

# Immunohistochimie nouvelle génération

---

*AFTLM*

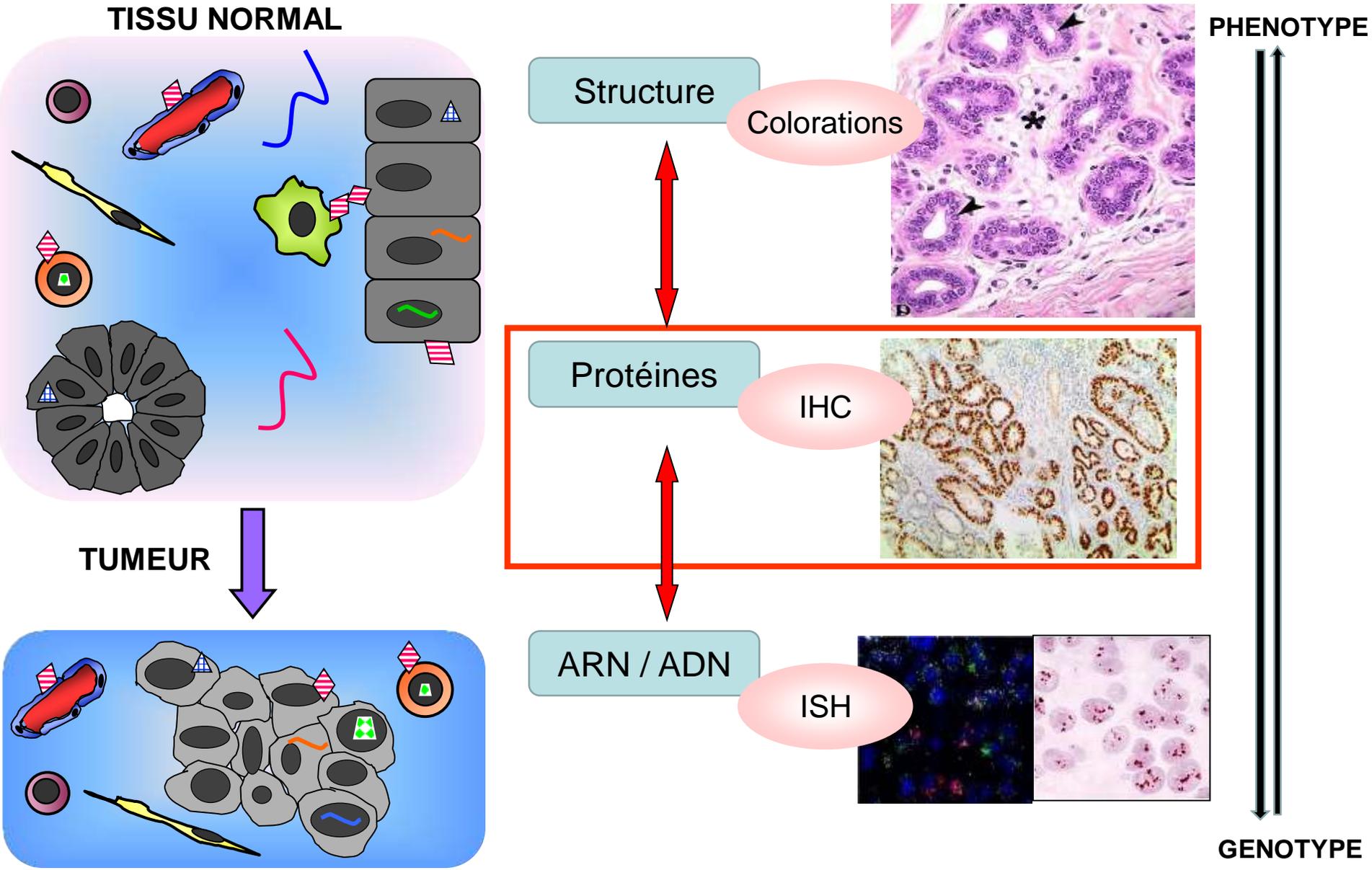
*28 novembre 2019*

*Virginie Marty – Pr Jean-Yves Scoazec*

*Plateforme Pathologie Expérimentale et TRanslationnelle (PETRA)*

*Gustave Roussy*

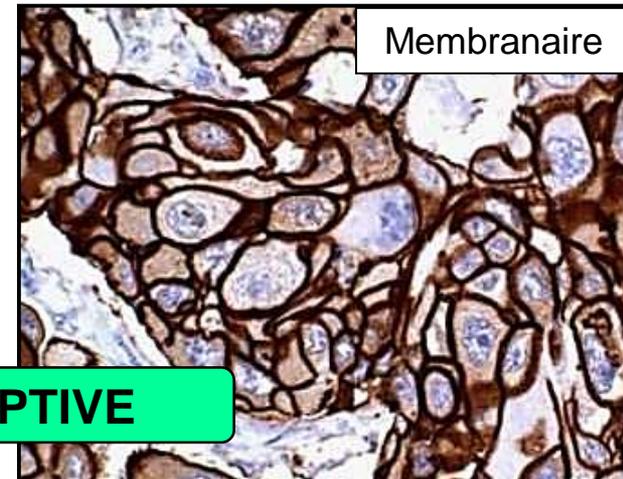
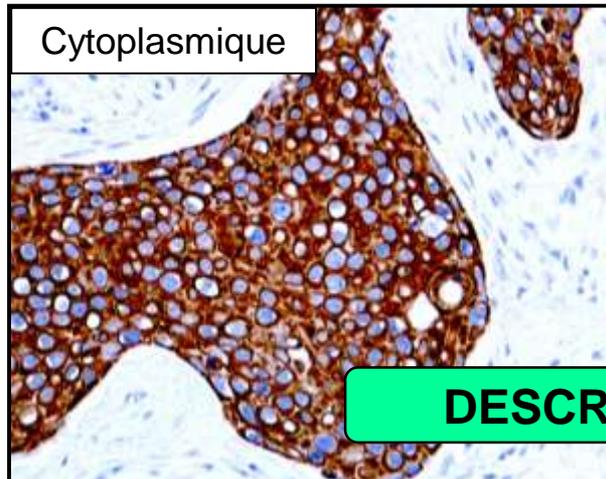
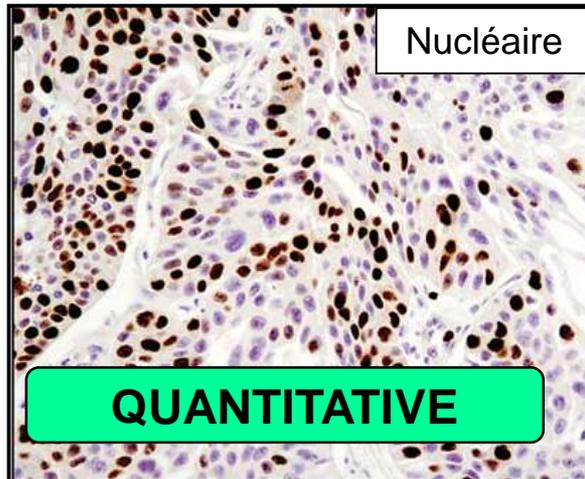
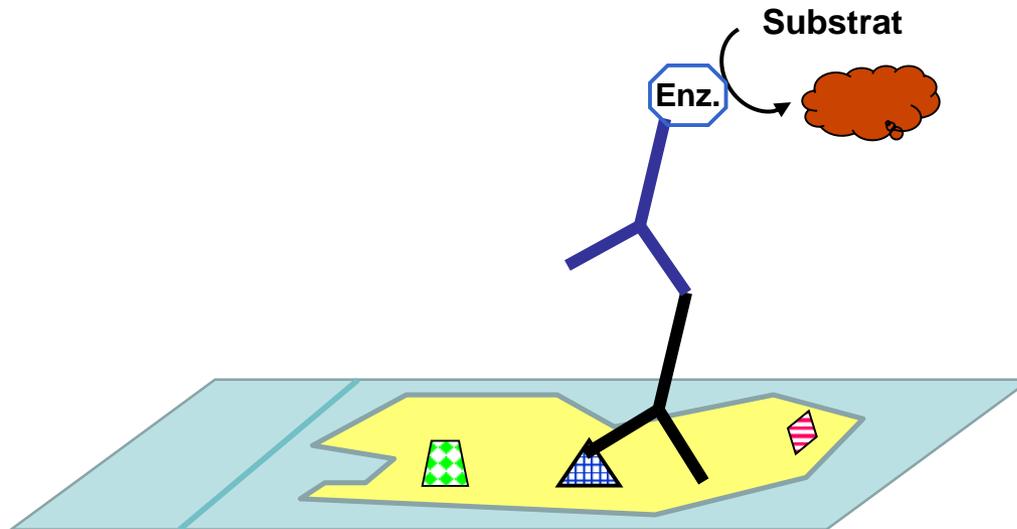
# PETRA : une histoire de tissu et de cancer



