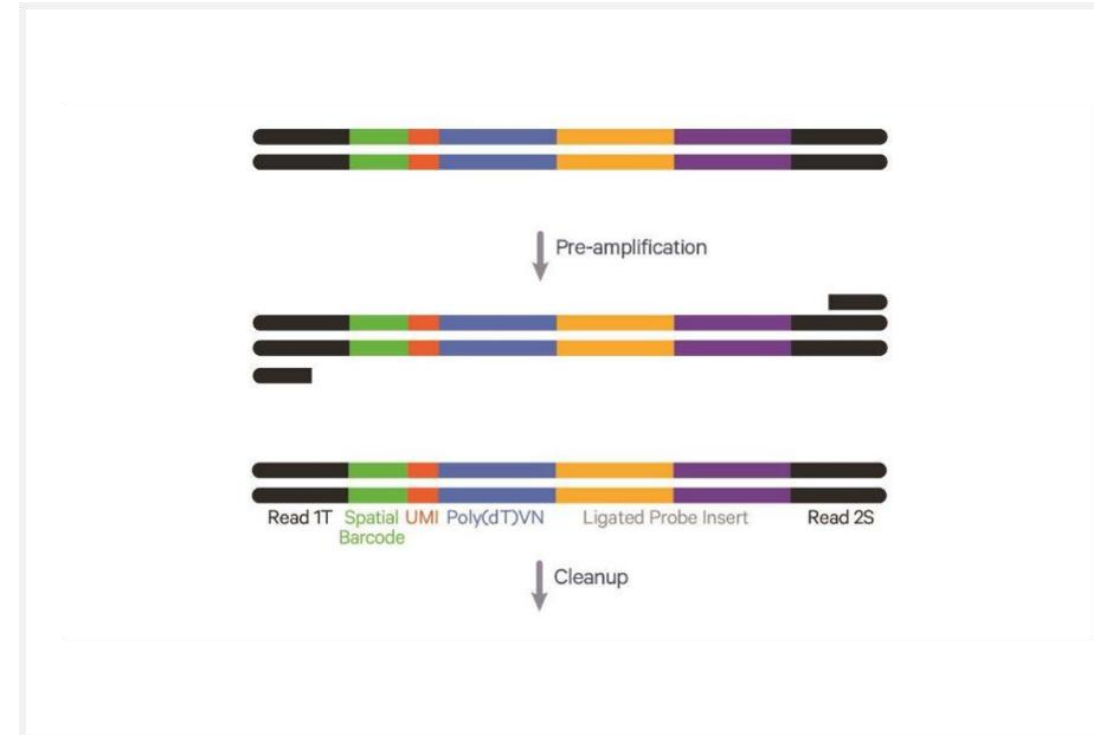
# Capturarea Probelor, Extensia, & Elutia



