

PRIMO CONVEGNO NAZIONALE DEL CENTRO DI MEDICINA DI PRECISIONE – HEAL ITALIA PER LE MALATTIE RARE

www.ancona.centridimedicinadiprecisione.it

Responsabile scientifico
Prof. **Gianluca Moroncini**

UnivPM – Ancona
Aula Montessori
Facoltà di Medicina
e Chirurgia

venerdì 28 febbraio
14:30 → 18:30
sabato 1 marzo
09:00 → 13:00

Progetto "Health Extended ALLiance for Innovative Therapies, Advanced Lab-research,
and Integrated Approaches of Precision Medicine (HEAL ITALIA) Codice PE00000019,
CUP I33C22006900006 – finanziato dal PNRR M4C2 I1.3 – DD MUR 341 del 15/03/2022

Il ruolo della Digital Pathology nelle Malattie Rare

Aldo Scarpa e Stefano Gobbo

Anatomia Patologica



NEOPLASIE RARE

Incidenza annuale <6 su 100.000

Figure 1A

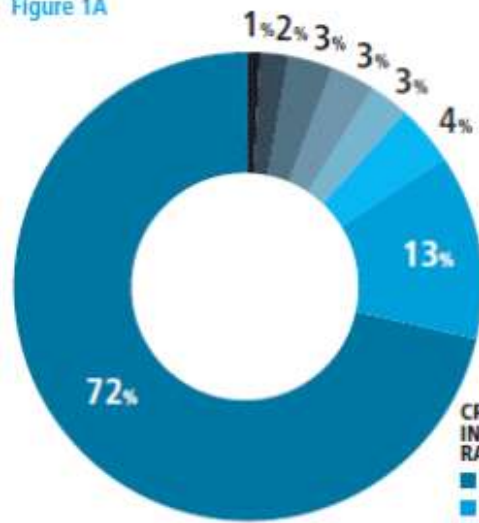


Figure 1B

ESTIMATED NUMBER OF CASES OF RARE CANCERS IN 2010 IN ITALY

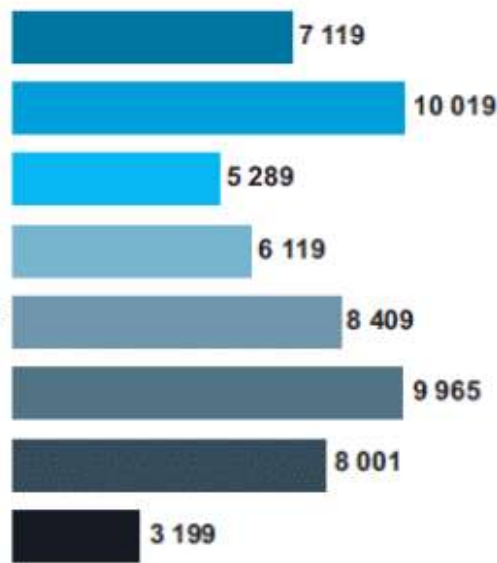
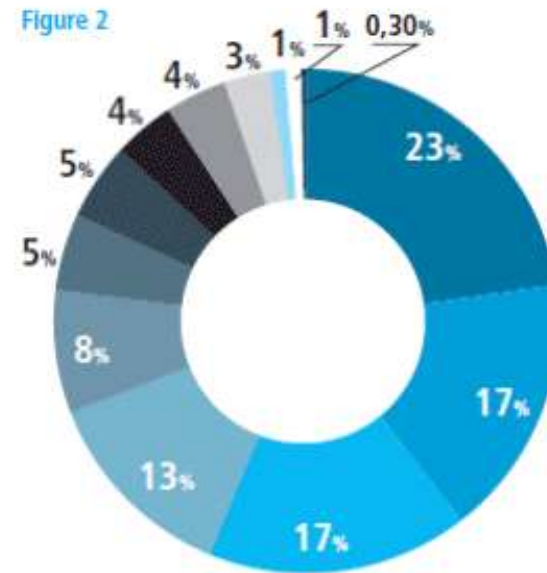


Figure 2



- Rare epithelial tumours of digestive system and mesothelioma of peritoneum
- Rare tumours of the female genital system
- Epithelial tumours of head and neck
- Tumours of endocrine organs
- Sarcomas
- Tumours of the central nervous system
- Rare epithelial tumours of the thoracic cavity and mesothelioma of pleura and pericardium
- Neuroendocrine tumours
- Rare tumours of the male genital system
- Rare epithelial tumours of the urinary system
- Tumours of eye
- Rare skin tumours and malignant melanoma of mucosae
- Embryonal tumours

RARECARENet (Rare CANcer REgistry NETwork)
Advancing Care For Rare Cancers Across Europe

NEOPLASIE RARE

DIAGNOSI

NECESSITA' DI CONSULENZA ESPERTA
NECESSITA' DI METODICHE
MOLECOLARI SPECIFICHE

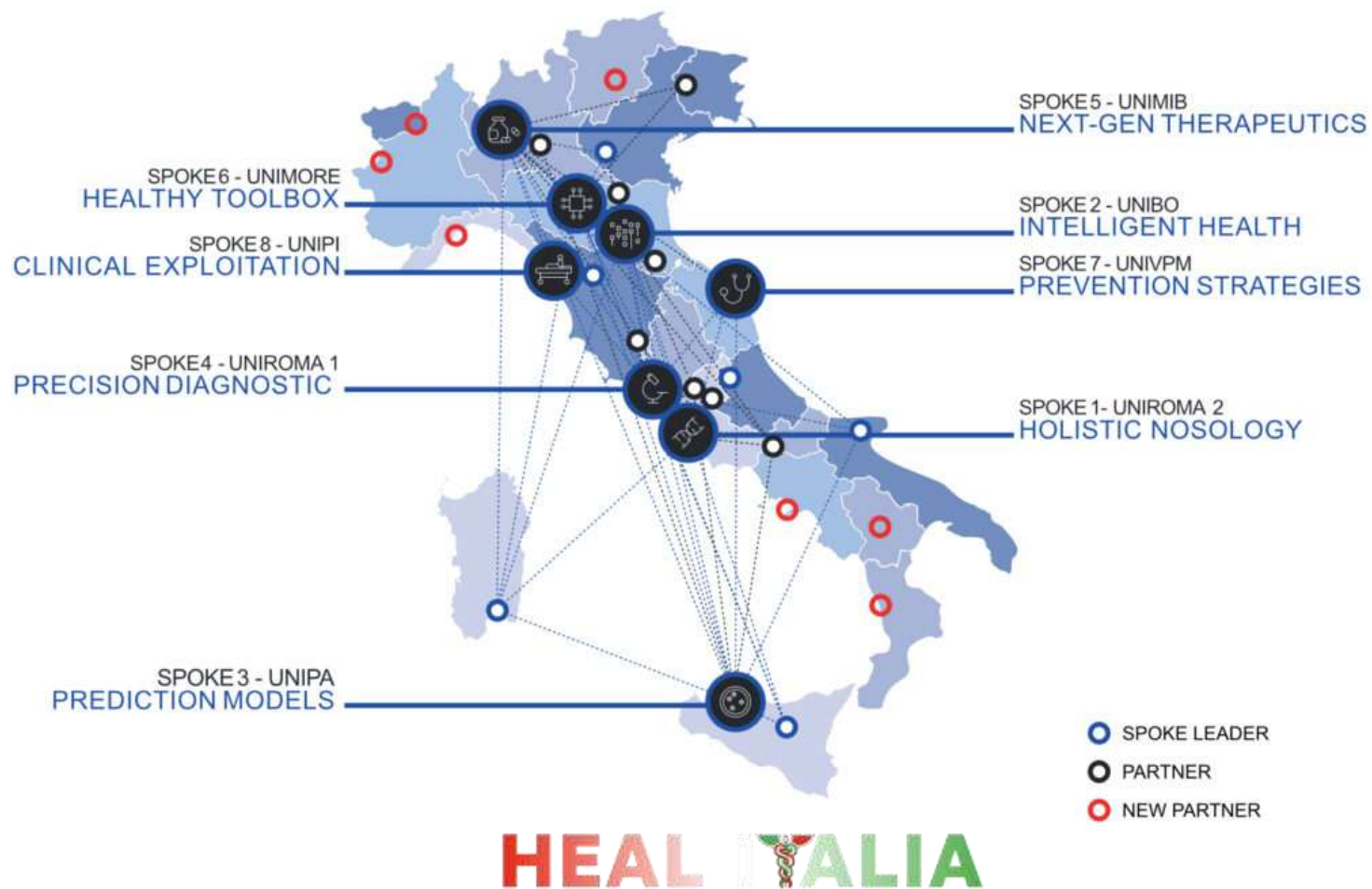
TRATTAMENTO

PERCORSI ASSISTENZIALI SPECIFICI
PROTOCOLLI TERAPEUTICI SPECIFICI
MARCATORI PREDITTIVI SPECIFICI

FOLLOW-UP

POCHI DATI PROGNOSTICI

CENTRI DI COORDINAMENTO MALATTIE RARE





DIAGNOSI

MORFOLOGIA ISTOPATOLOGICA

CONOSCENZA
PRATICA
ESPERIENZA



NEOPLASIE RARE!!!