# IHC : Comment ça marche ?

Protéine

AVANTAGE : Information morphologique



# Applications de l'IHC ?

## *Pathologie diagnostique*

### Marqueurs diagnostiques

Classification des tumeurs 

- Diagnostic
- Pronostic
- Traitement

### Biomarqueurs thérapeutiques

Mise en évidence  
d'éventuelles cibles  
thérapeutiques

## *Recherche Clinique et translationnelle*

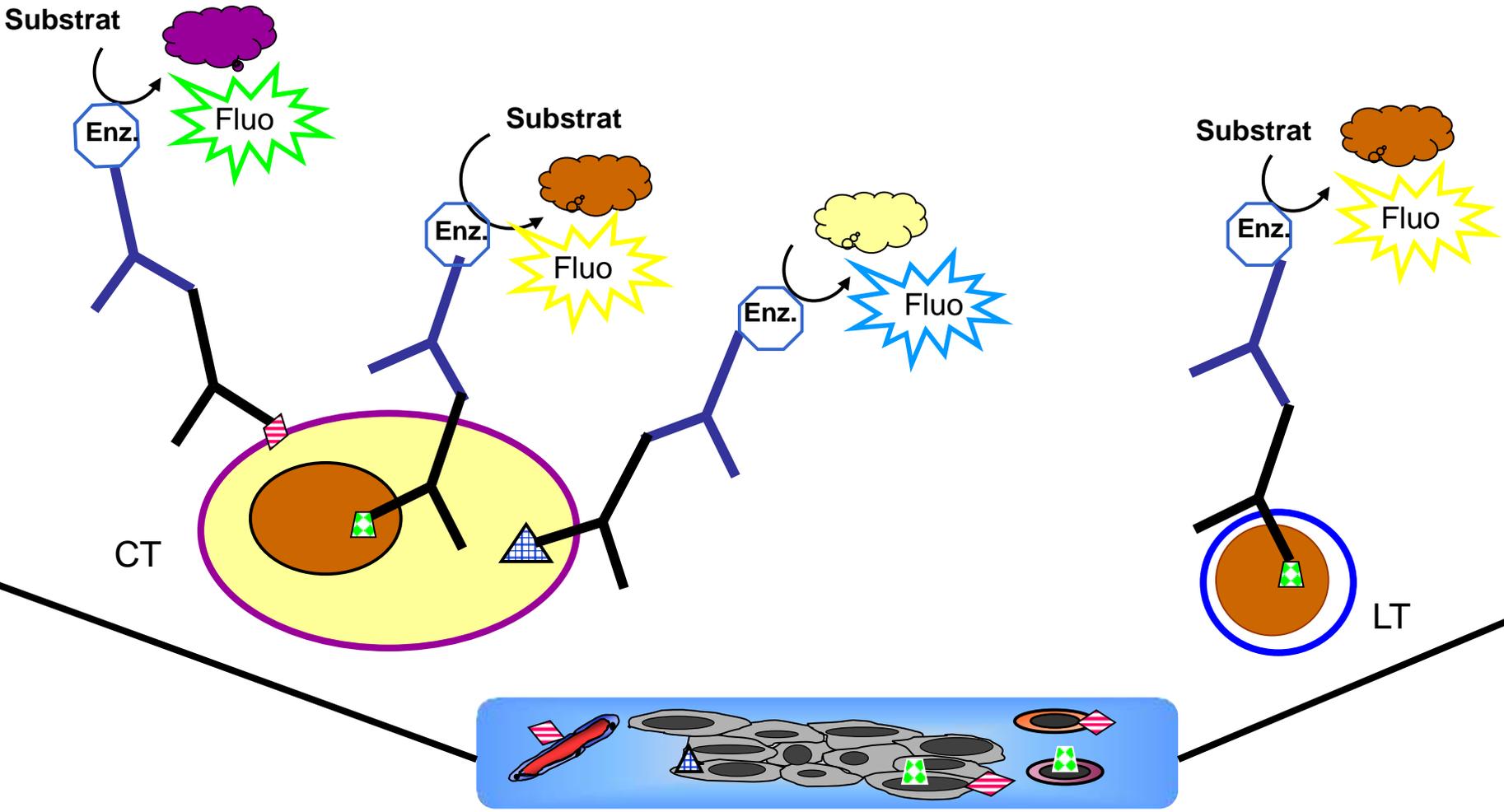
### Marqueurs Exploratoires

Comprendre et Prédire la sensibilité / résistance aux traitements  
Nouvelles cibles thérapeutiques  
Mécanismes de développement et de prolifération