# Elutie & Neutralizare

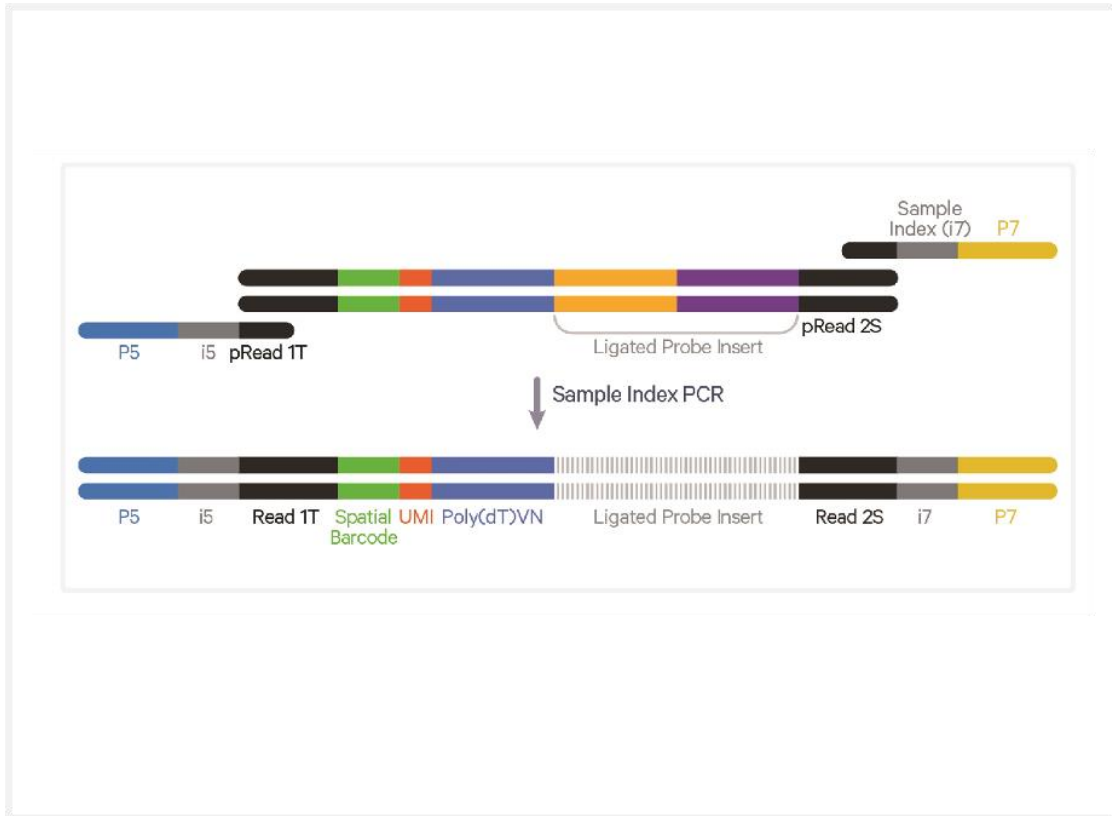


# Pre-Amplificare



# Indexare PCR & Curatare cu SPRiselect

# Secventiere



## Visium CytAssist Spatial Gene Expression Library



	Read 1	i7	i5	Read 2S
Purpose	10x Barcode & UMI	Sample Index	Sample Index	Ligated Probe Insert
Length	(16 + 12) = 28	10	10	50