NEOPLASIE RARE

NECESSITA' DI

CONOSCENZA

PRATICA

ESPERIENZA

CONDIVISIONE

CONFRONTO

CASISTICA



Finanziato
dall'Unione europea
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Ministero
dell'Università
e della Ricerca

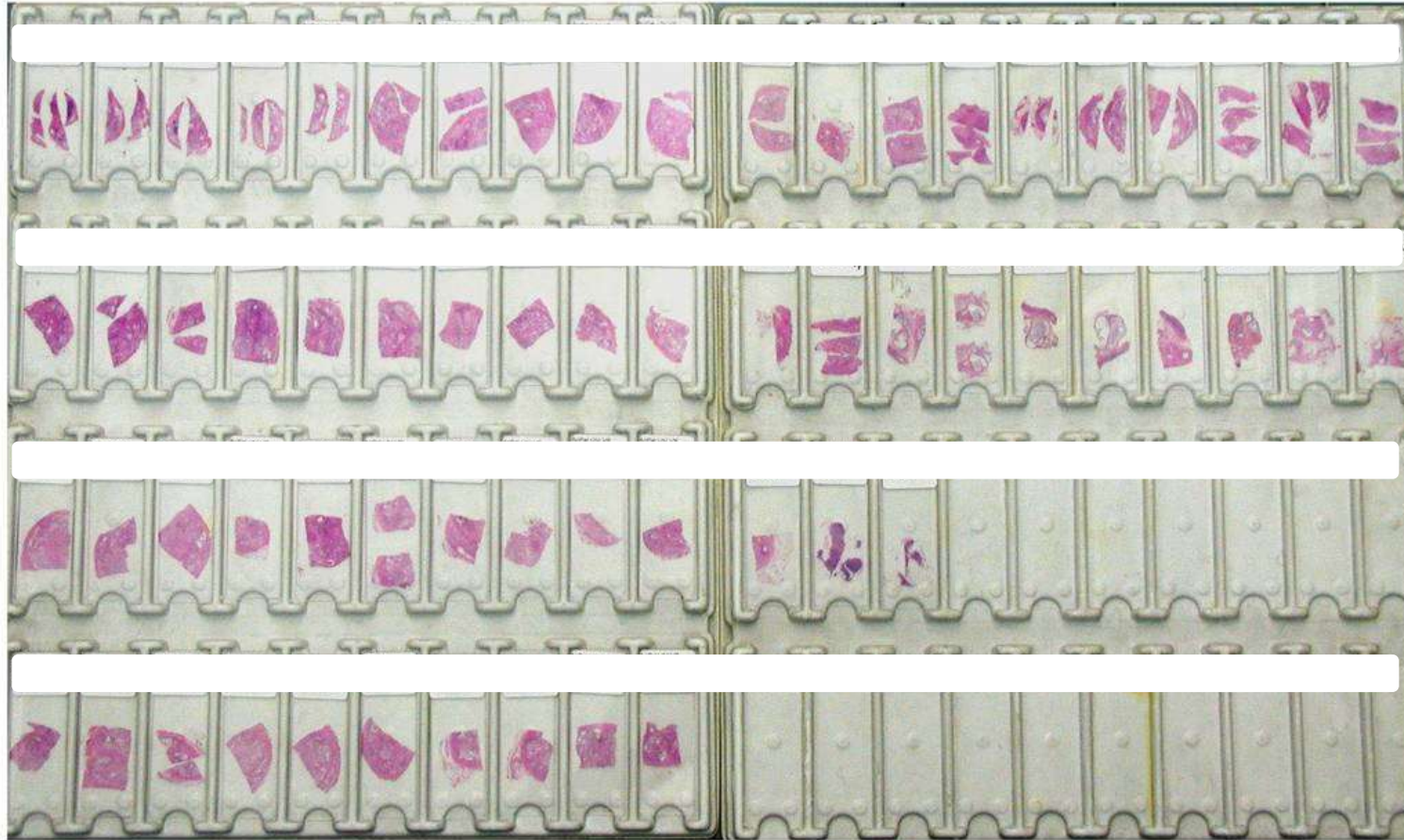


Italiadomani
PIANO NAZIONALE
DI RIPRESA E RESILIENZA



HEAL ITALIA
ROADSHOW
TECNOLOGIE E INNOVAZIONE
INNOVATION ON THE ROAD

ANATOMIA PATOLOGICA *DI IERI*



CONDIVIDERE UN CASO RARO



- TEMPO
- TRACCIABILITA'
- SICUREZZA
- PRIVACY

CONDIVIDERE L'IMMAGINE *TELEPATOLOGIA*



The first working telepathology system in
history.

