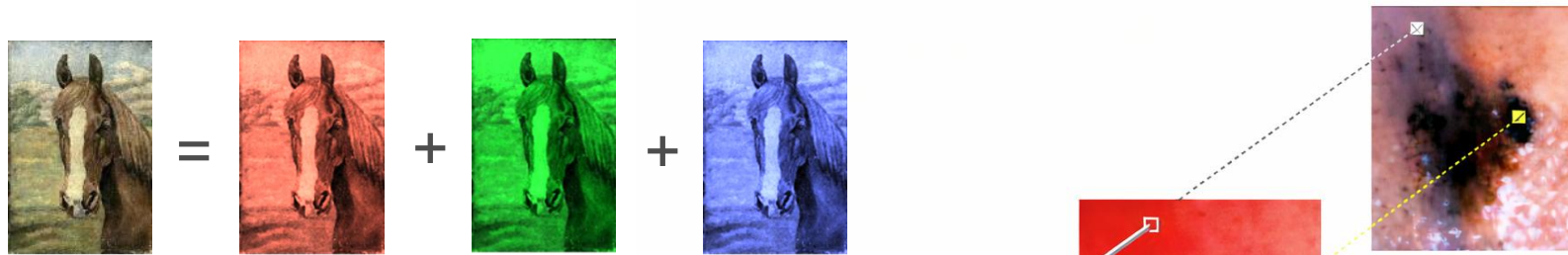


# Festa de la Ciència

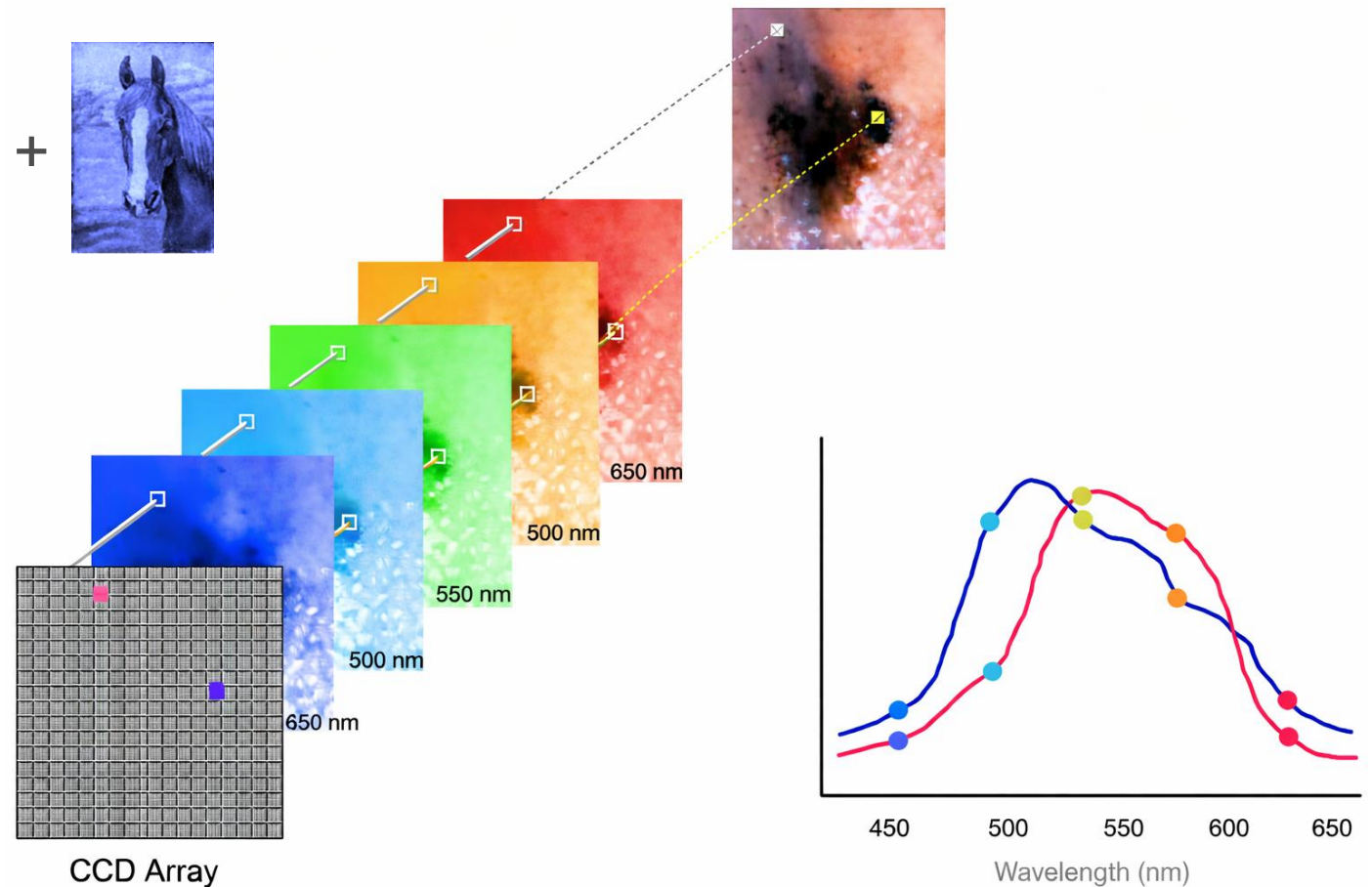
Born History Museum 19/04/2026

# 1. Imagen multispectral que revela lo invisible

- Cámara RGB convencional:

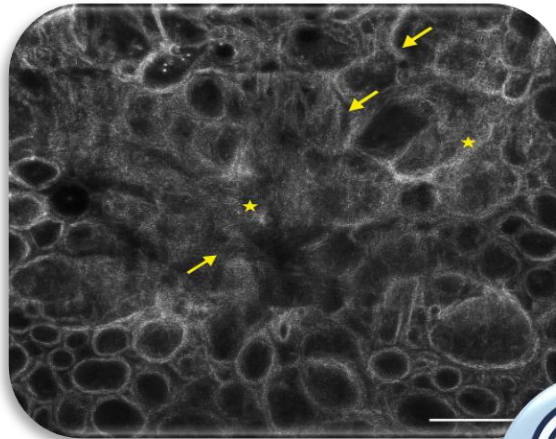


- Sistema multispectral:
  - Multi - (< 10 canales)
  - Hyper - (< 100 canales)