### Minimum Sequencing Depth

25,000 read pairs per tissue covered spot

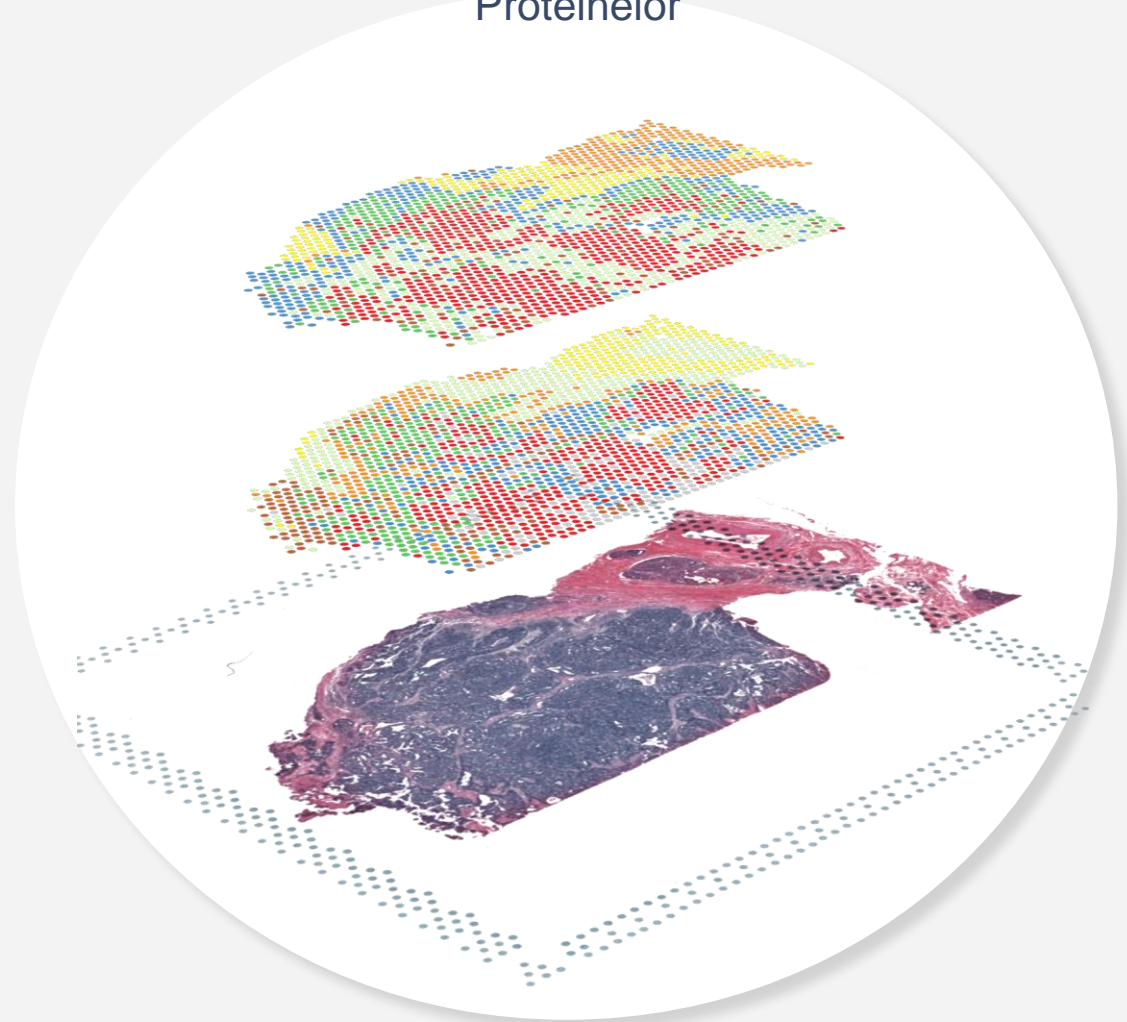


# CytAssist este Viitorul Visium-ului

## Visium CytAssist

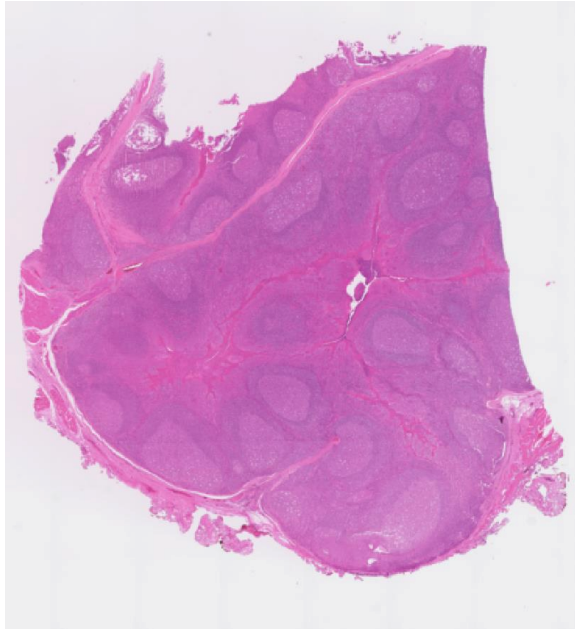


Co Detectare a Expresiei Genelor &  
Proteinelor



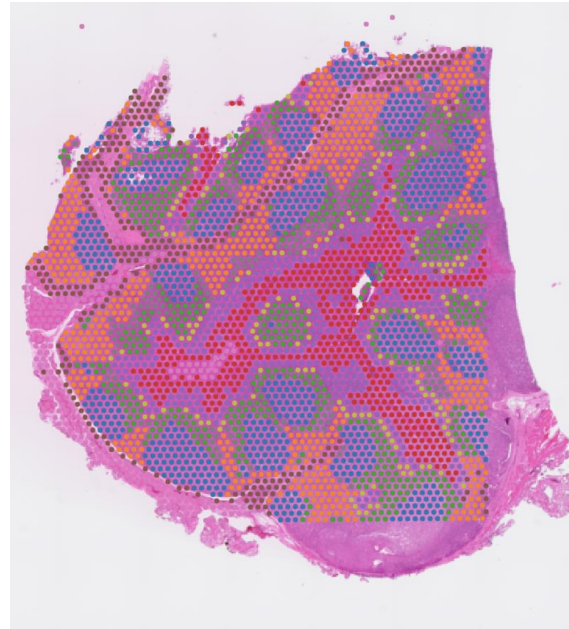
# Trei Tipuri de Date dintr-o Singură Secțiune de Țesut FFPE