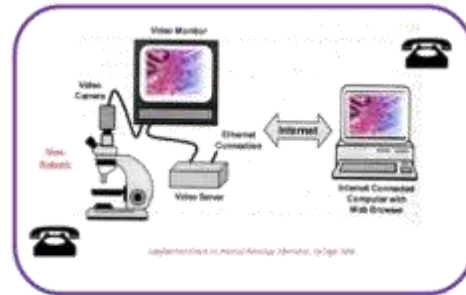
1968

EVOLUZIONE DELLA TELEPATOLOGIA

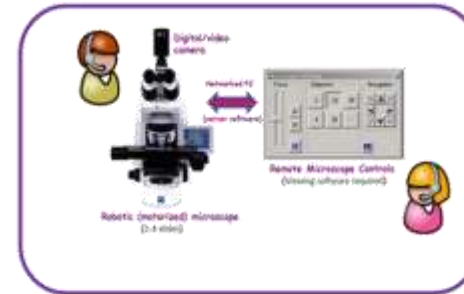
Static



Video



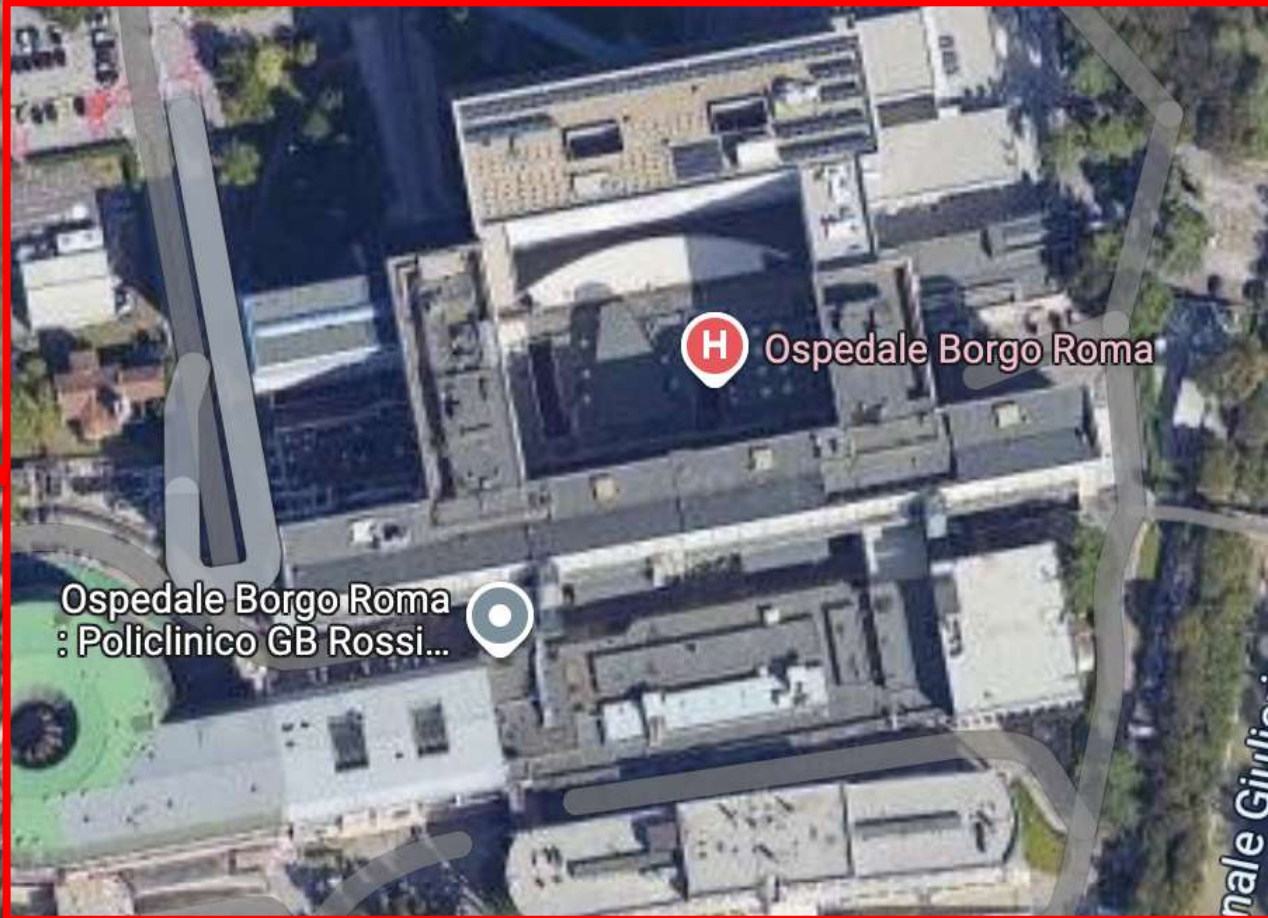
Robotic

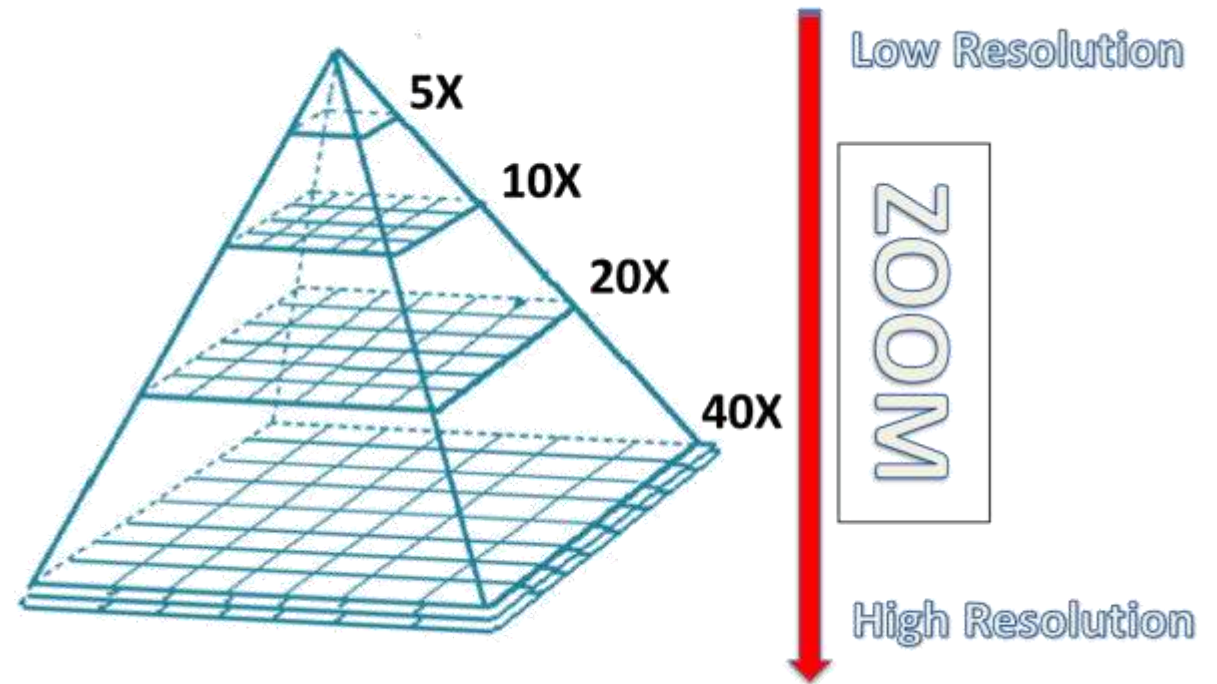
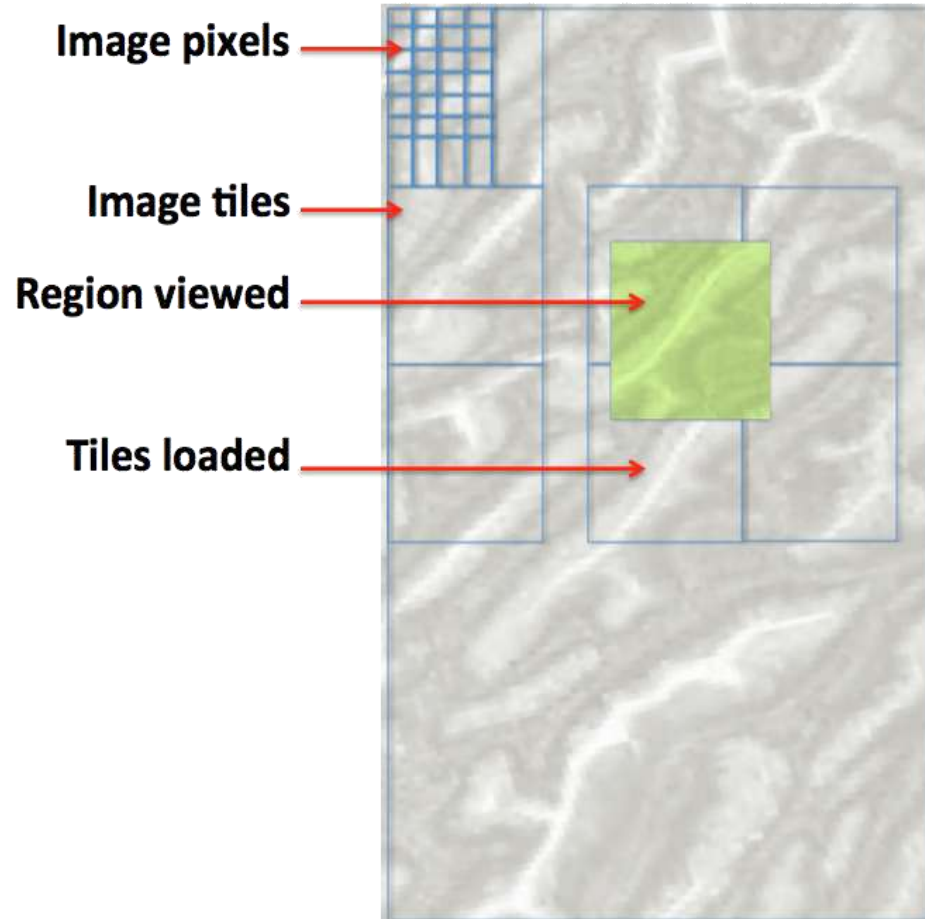


WSI



WHOLE SLIDE IMAGE





DIGITAL PATHOLOGY

WHOLE SLIDE IMAGES (WSI)



VELOCITA'
COMPRESSIONE FILES
CAPACITA' DI CARICA
CARICA CONTINUA
TRACCIABILITA'
PREZZO



2000

SCANNER

2020



ANATOMIA PATOLOGICA *DI OGGI*

Dettaglio esame TNZSFN79511F464G

VR24-I-25601 DA REFERITARE Allegato Note Sistema di documenti RISERVA PRECISTE BORISZ ROMA

Accettazione | Esami precedenti | Macro | Micro | Griglia immunocitochimica | Diagnosi | Esteremporanea | Addendum | E-Slide | Non conformità/Consulenze

Slide Viewer

Intelligenza artificiale RfC...

AI Stomaco

A-1-1-EE- | A-2-1-EE- | A-3-1-EE- | A-4-1-EE- | A-5-1-EE- | A-6-1-EE-

A-7-1-EE- | A-8-1-EE- | A-9-1-EE- | A-10-1-EE- | A-11-1-EE- | A-12-1-EE-

Arteria gastroepiploica di destra

D-1-1-EE- | D-2-1-EE- | D-3-1-EE- | D-4-1-EE-

Unifondali arteria gastroepiploica di sinistra

E-1-1-EE- | E-2-1-EE- | E-3-1-EE- | E-4-1-EE- | E-5-1-EE-

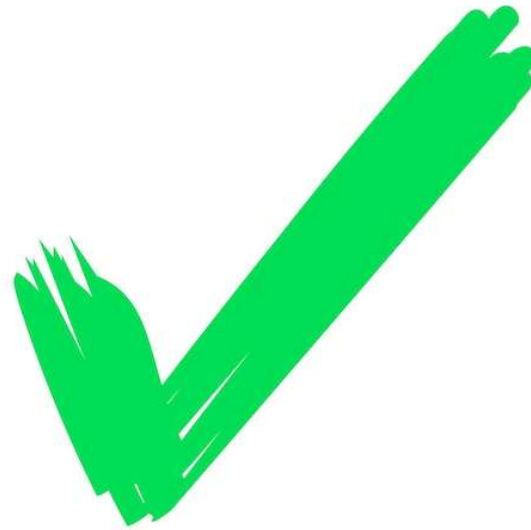
Esti IA

No records available.

Fare di Segni Remo | Fare di Segni Verde



TELEPATOLOGIA

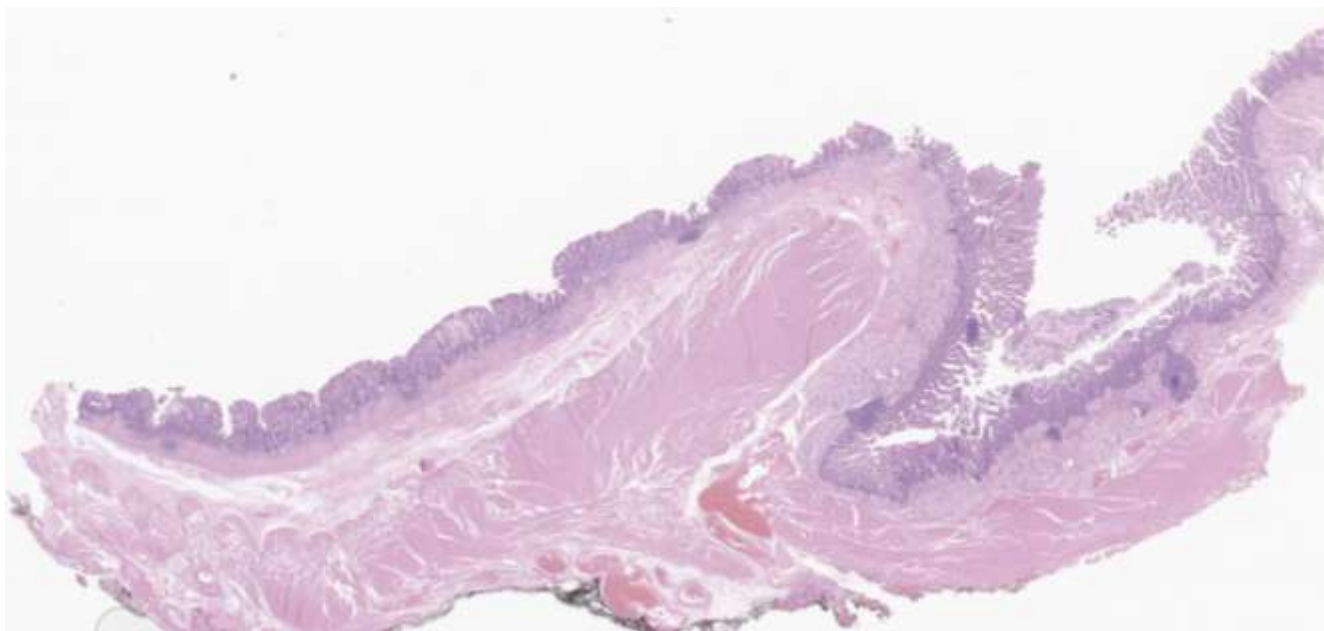


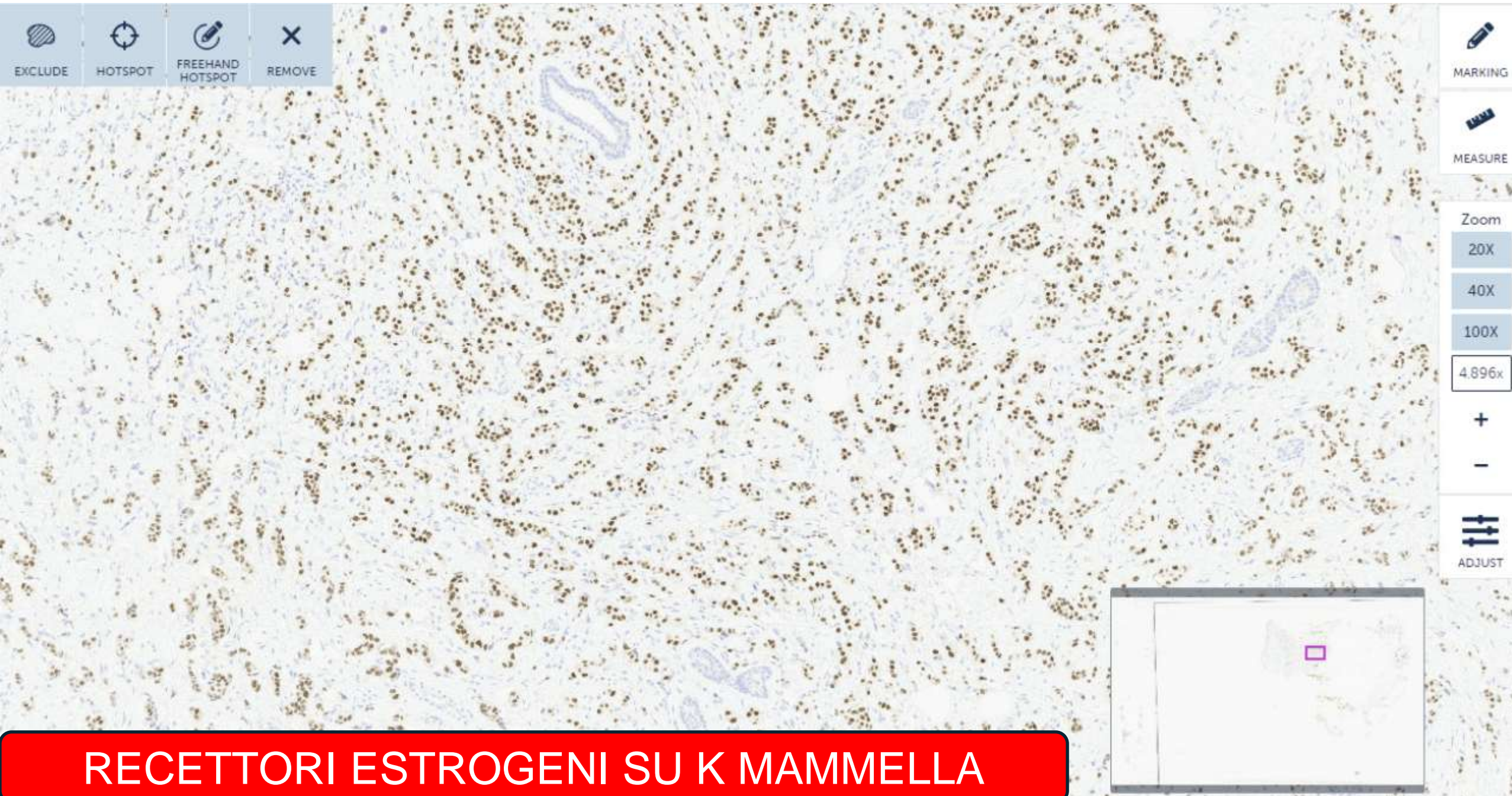
POSSO RAGGIUNGERE PIU' ESPERTI «A DISTANZA DI CLICK»