Validation de marqueurs pour une utilisation en diagnostic

# IHC Multiparamétrique : IHC Multiplex

Protéine + Protéine + Protéine + Protéine



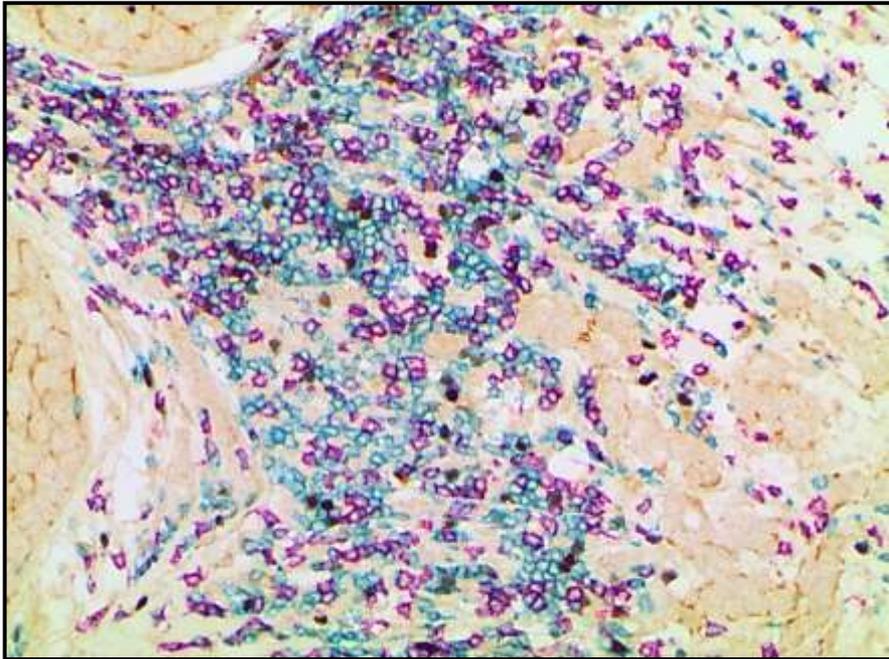
# Multiplex et Immunothérapie

Description de l'infiltrat immunitaire

Quantitative

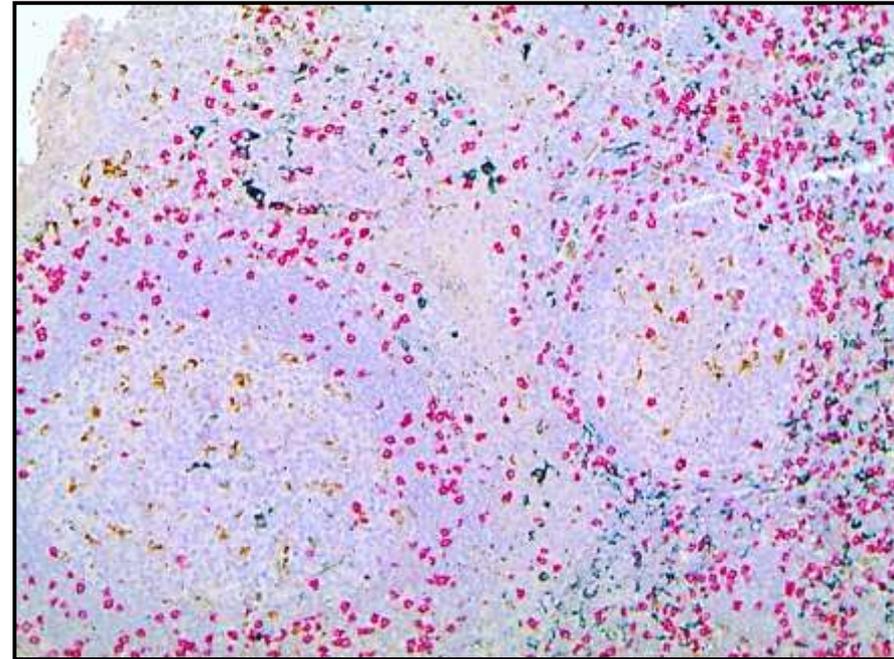
Descriptive

Topographique



FOXP3 / CD8 / CD3

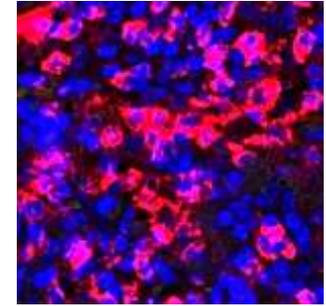
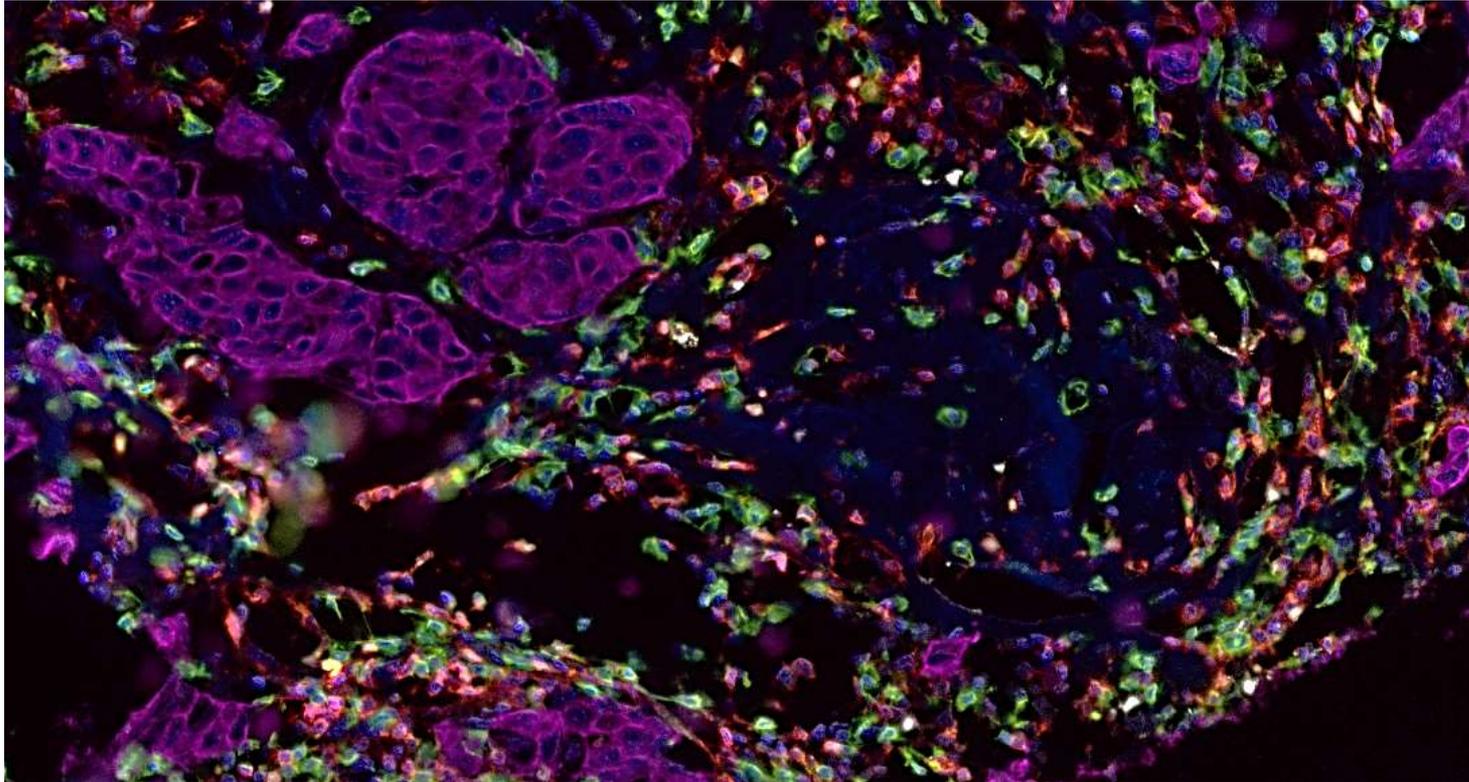
Lymphocytes



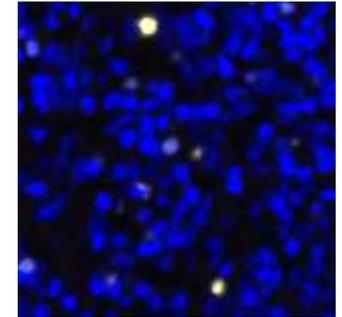
CD8 / CD68 / CD163

Lymphocytes T8 cytotoxiques /  
Macrophages

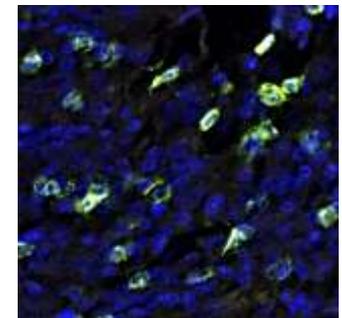
# Et en fluorescence alors ?