## Amigdala - FFPE



### Morfologie

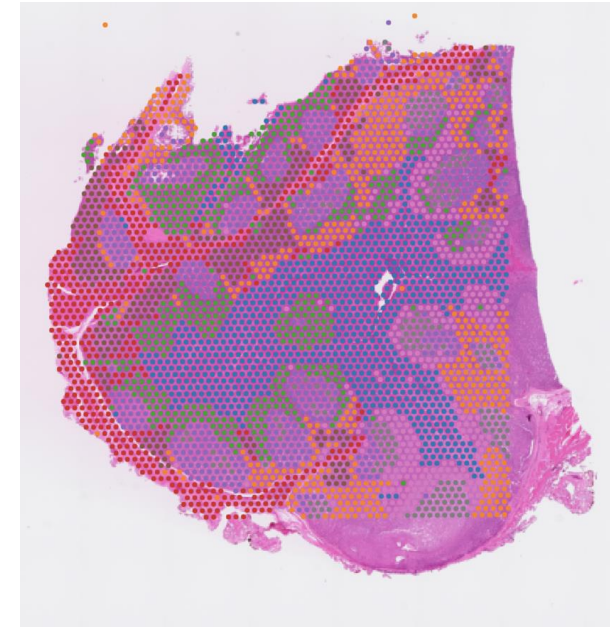
H&E-stained image



- Germinal centers
- Non-germinal centers
- Mantle zone
- Squamous epithelial tissue
- Epithelial tissue
- Connective tissue
- Connective tissue
- Non-germinal centers
- Marginal zone

### ARN

Expresia genica/transcriptom  
(Intreg transcriptomul)



- Epithelial tissue
- Non-germinal centers
- Mantle and Marginal zones
- Connective tissue
- Germinal centers
- Non-germinal centers
- Mantle and Marginal zones
- Germinal center

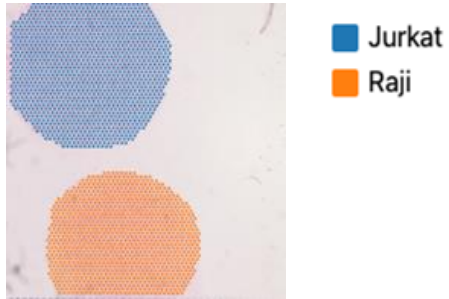
### Proteine

Grupare Proteomica  
(Celule Imune-Panoul Uman)

Așteptat la Jumătatea Anului 2023

# Identificarea Markerilor Imuni Celulari – CytAssist

## Grupari



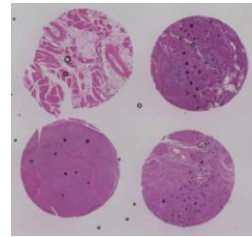
CD3E – Pe Suprafața Limfocitelor T



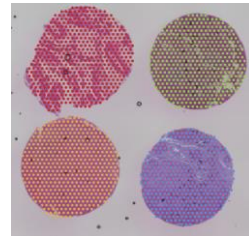
PAX5 – Regulator Central in Dezvoltarea Celulelor B



## Microarray

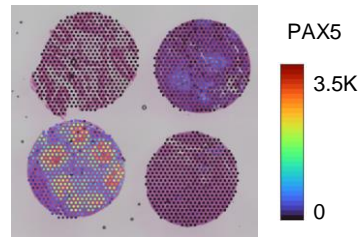


H&E

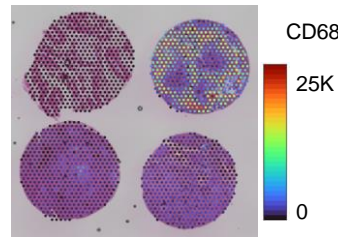


Grupari

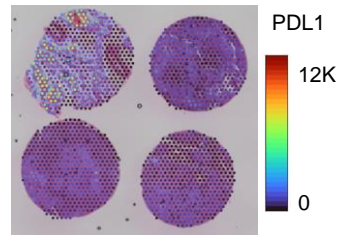
- Heart
- Spleen
- Tonsil
- Breast Cancer