ANALISI DI IMMAGINE

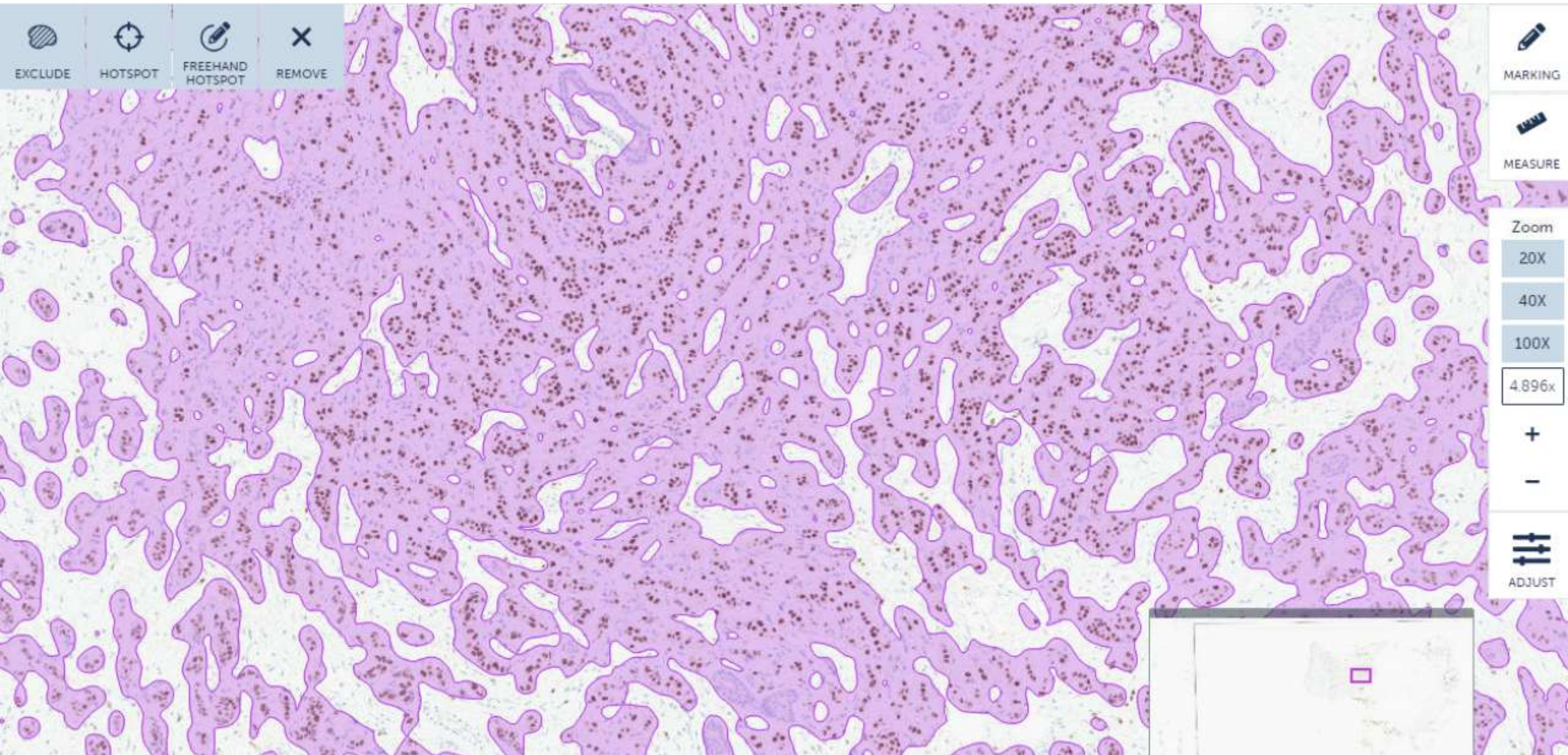


ANALISI DI IMMAGINE

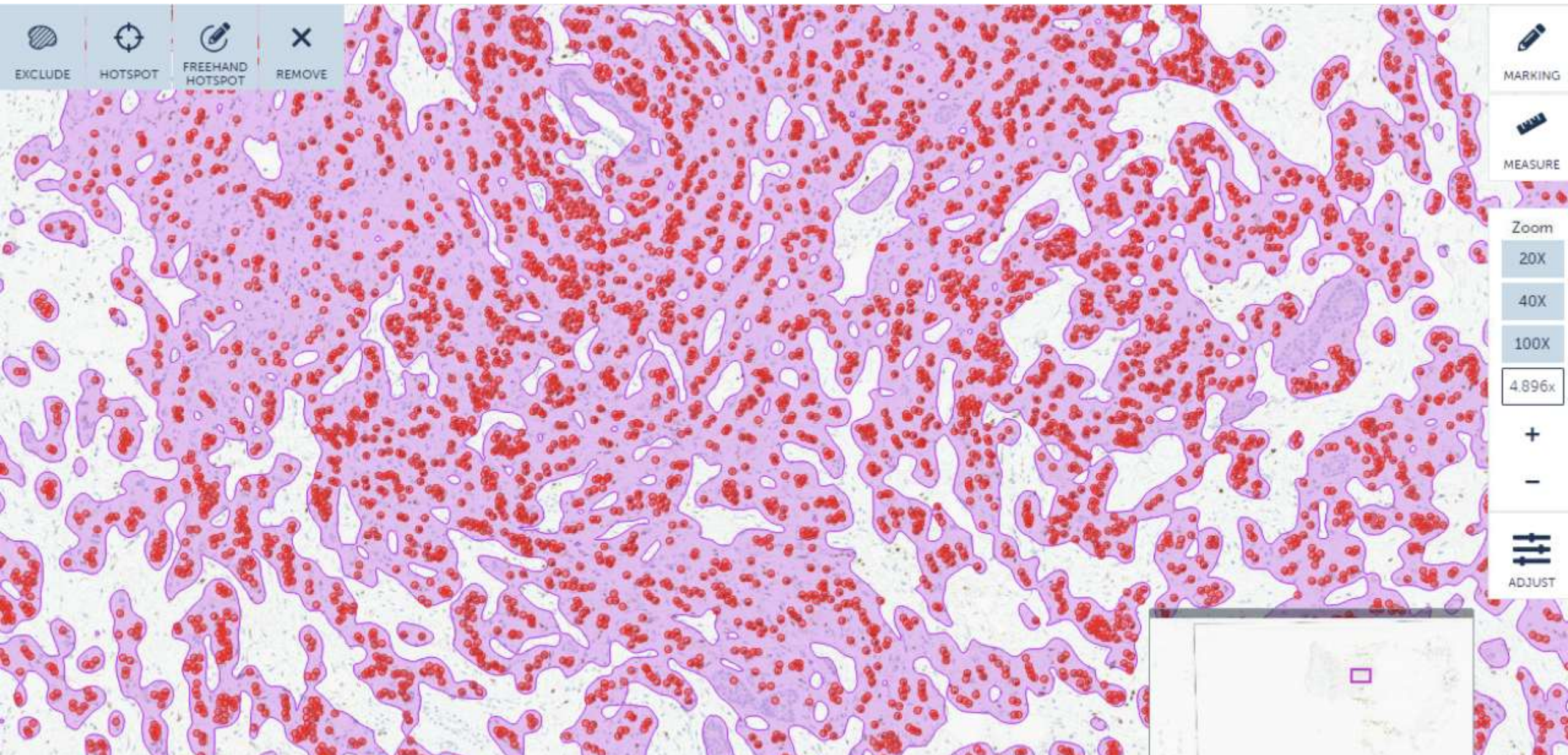




RECETTORI ESTROGENI SU K MAMMELLA



RECETTORI ESTROGENI SU K MAMMELLA



EXCLUDE

HOTSPOT

FREEHAND
HOTSPOT

REMOVE

MARKING

MEASURE

Zoom

20X

40X

100X

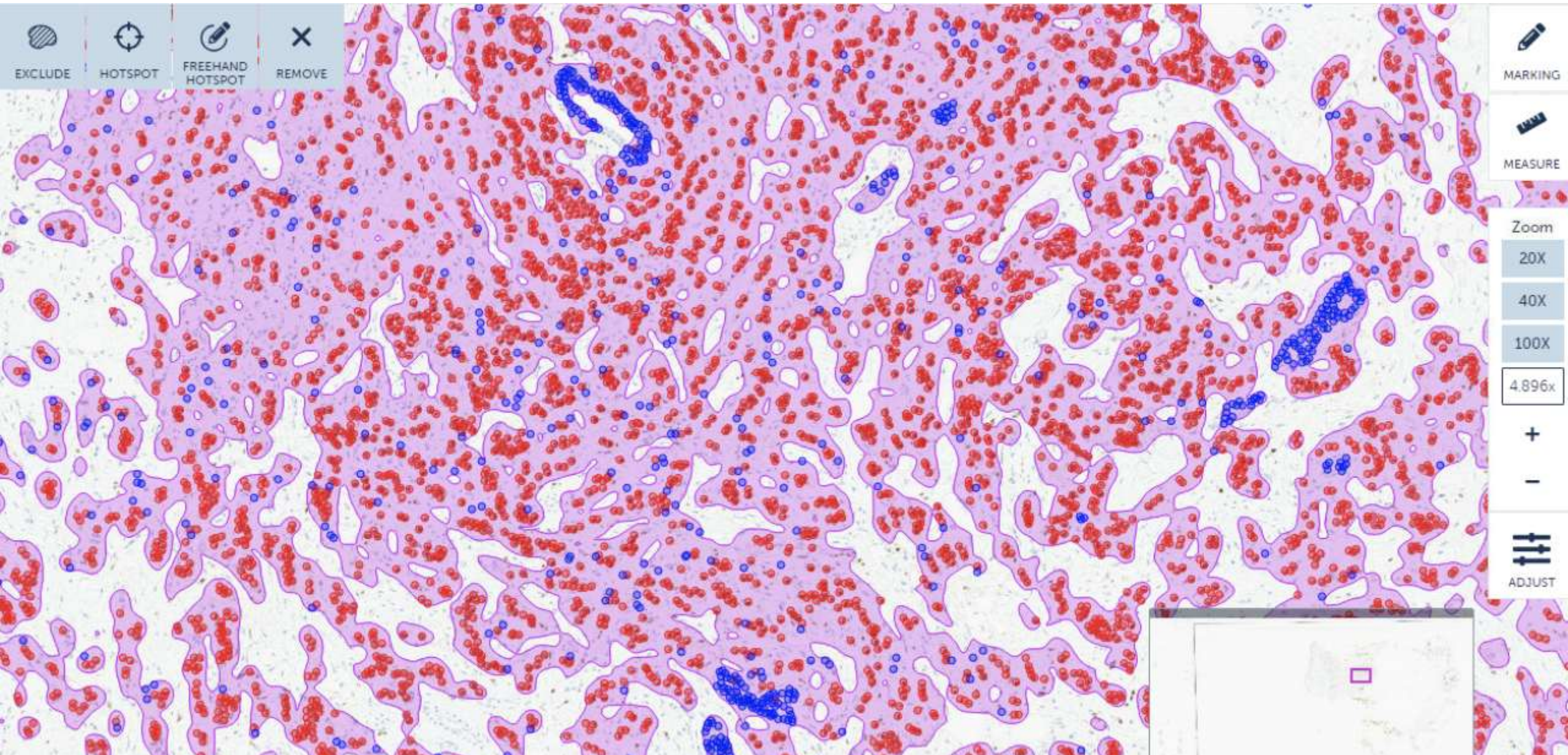
4896x

+

-

ADJUST

RECETTORI ESTROGENI SU K MAMMELLA



RECETTORI ESTROGENI SU K MAMMELLA