CD4

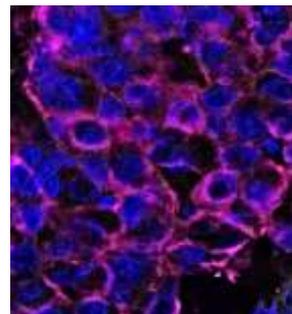
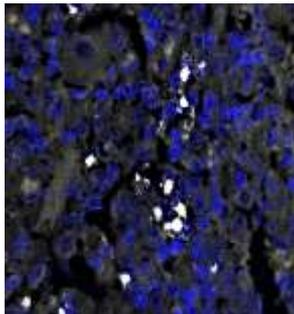


FoxP3



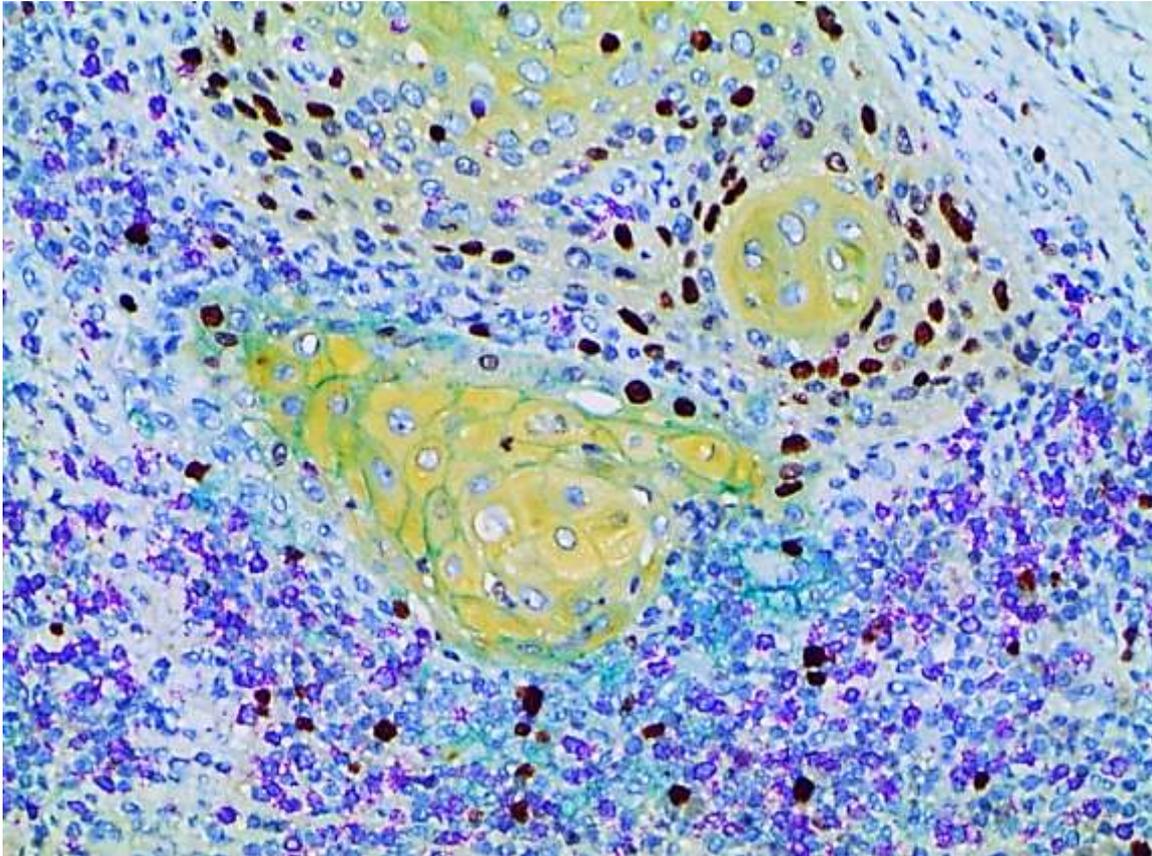
CD8

DCLamp



Cytokératine

# Autre exemple d'IHC multiplex



Ki67 / CD8 / PD-L1 / CK

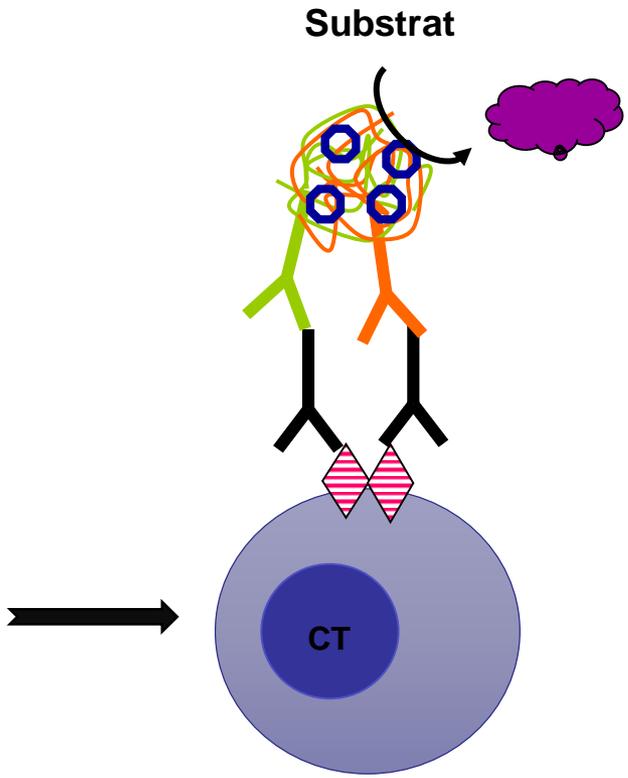
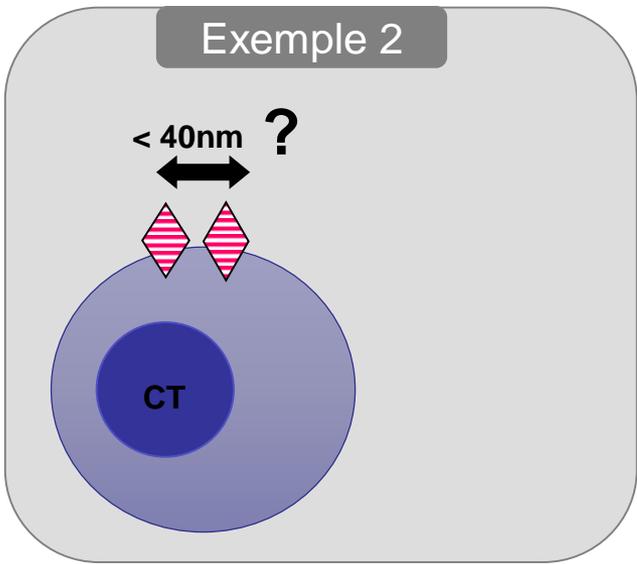
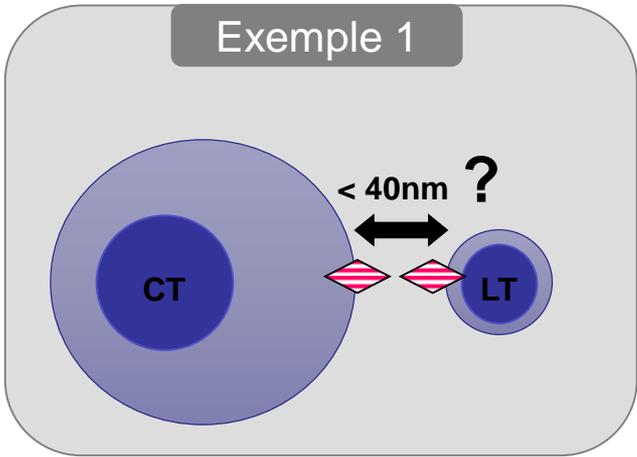
Cellules tumorales PD-L1 +

Nombre LT8

Localisation LT8  
Intra / péritumorale

LT8 : prolifération ?