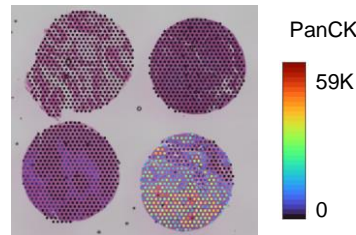
PAX5



CD68

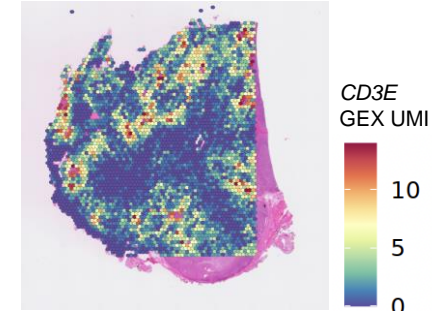


PDL1

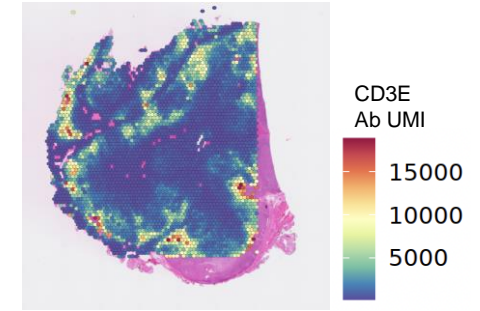


PanCK

## ARN

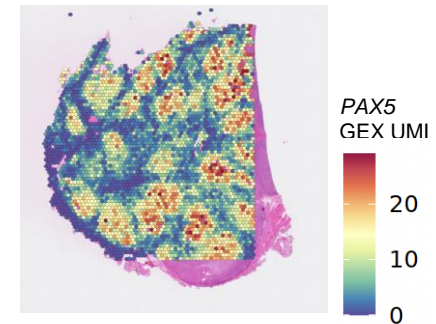


## Proteine

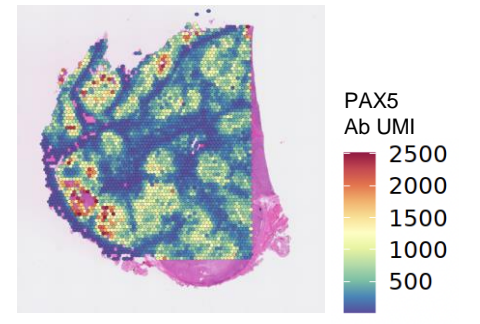


**Celule T (CD3E)**

## ARN



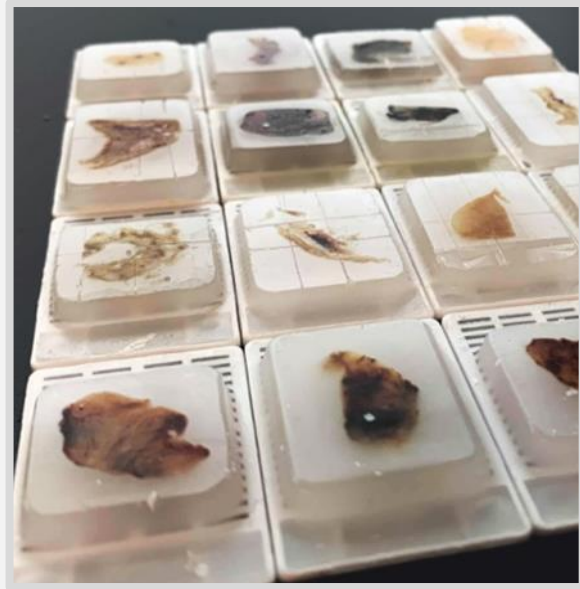
## Proteine



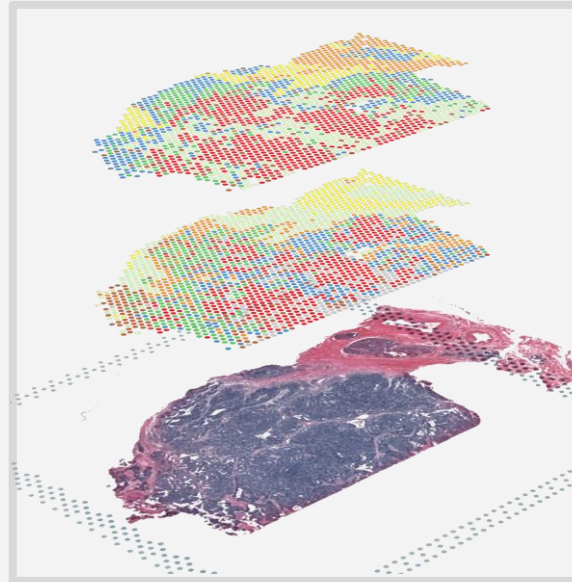