WHOLE IMAGE RESULTS

A-7-2

Show the results on the image

Invasive carcinoma

Negative

Positive

count	%
5.2	5.2
6078	29.5
14508	70.5

HOTSPOTS (0)

REPORT

A-7-2

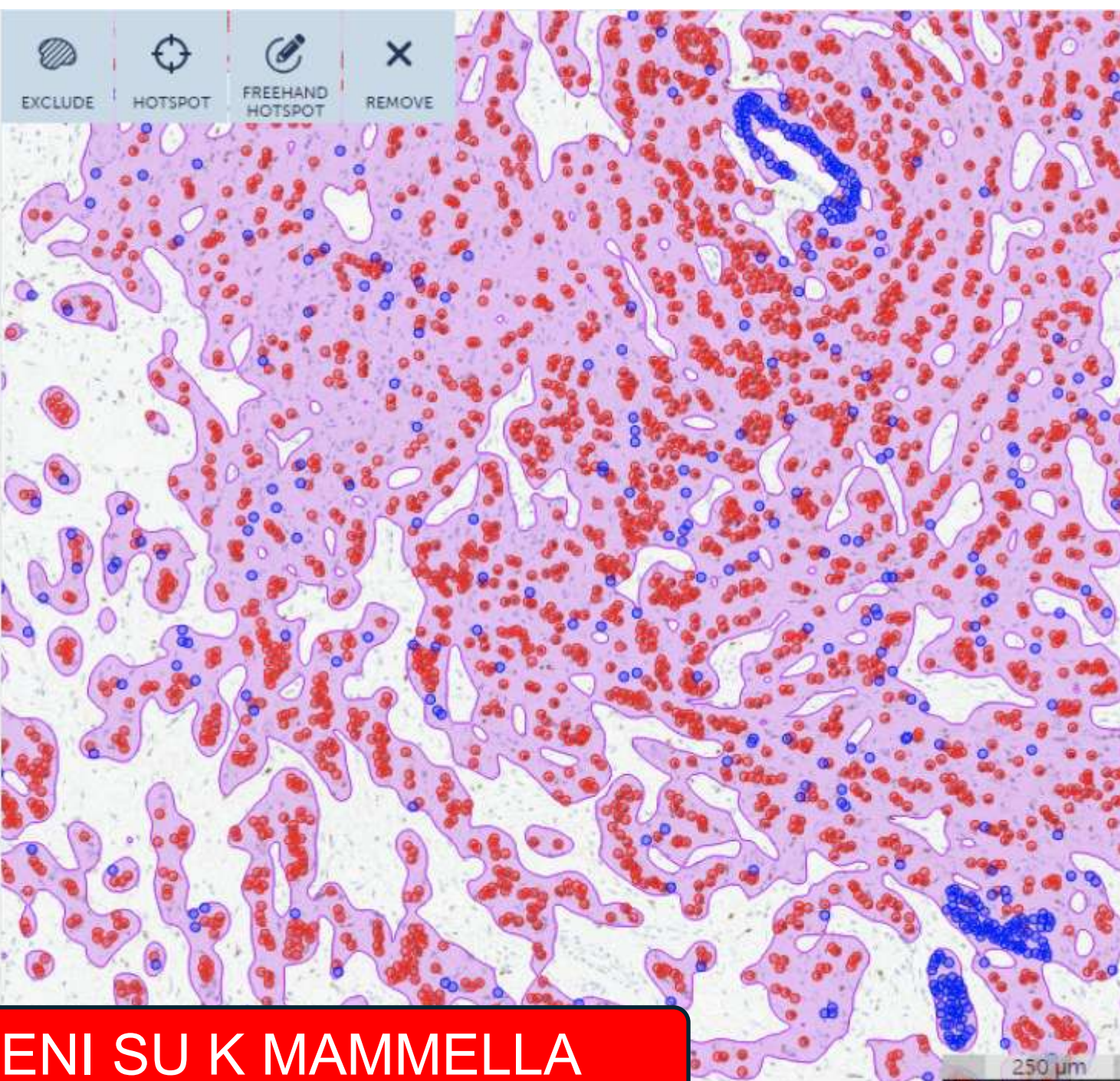
CONFIRM RESULTS

ER

Positive

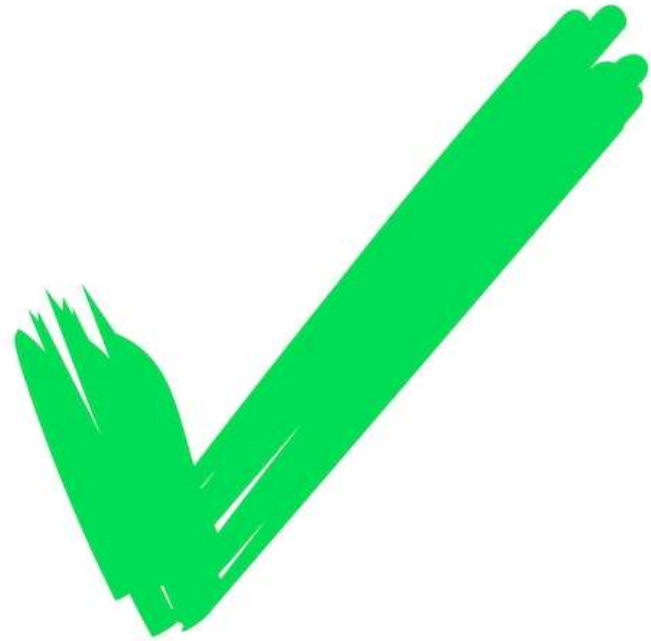
ER nuclear positivity

70.5 %

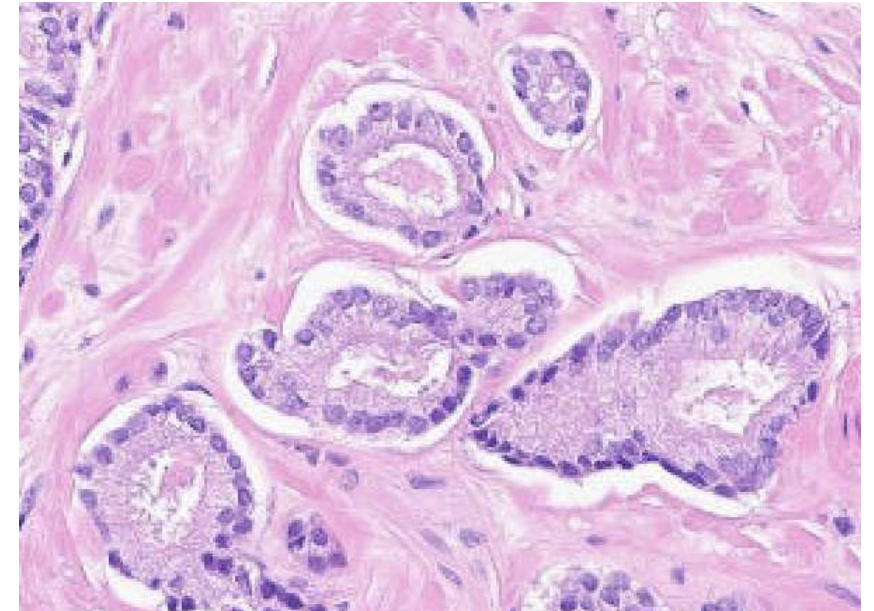
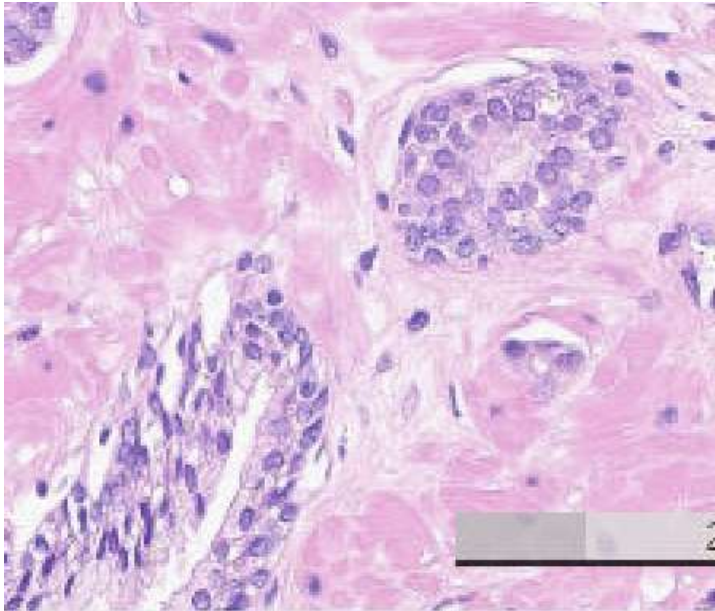