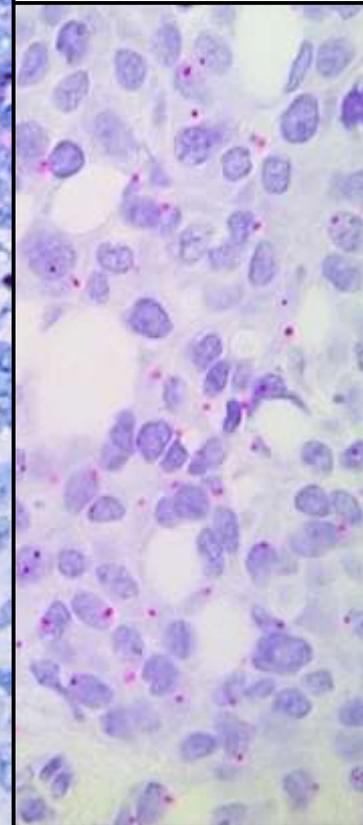
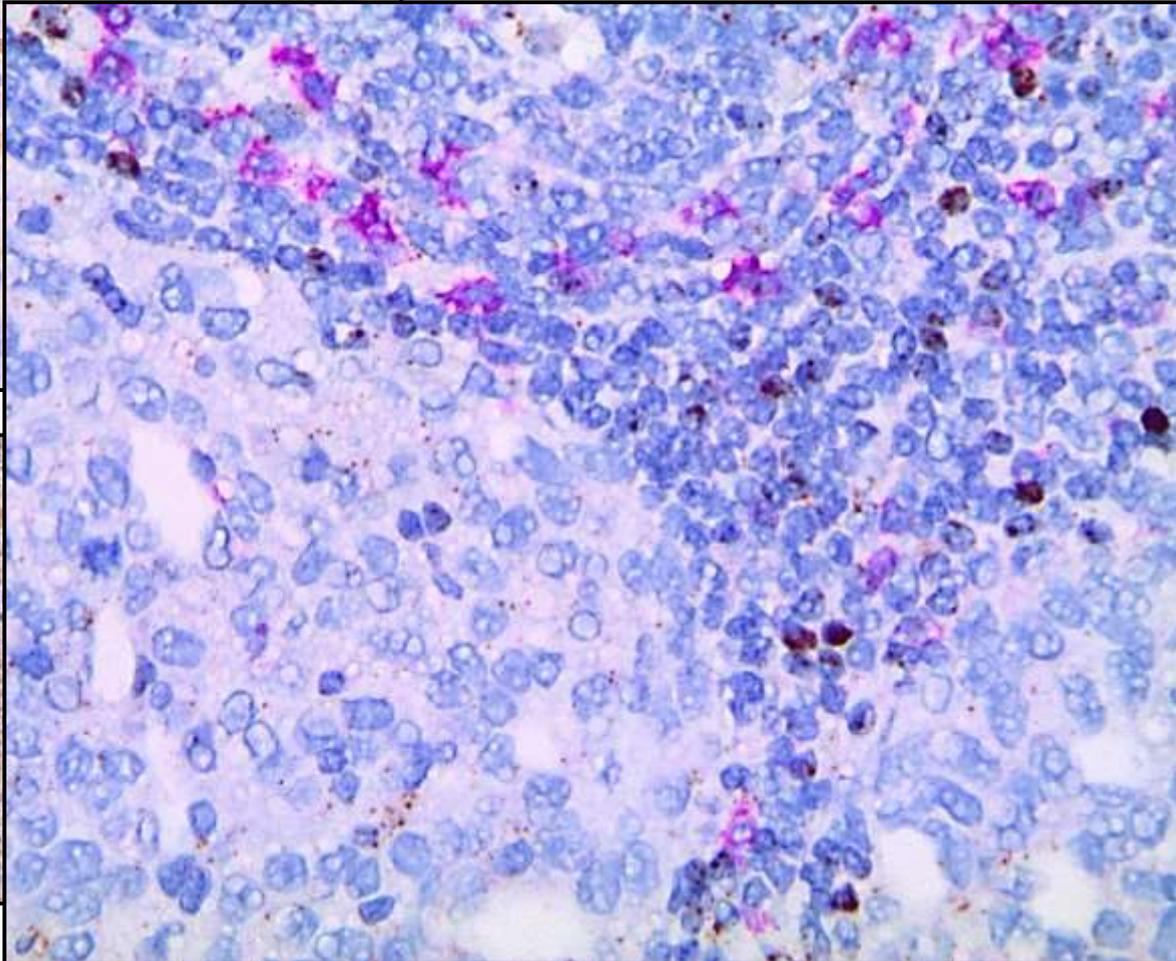
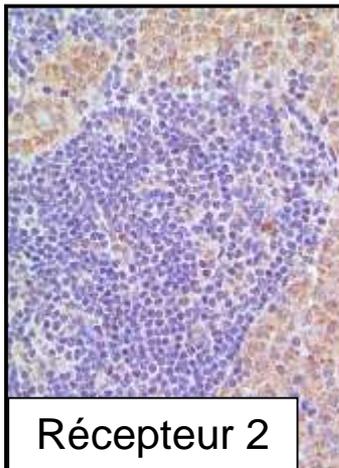
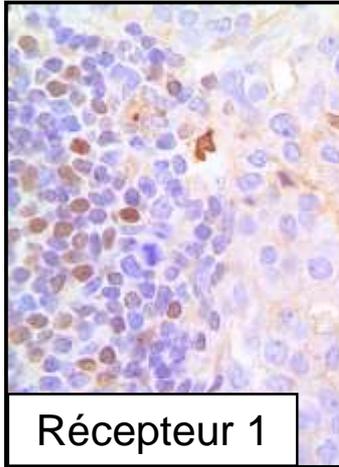
# IHC Fonctionnelle : Protein Ligation Assay