**Celule B (PAX5)**



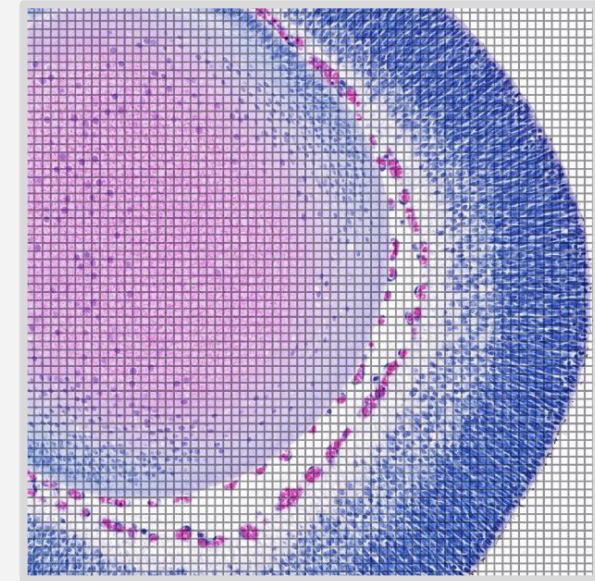
# Directii Cheie de Dezvoltare



**Extindem Tipurile de  
Țesuturi Suportate**



**Analiți Suplimentari  
& Multiomică**



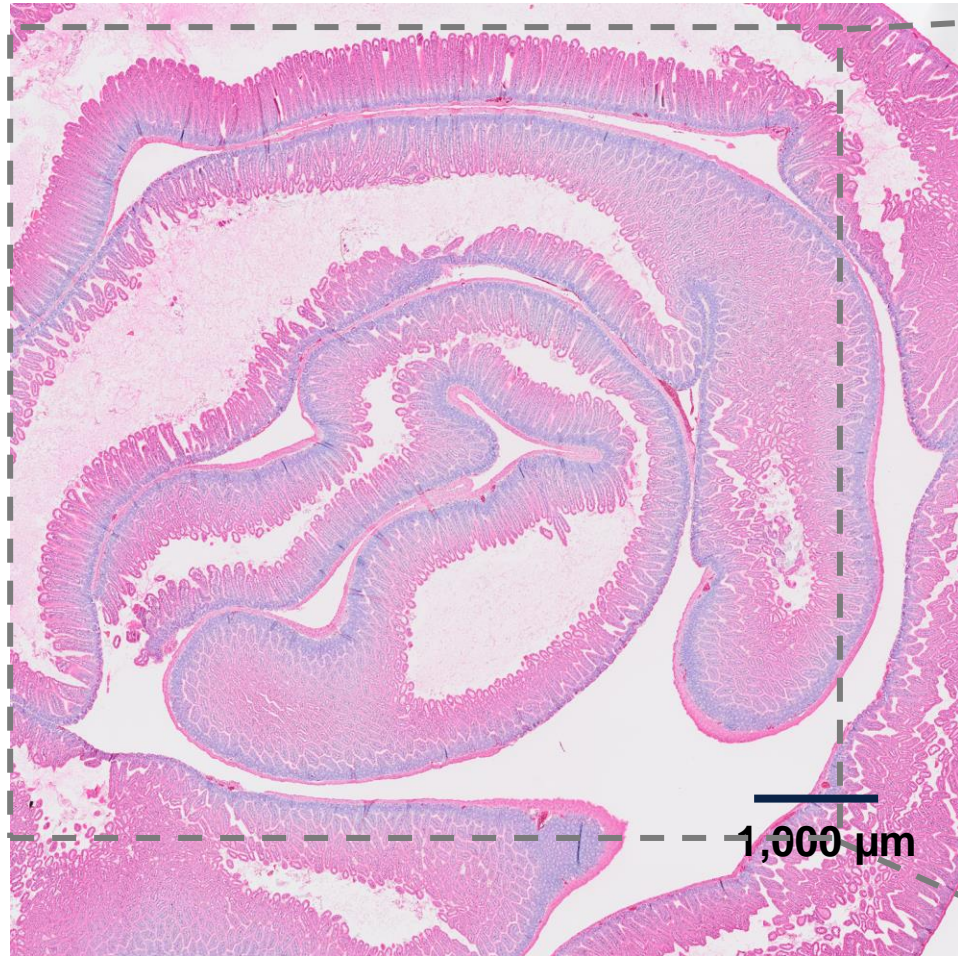
**Rezolutie Imbunatatita**



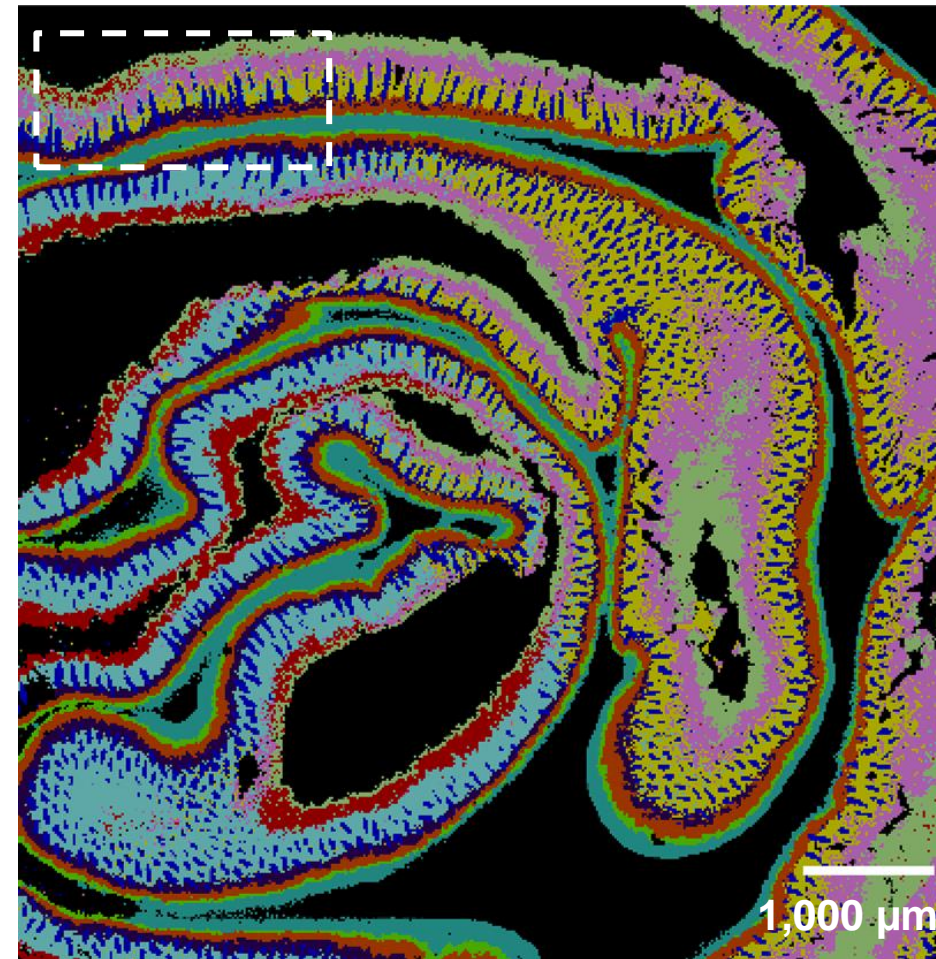
# Visium HD cu CytAssist

FFPE intestin de soarece

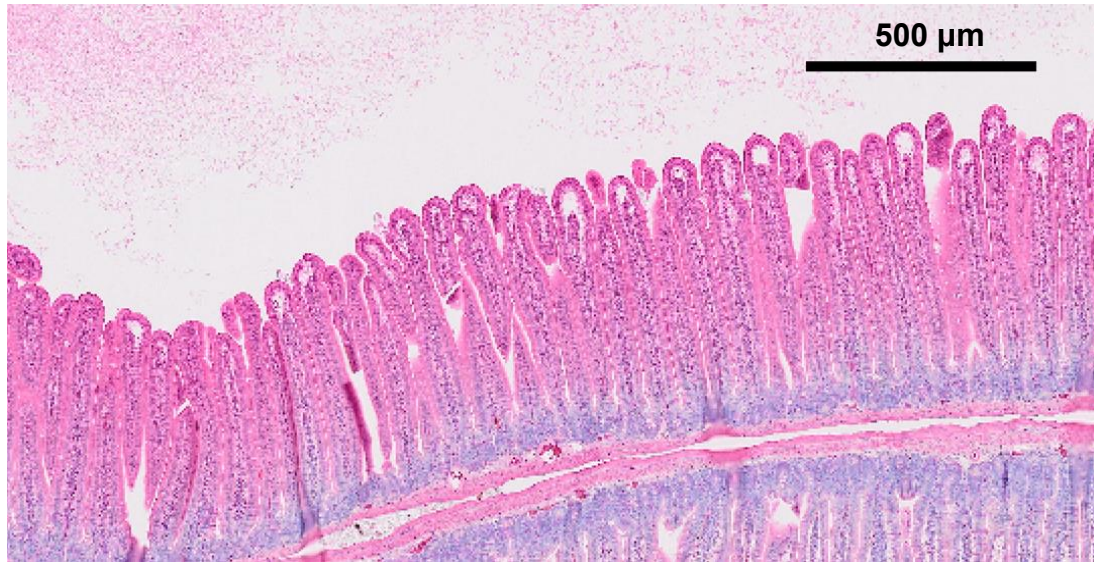
Colorare Hematoxylina & eosina