RECETTORI ESTROGENI SU K MAMMELLA

RENDERE FACILI E VELOCI ANALISI NOIOSE E LUNGHE

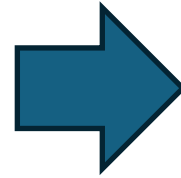


LA DIAGNOSI ISTOPATOLOGICA E' UN'INTERPRETAZIONE



INTERPRETAZIONE = INTELLIGENZA

L'INTELLIGENZA E' IN CODICE BINARIO

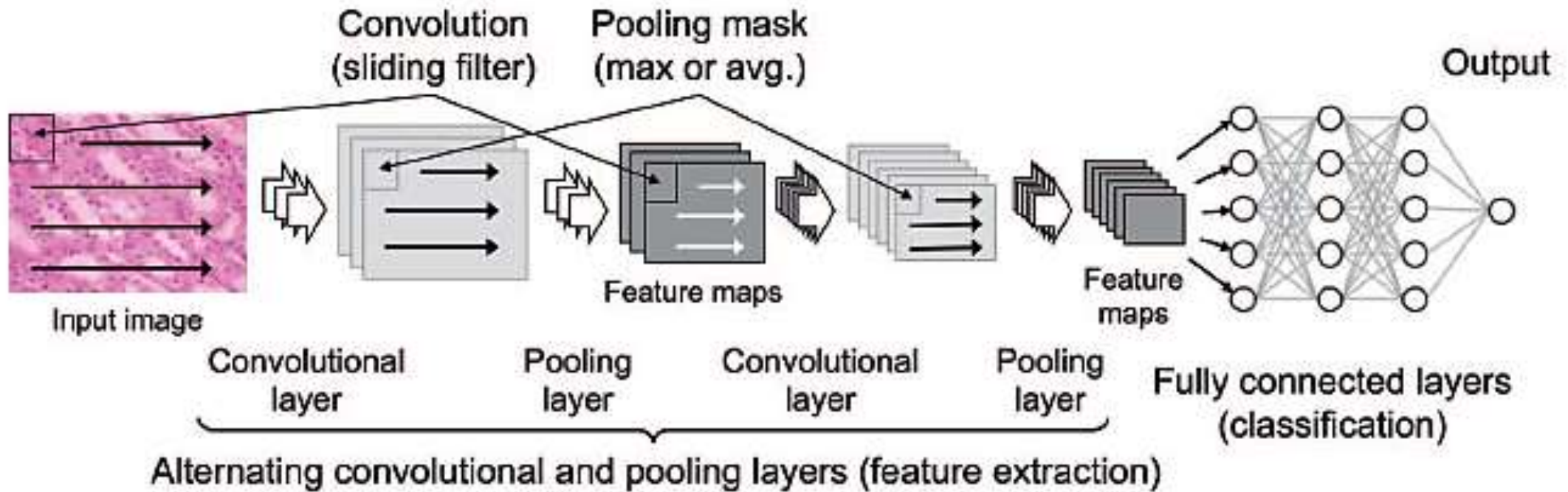


**INTELLIGENZA
UMANA**

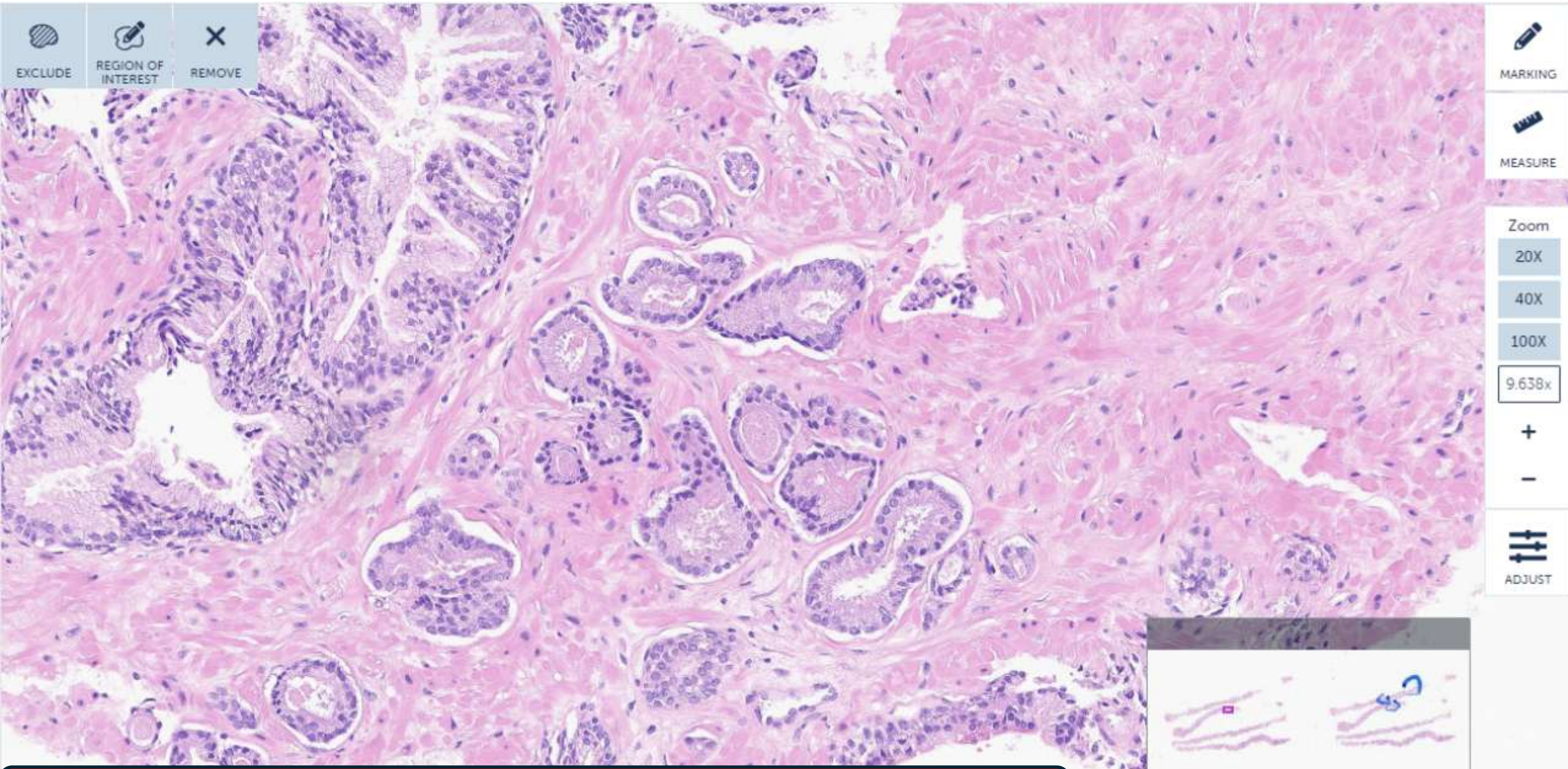
**INTELLIGENZA
ARTIFICIALE**

3.1415926535 = 11.1 100 1 101 1001 10 110 101 11 101

INTELLIGENZA ARTIFICIALE

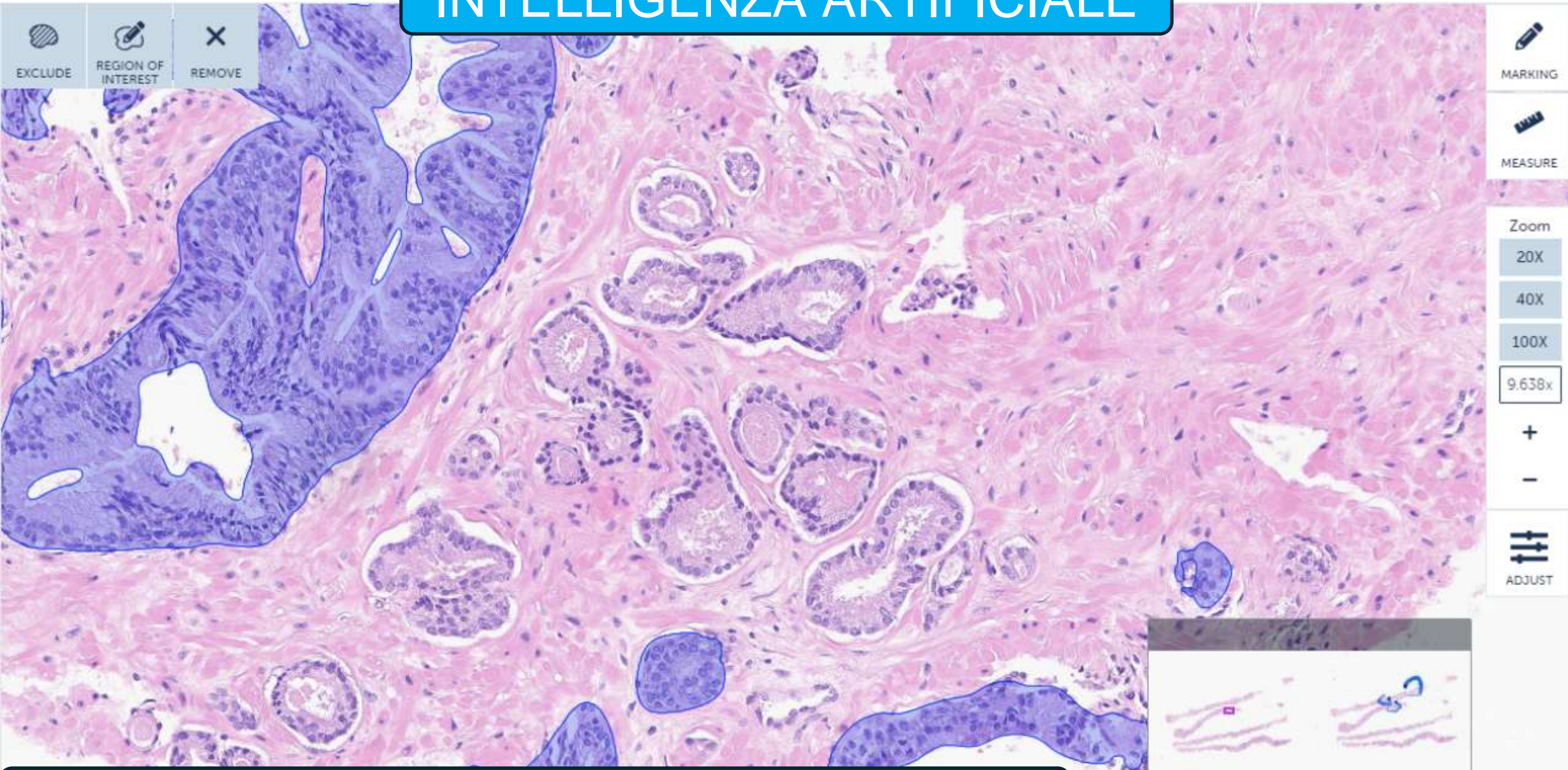


RETE NEURALE



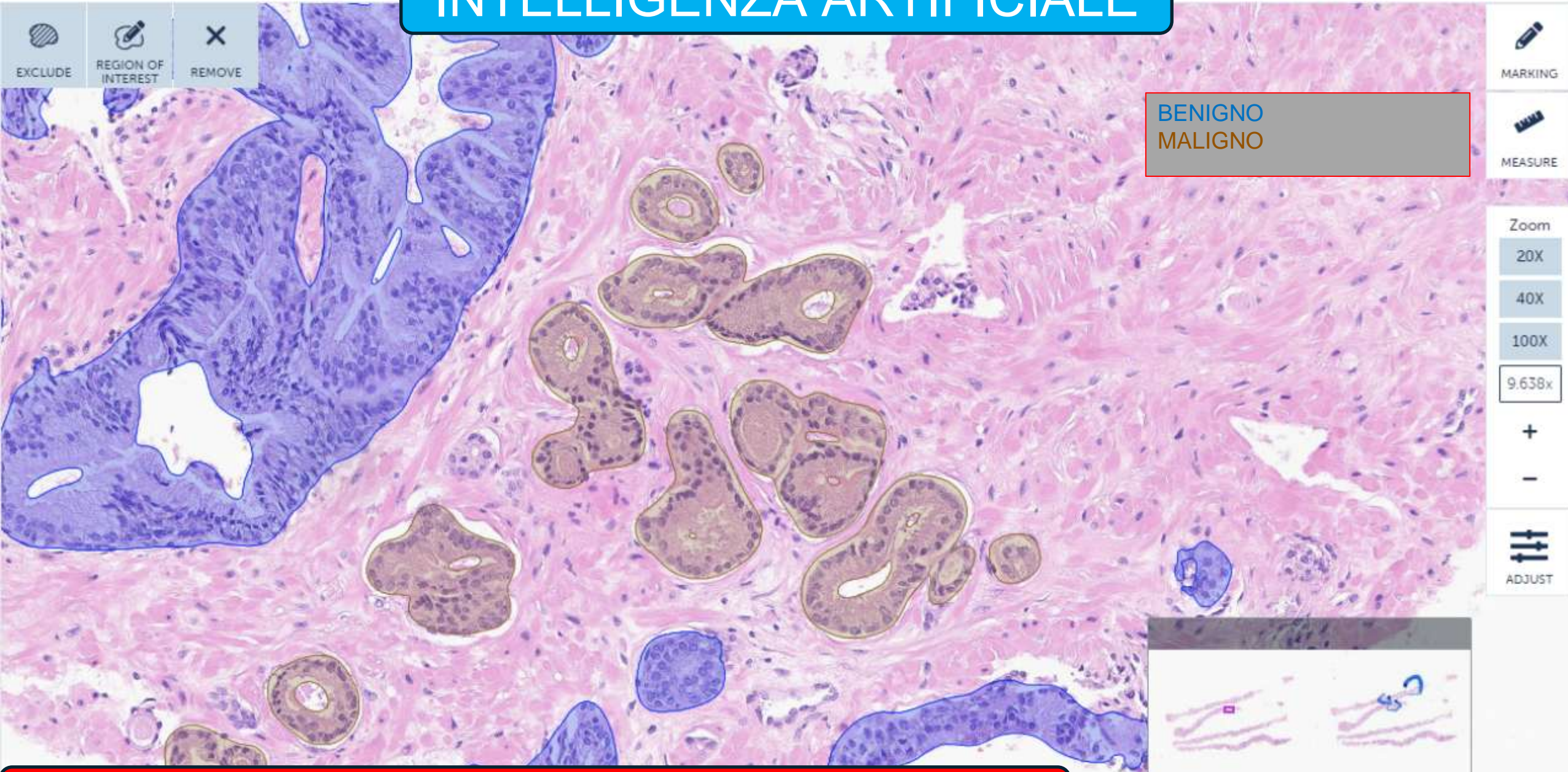
ADENOCARCINOMA DELLA PROSTATA

INTELLIGENZA ARTIFICIALE



ADENOCARCINOMA DELLA PROSTATA

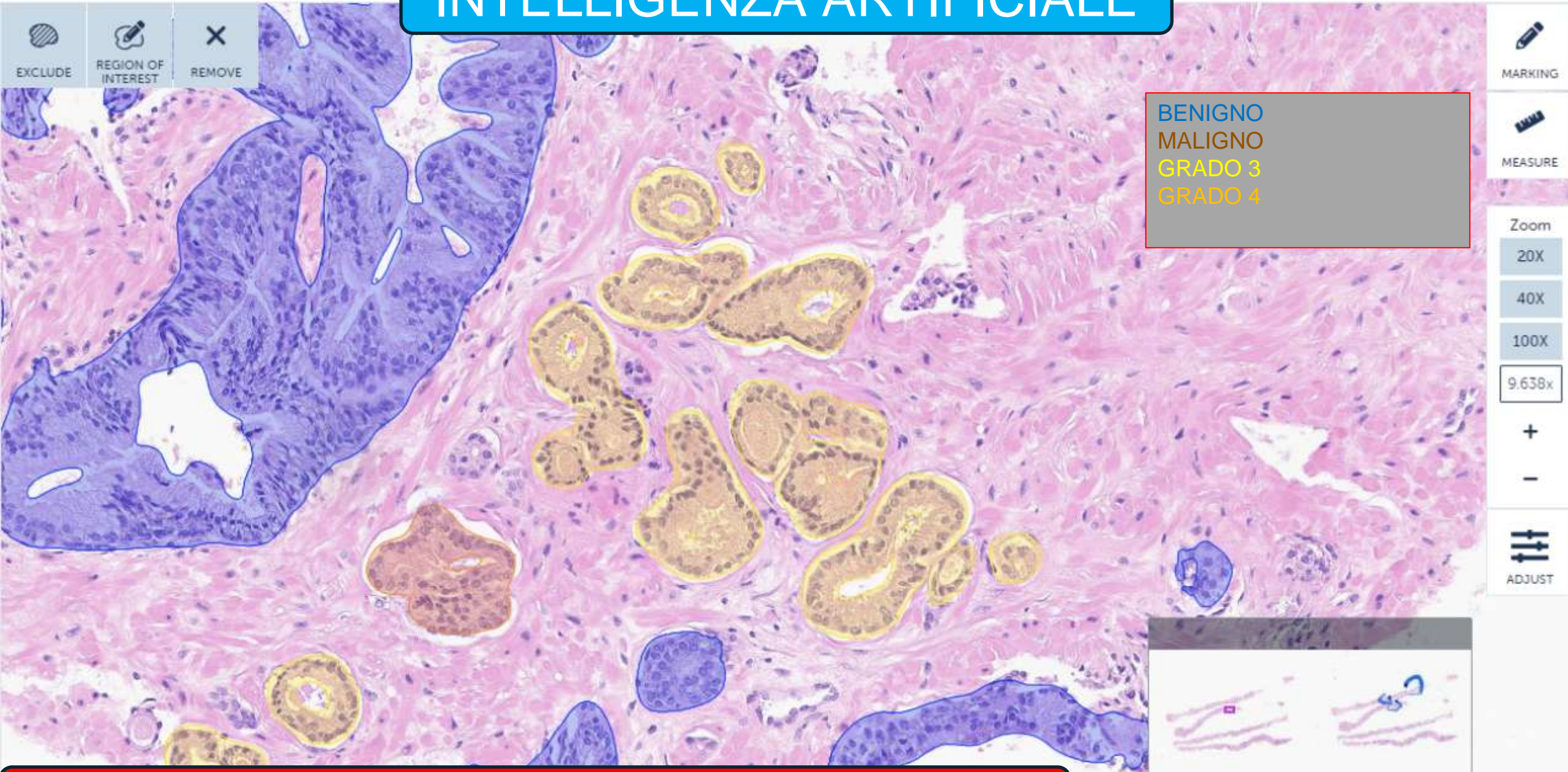