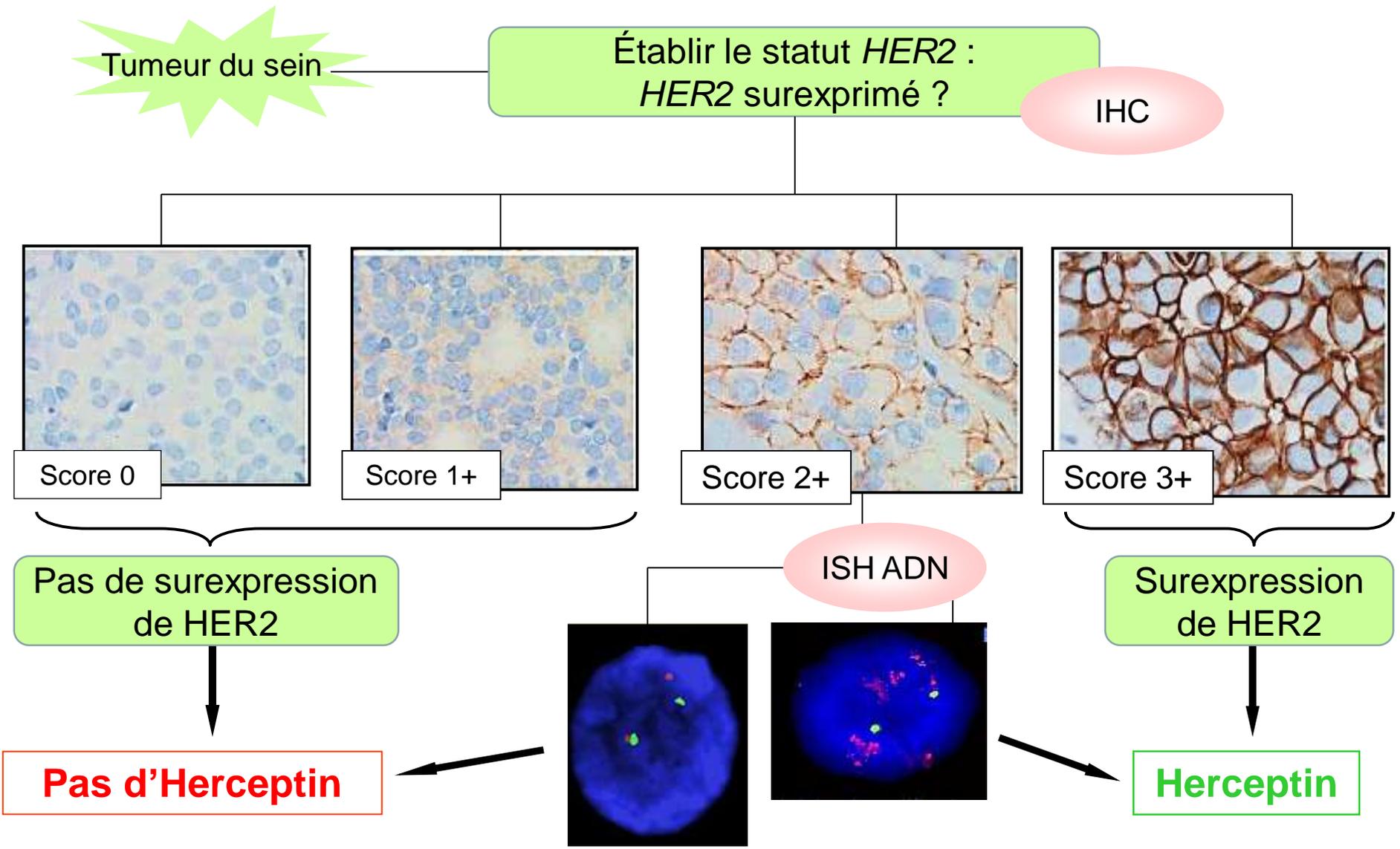
# Exemple PLA : Complexe de récepteurs

Formation d'un complexe entre deux récepteurs :  
facteur prédictif de résistance à certains traitements ?

PLA + IHC

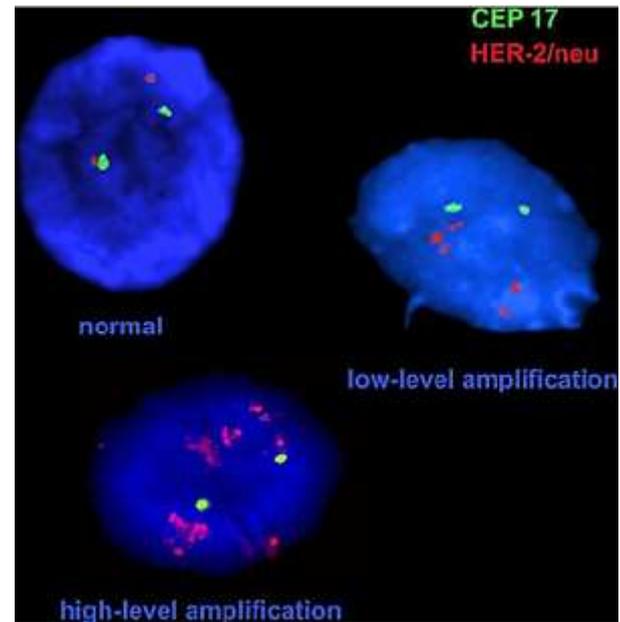
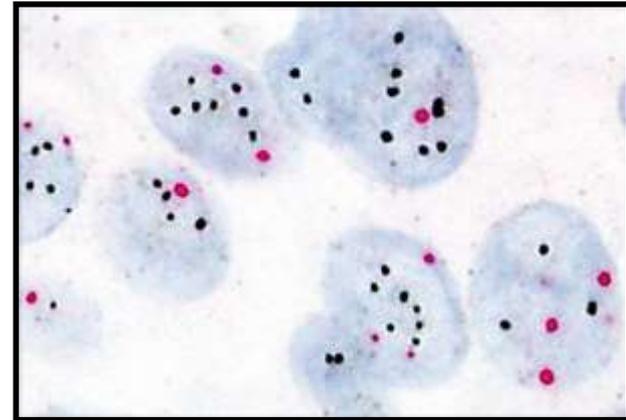
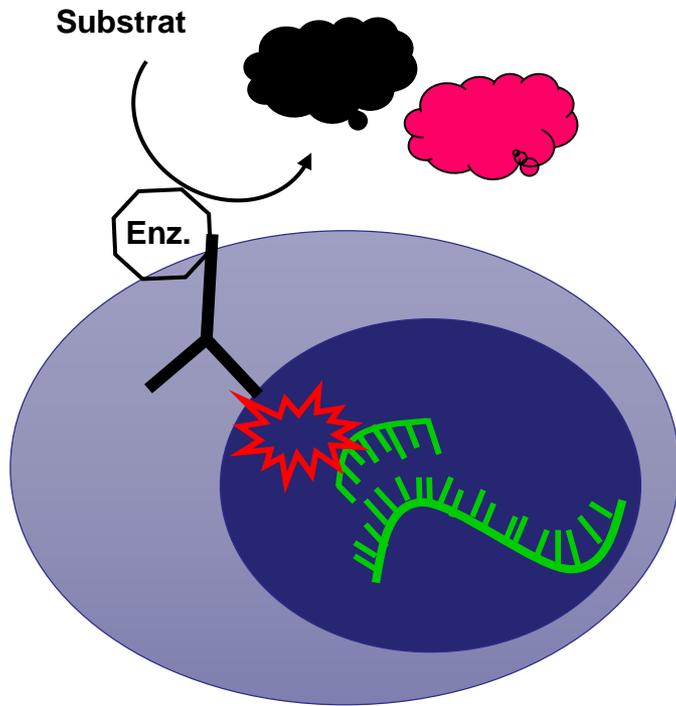