Grupare imparțială







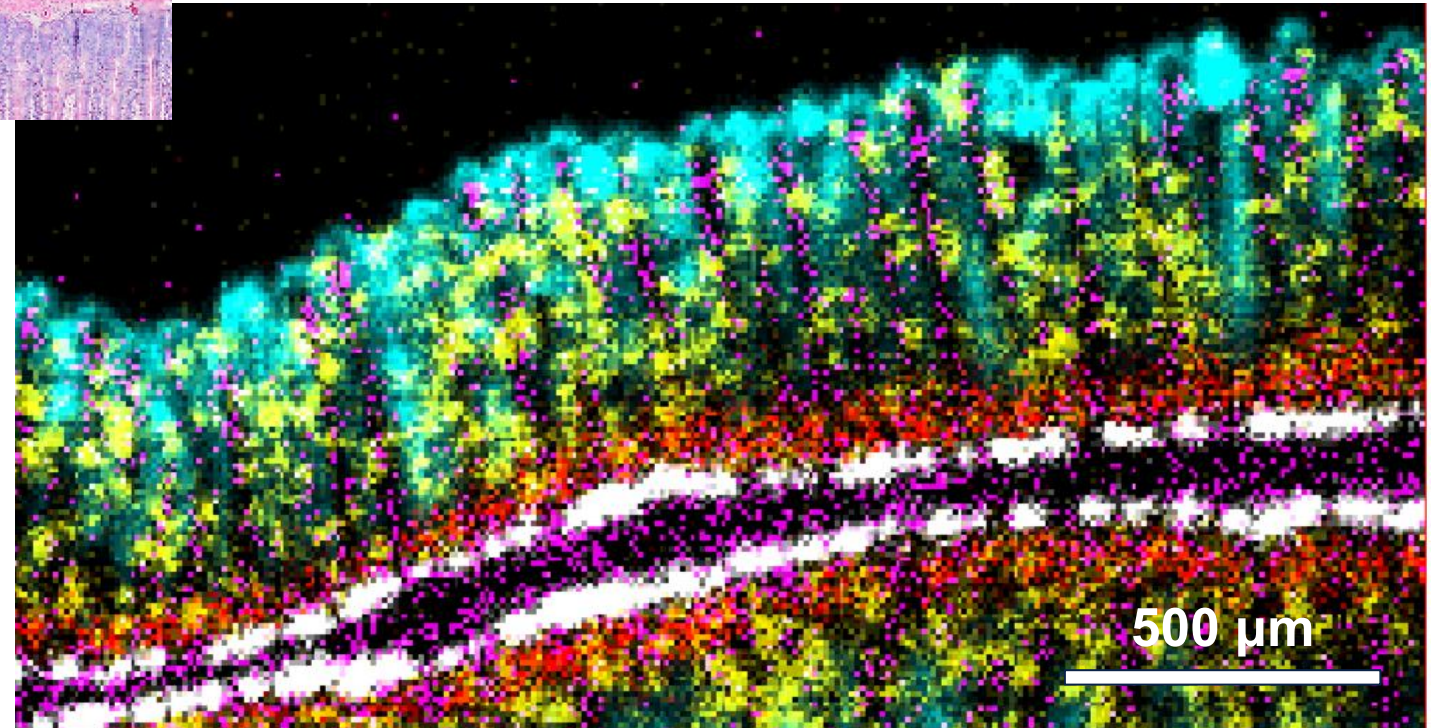
H&E stain

Villus

Crypt

- Mature enterocytes (Apoa4)
- Immature enterocytes (Car4)
- Goblet cells (Muc2+fcgpb)
- Myofibroblasts (col3a1+col1a1+col1a2)
- Paneth cells (Lyz1)

Indicatori ai Expresiei Genice





# CytAssist este Viitorul Visium-ului

Transfer de Precizie a Analizilor și Coduri de Bare Spațiale



**Disponibil Pentru  
Achiziționare**

- Sensibilitatea & Specificitatea genelor Îmbunătățite
- Compatibilitate mai Largă cu Tipuri de Țesuturi
- Acces la Mostre de Arhivă
- Spațialitate Îmbunătățită
- Flux de Lucru Simplificat

**Visium HD va Rula Exclusiv pe Cytassist**



**Chromium**



**Visium**

# Toolkit



**Xenium**

# Contact information Romania

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