INTELLIGENZA ARTIFICIALE



BENIGNO
MALIGNO

ADENOCARCINOMA DELLA PROSTATA

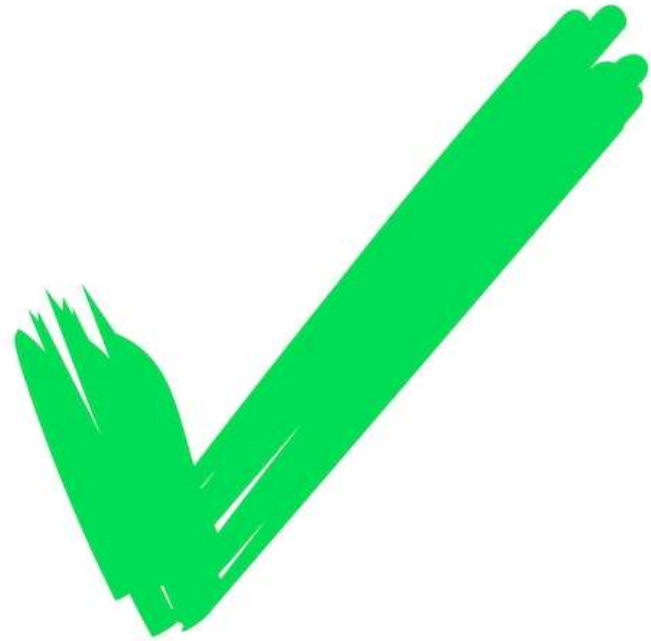
INTELLIGENZA ARTIFICIALE



BENIGNO
MALIGNO
GRADO 3
GRADO 4

ADENOCARCINOMA DELLA PROSTATA

STANDARDIZZARE L'INTERPRETAZIONE DIAGNOSTICA



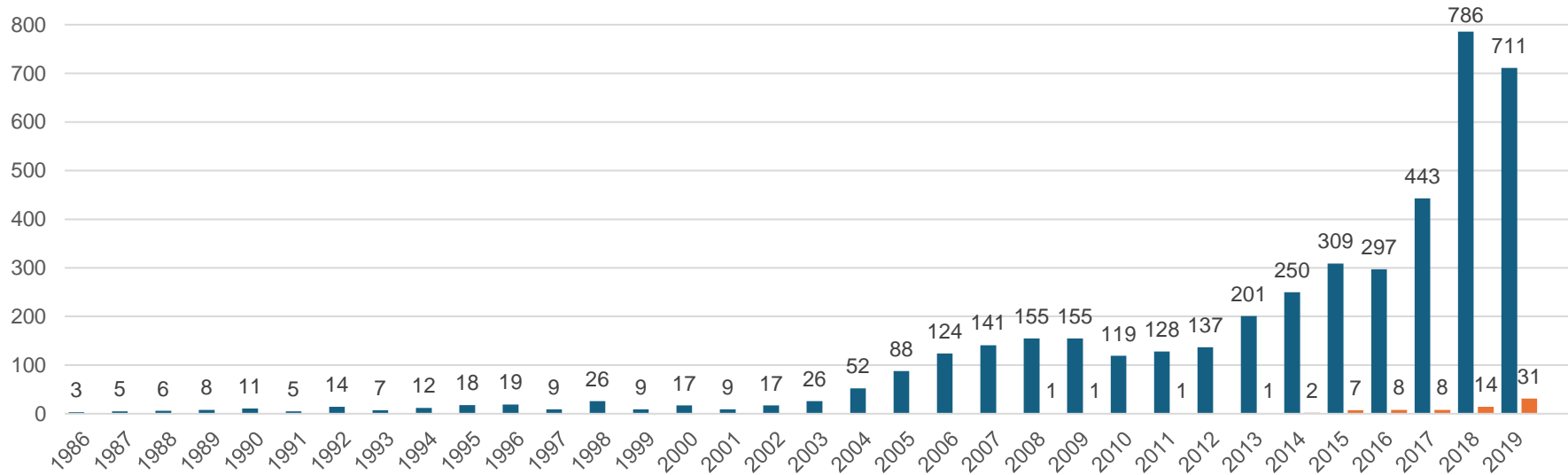
PATHOLOGY INFORMATICS



2020 2030 2040

3°
PATHOLOGY
REVOLUTION

Pubmed Articles



■ Pathology and ("artificial intelligence" or "machine learning" or "deep learning")

GENERARE NUOVI
PARAMETRI (DIGITALI)



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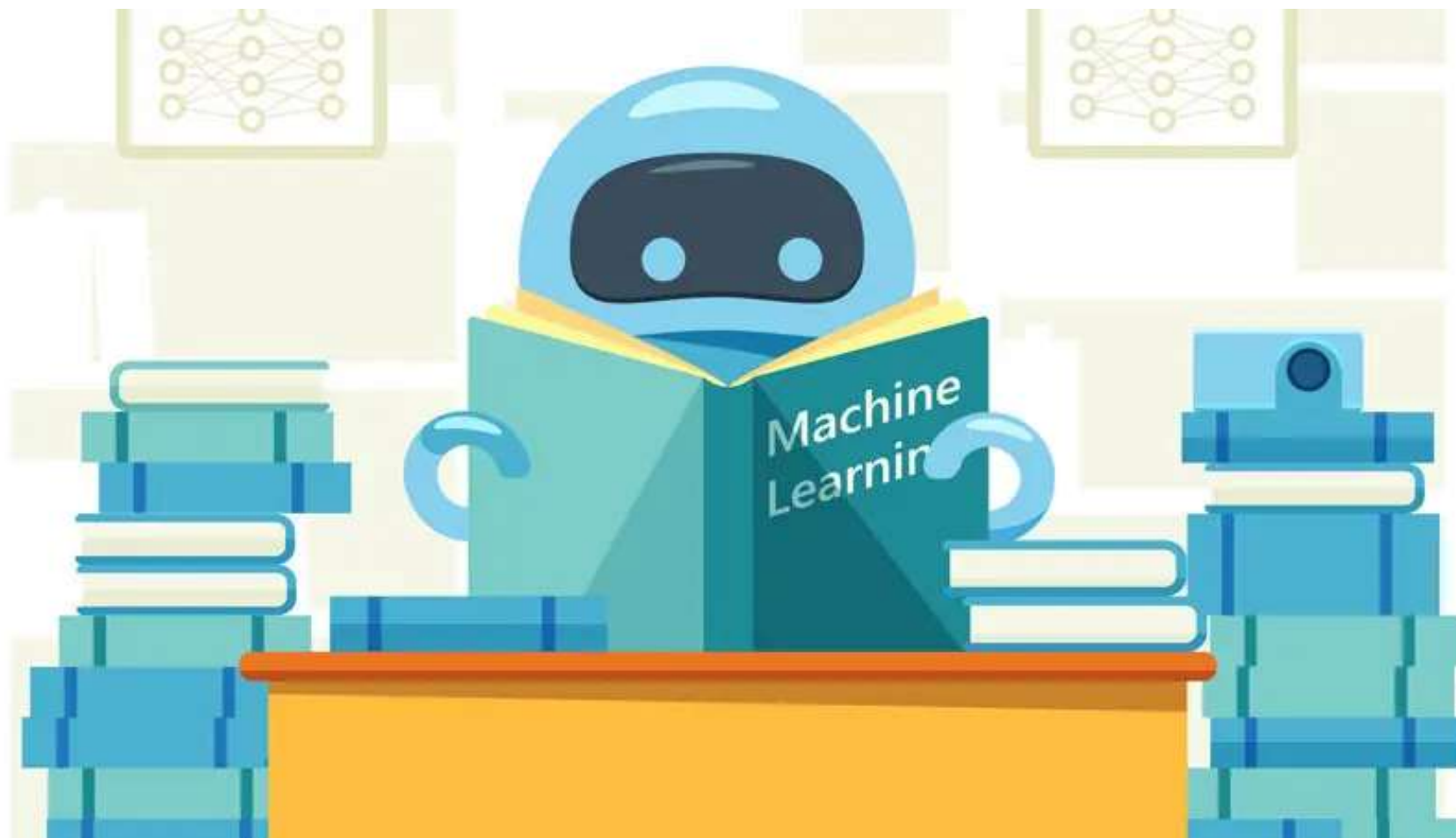
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e della Ricerca