# Outil en thérapeutique : Récepteur *HER2*



# ISH : Principe

ADN



# GPA : Gene Protein Assay

ADN

ISH

+

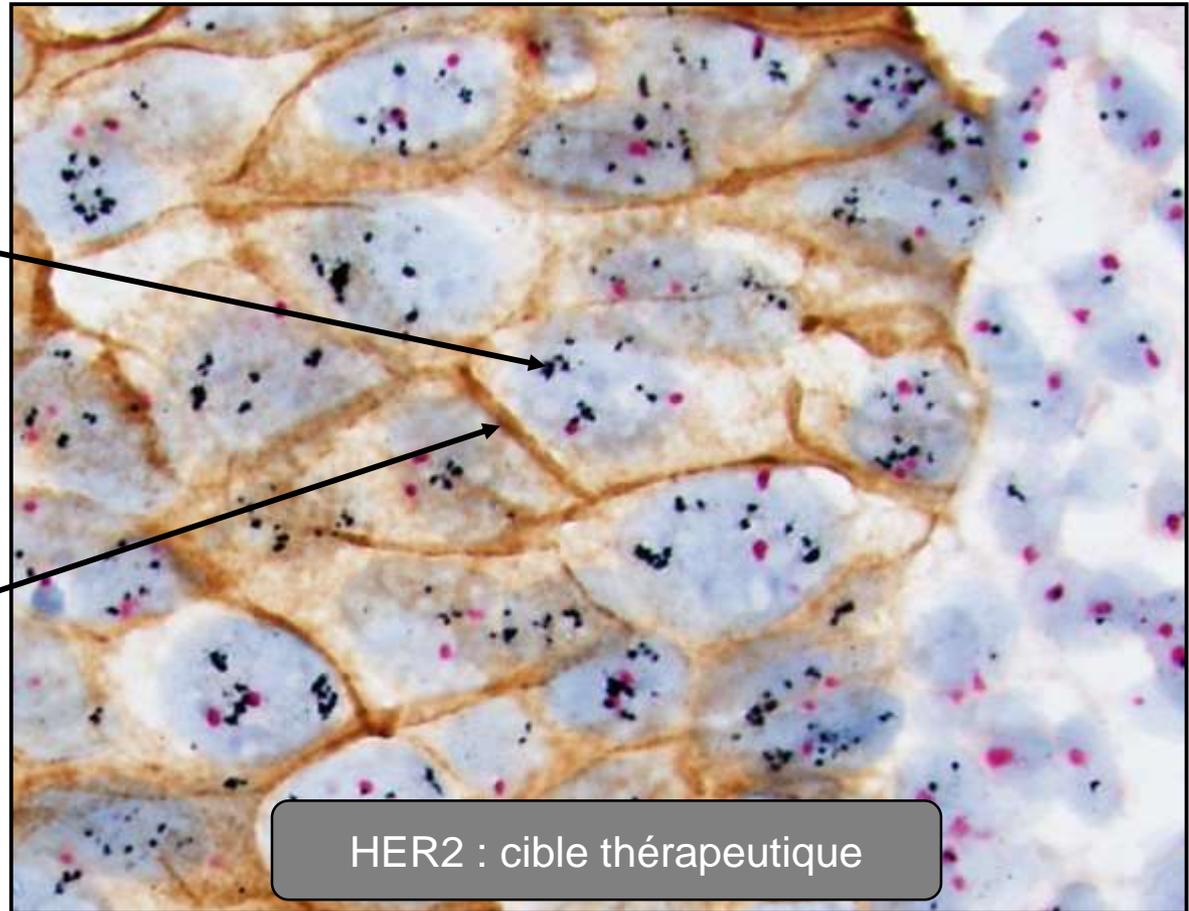
Protéine

IHC

ISH

IHC

HER2 : cible thérapeutique

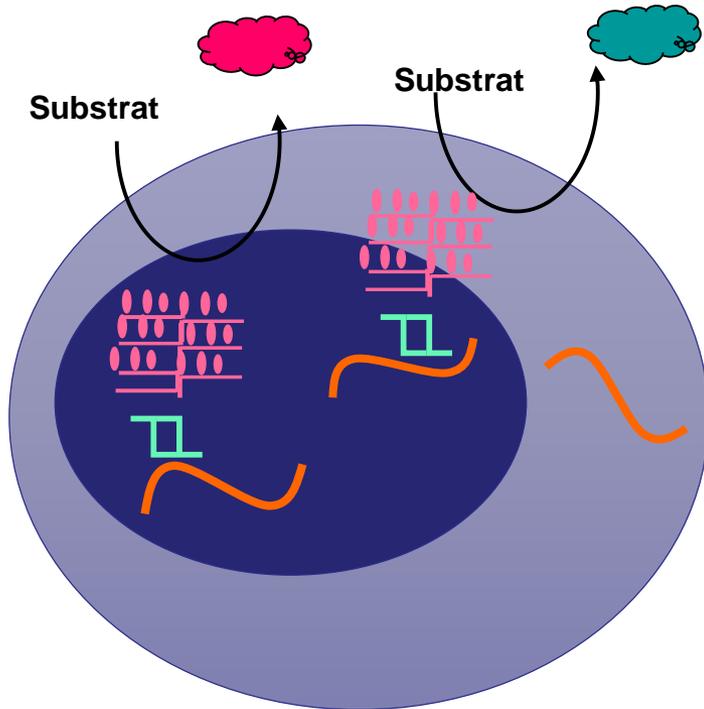


# Et l'ISH ARN ? RNAscope

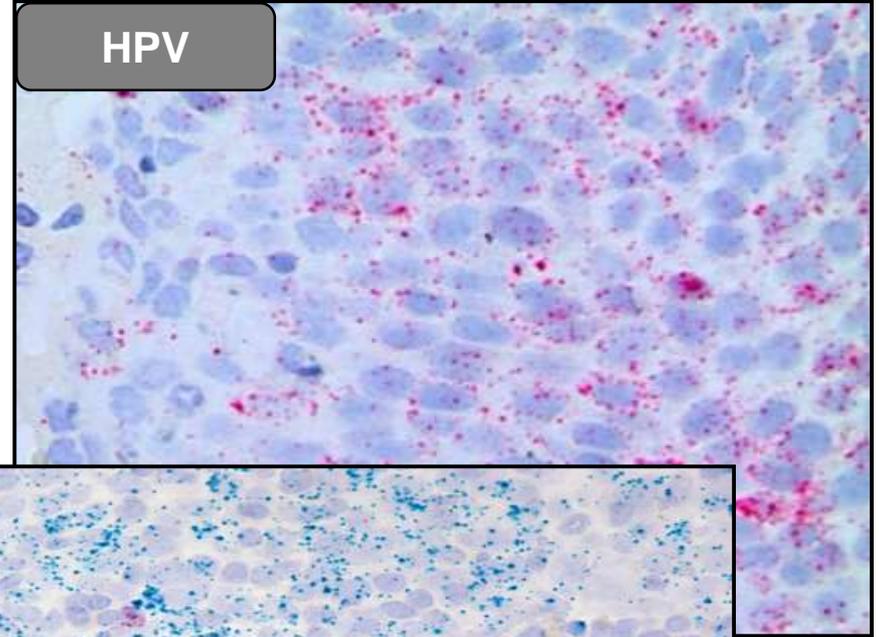
ARN

+

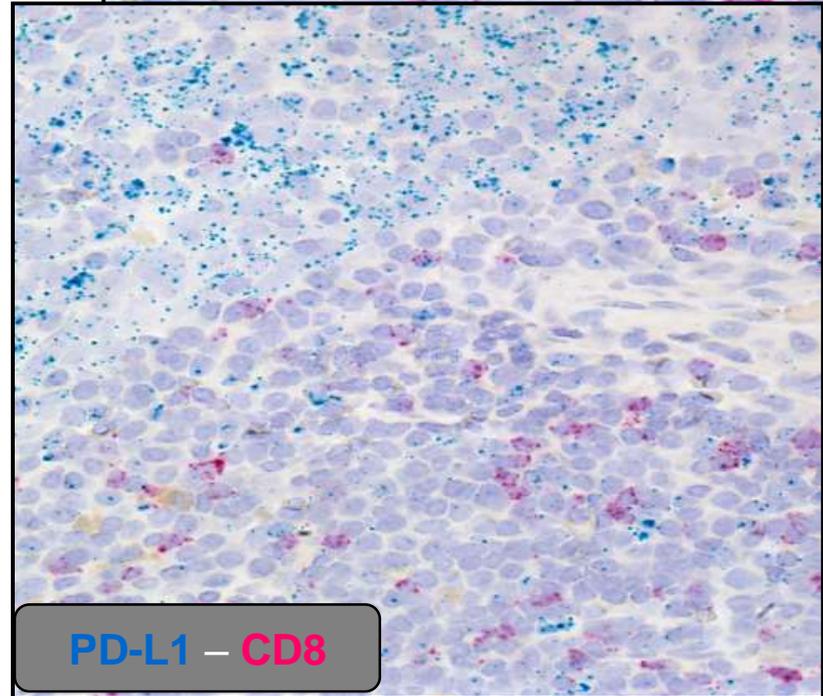
ARN



HPV



PD-L1 – CD8