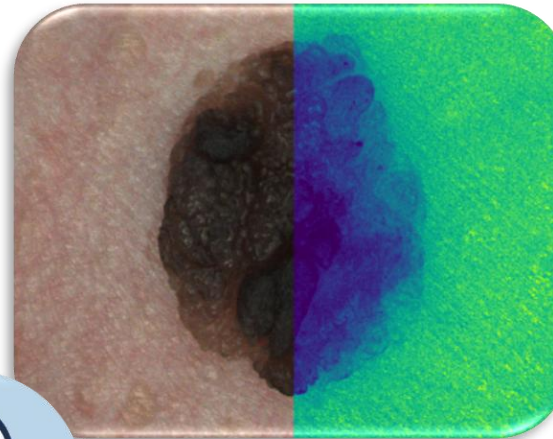


## 2. Métodos ópticos que revelan lo invisible

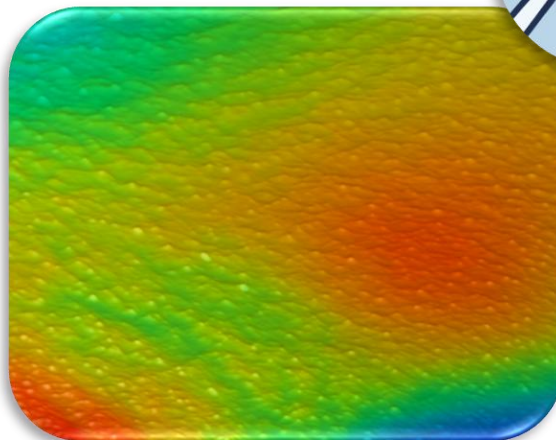
**CLSM** | Tipo celular



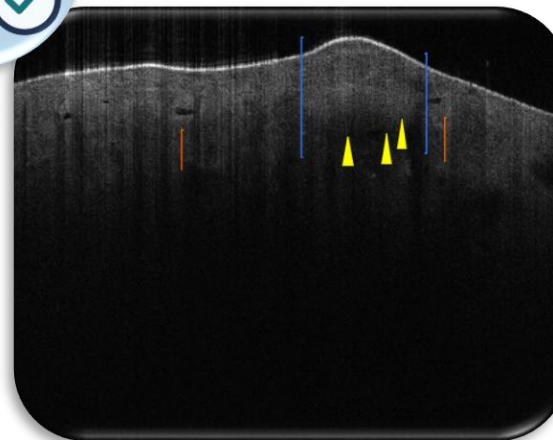