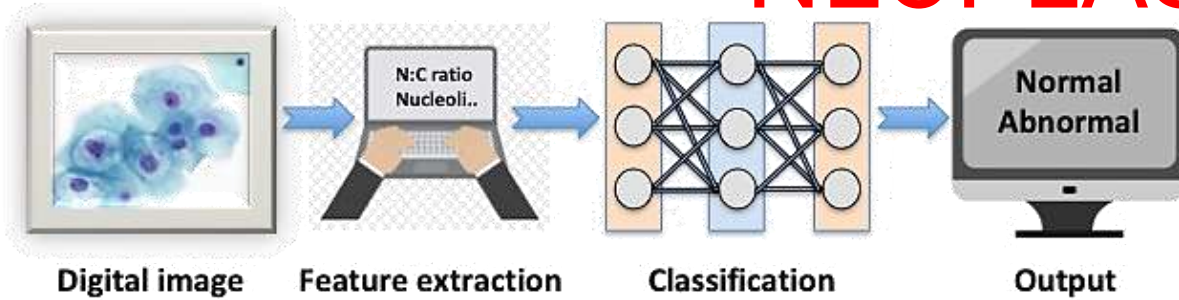
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INNOVATION ON THE ROAD

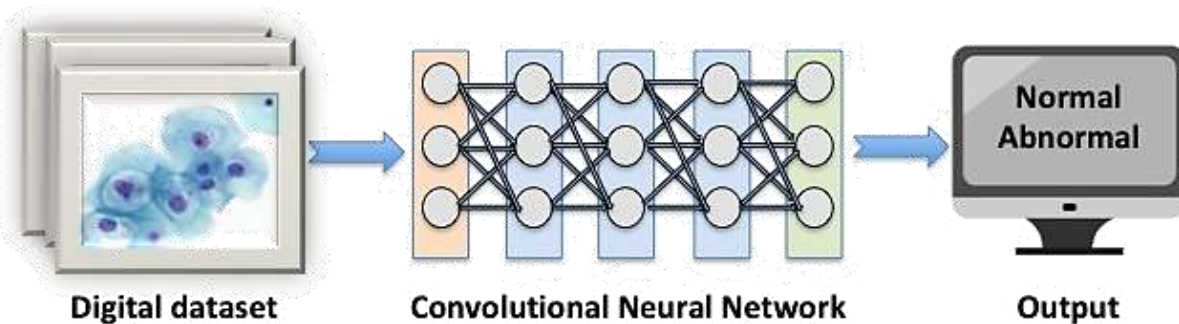


MACHINE LEARNING



NEOPLASIE RARE

DEEP LEARNING



SERVONO
TANTISSIME
IMMAGINI DIGITALI



NEOPLASIE RARE



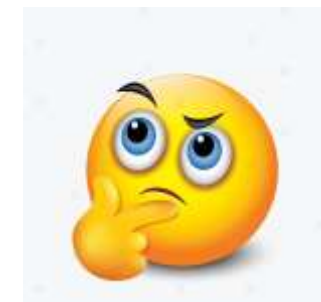
COME OTTENERE TANTI CASI?

IMMAGINI DIGITALI

CONDIVISIONE

COMMENTI (ESPERTI)

RETE



COME OTTENERE TANTI CASI?

SOCIAL



COME OTTENERE TANTI CASI?

SOCIAL!



?

PIATTAFORMA SOCIAL
DI PATOLOGIA
DIGITALE

HEAL  ITALIA



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DI RIPRESA E RESILIENZA



**HEAL ITALIA
ROADSHOW**
TECNOLOGIE E INNOVAZIONE
INNOVATION ON THE ROAD