# De l'ARN à la protéine

---

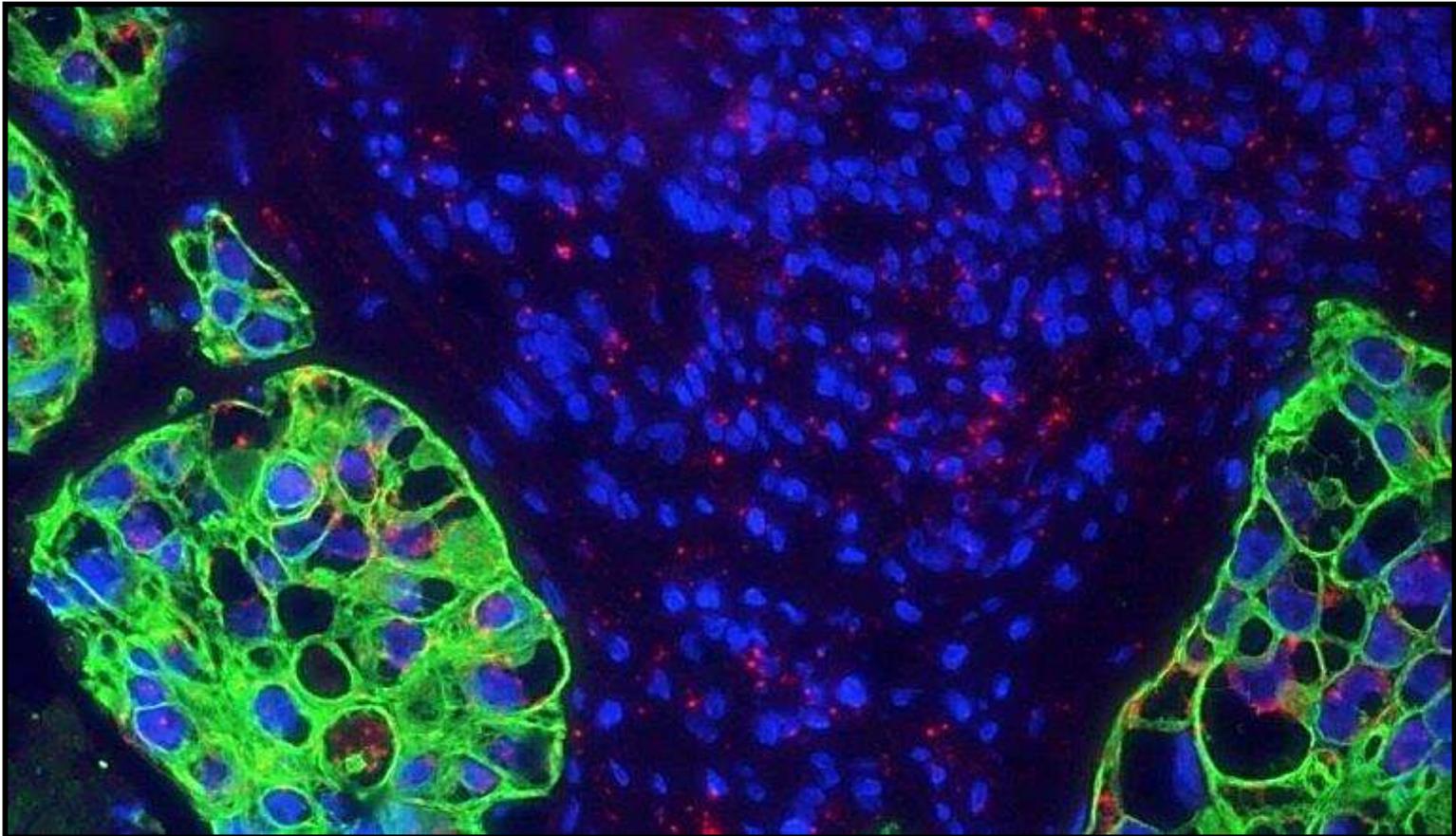
ARN

ISH

+

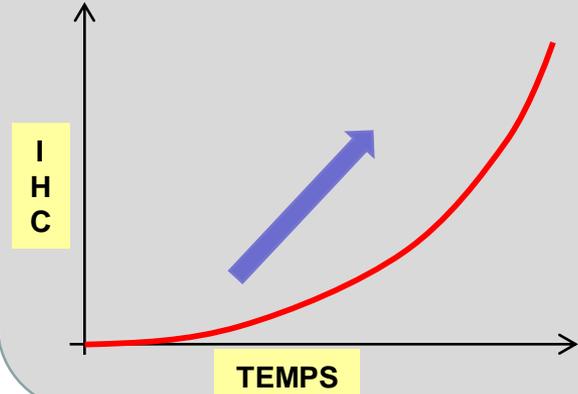
Protéine

IHC

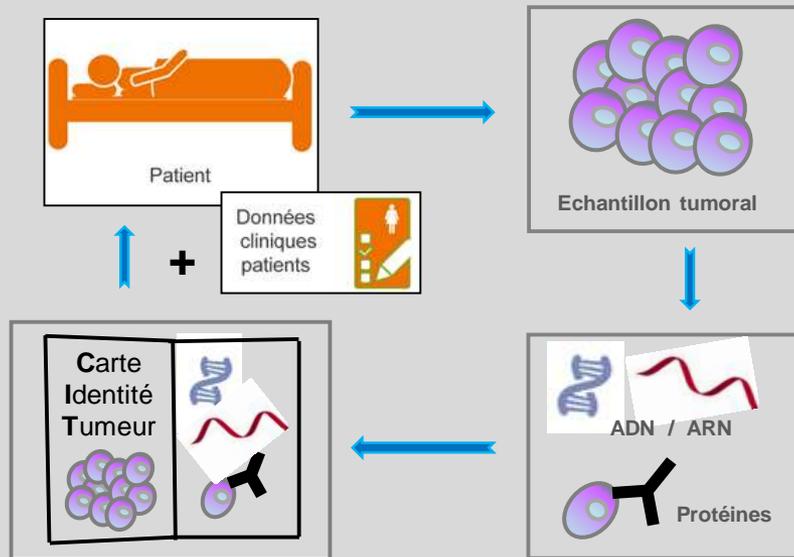


# Conclusion

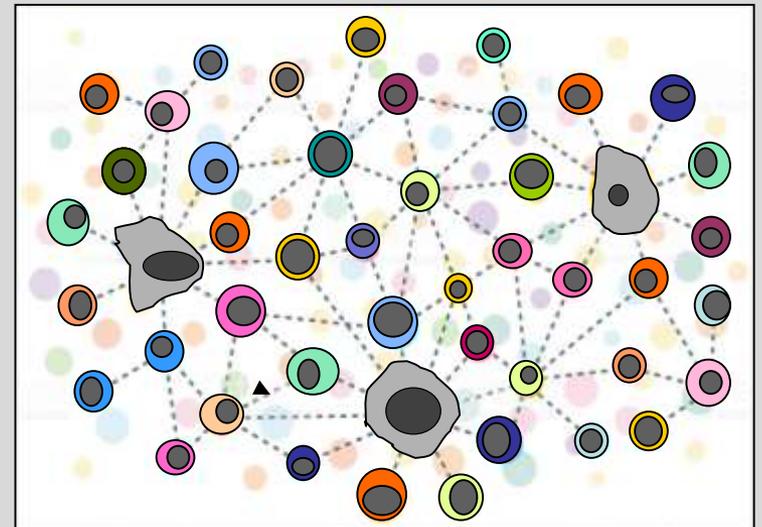
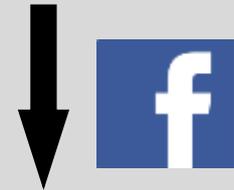
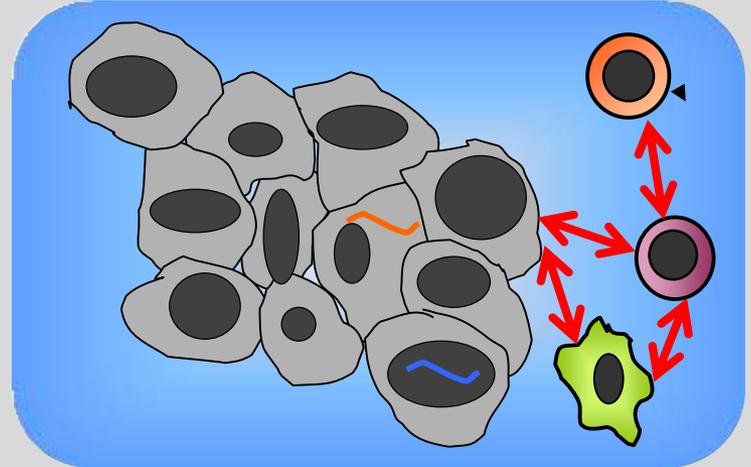
Evolution de l'IHC dans le temps



Biomarqueurs



Multiparamétrique



# MERCI