**MS** | Sustancias presentes



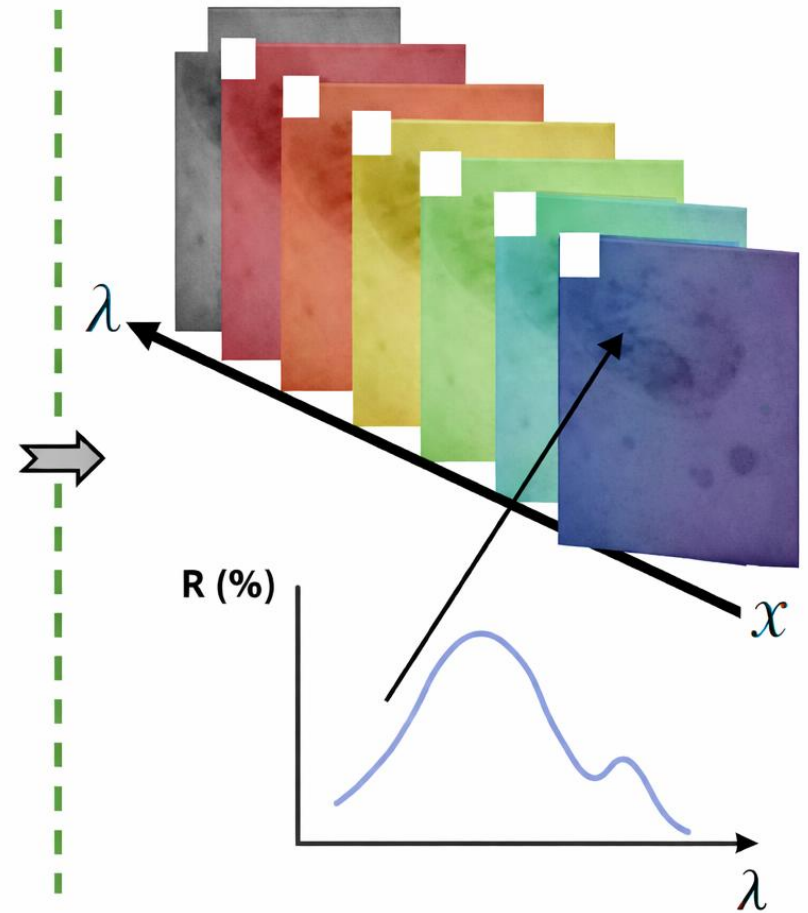
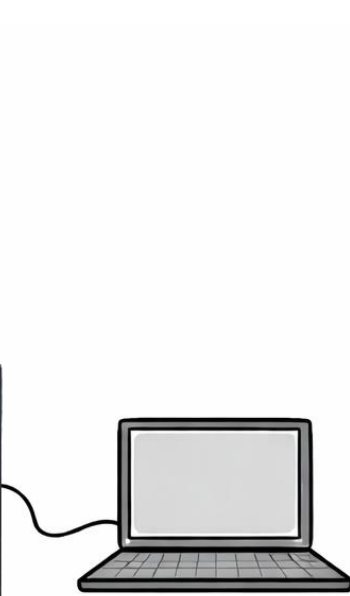
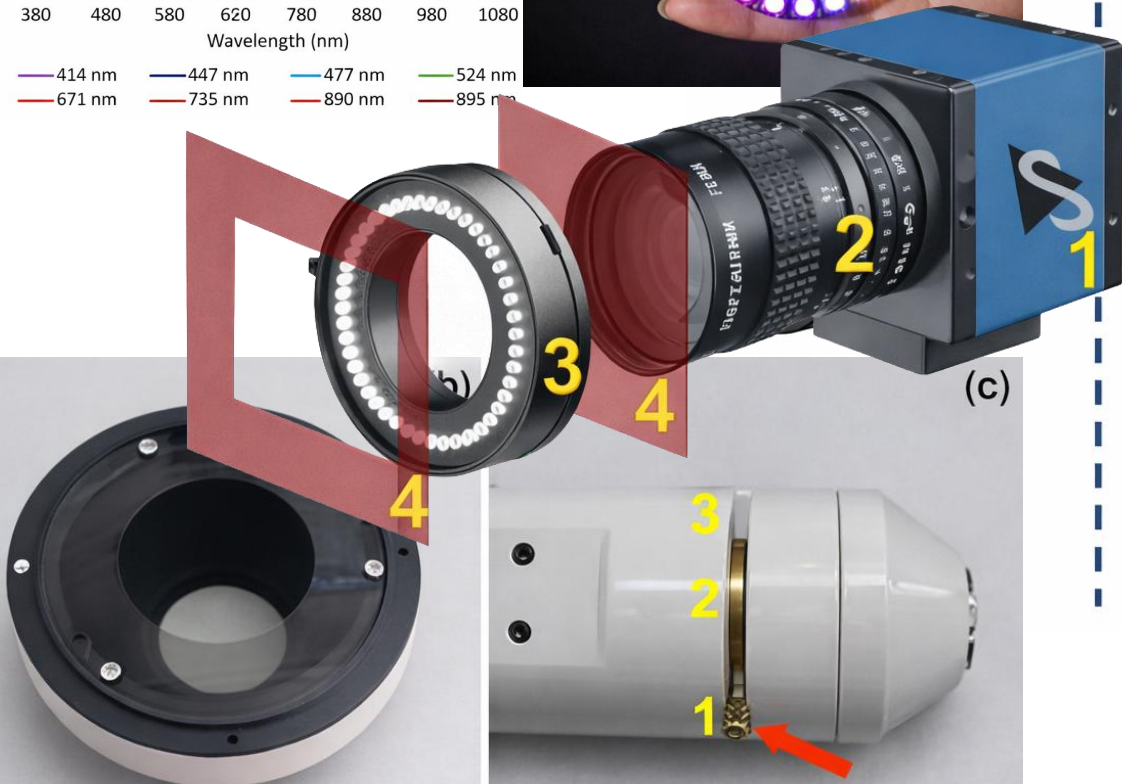
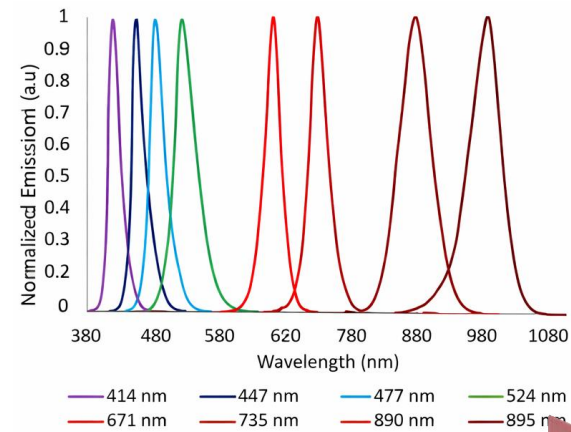
**SLP** | Estructura 3D



**OCT** | Estructura del tejido

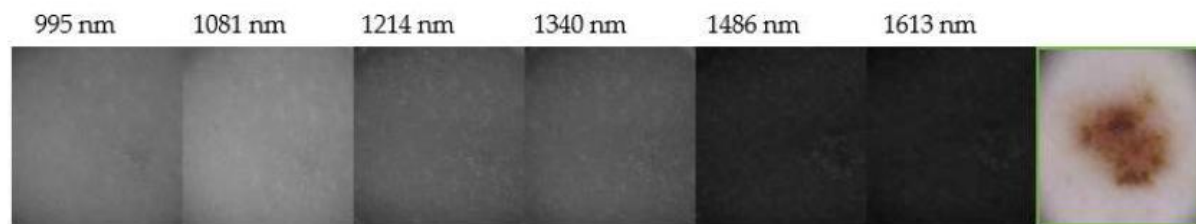
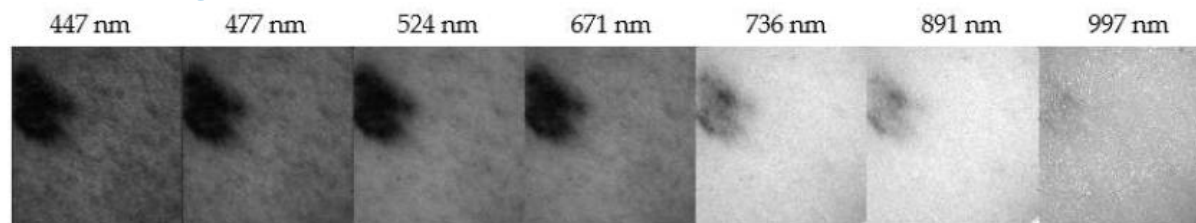


### 3. Sistema de imagen multispectral

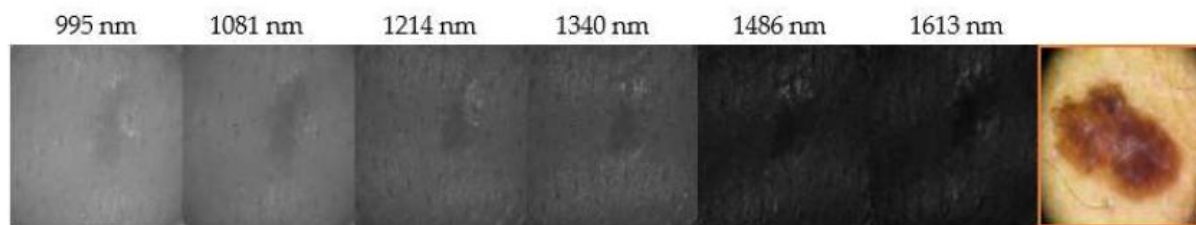
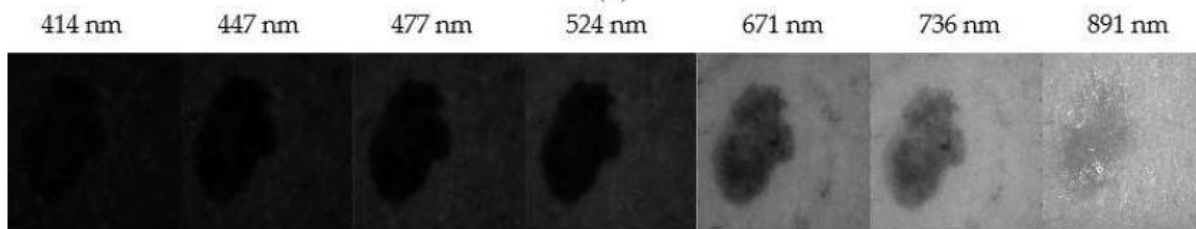


¡Midamos tu piel!

## 4. ¿Cuál es el objetivo?



(a)



(b)

## 4. ¿Cuál es el objetivo?



Removal process using electrocautery.

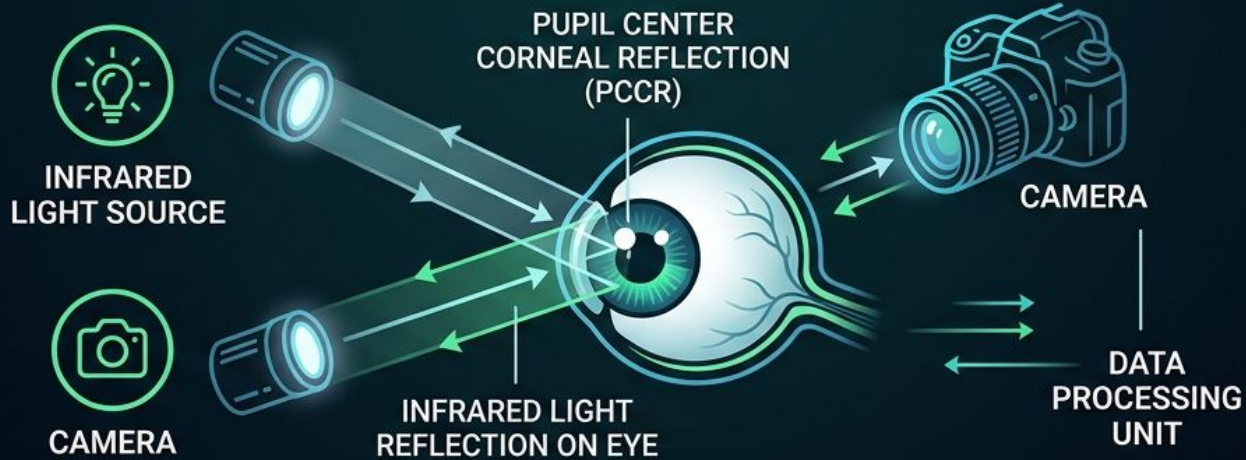
### Cáncer de piel: diagnóstico y problemática

- Mucha gente muere de cáncer de piel anualmente.
- Su diagnóstico implica la inspección visual y en muchos casos, la realización de una biopsia.

La biopsia proporciona el diagnóstico confirmativo

Un 50% de los casos biopsiados, son en realidad benignos

# Eye-Tracking Technology: The Window to the Mind



## FIXATION

Where you look.  
(Duration & Position)



## SACCADES

Rapid jumps  
between points.  
(Movement Path)



## DILATION

Pupil size changes.  
(Cognitive Load & Emotional Response)



## THE HARDWARE

Wearable Glasses



Remote Screen-Based Sensors



# Transforming Diagnosis: From Observation to Data

## Traditional Testing



- PEN-AND-PAPER MEDICAL TESTS
- SUBJECTIVE OBSERVATION
- LATER DETECTION OF PHYSICAL SYMPTOMS



• **CEL**NEUROPHRAILITY



• **NEURODEGENERATIVE DISEASES**

Early Alzheimer's & Parkinson's detection via microscopic "sqiggly" eye movements.



**INCREASED ACCURACY**



**SPEEDIER DIAGNOSIS**

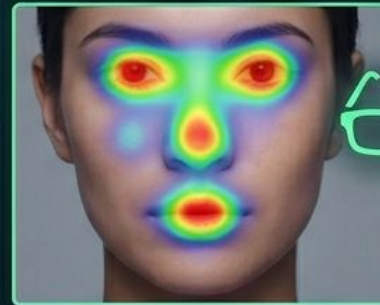


**FROM OBSERVATION TO DATA**

## Eye-Tracking Analysis

### Heatmap Comparison

NEUROTYPICAL GAZE PATTERN



ASD GAZE PATTERN



**DEVELOPMENTAL DISORDERS**



Identifying ASD in infants by analyzing gaze in infants by analyzing gaze preferences (social vs. non-social objects).



**MENTAL HEALTH**



Assessing ADHD & depression through gaze patterns and attention duration.

# Beyond Data: Assistive Tech & Clinical Excellence



## AAC (Augmentative & Alternative Communication)

Allowing patients with ALS or “locked-in” syndrome to type and speak using only their eyes.



## Surgical Training

Studying the “Quiet Eye” of expert surgeons—mapping exactly where they look during complex procedures to train residents.



## Rehabilitation

Helping stroke victims regain motor control through gaze-con-physical therapy games.



**Goal:**



EMPOWERMENT



RECOVERY



ACCESSIBILITY



CLINICAL  
EXCELLENCE

