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GUARD INTERNATIONAL SYMPOSIUM

GU-Alliance for Research and Development

PRESENCIAL RETRANSMITIDO EN DIRECTO
FACE-TO-FACE AND LIVE STREAMING

26-27 JUNIO 2025

Espacio Maldonado, Madrid

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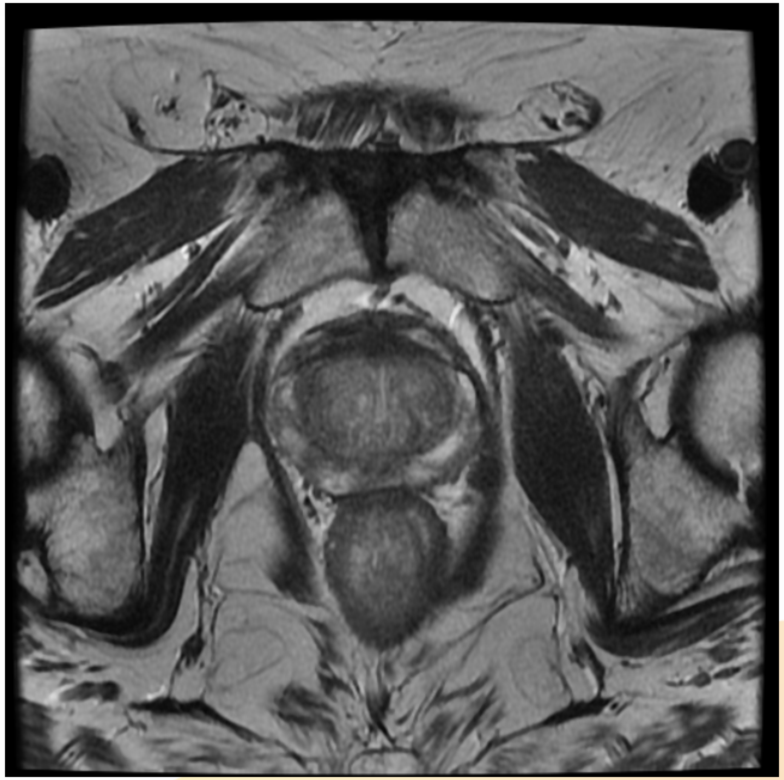
AI IN DIAGNOSTIC IMAGING

Almudena Fuster Matanzo, Medical Advisor (Quibim)

Diagnostic challenges in genitourinary tumors



Several persistent challenges still hinder accurate and consistent diagnosis of genitourinary tumors across clinical settings

- ✓ **Benign vs malignant overlap → Risk of overdiagnosis/misclassification**
- ✓ **Limited biopsy sampling → Tumor heterogeneity often underrepresented**
- ✓ **Interpretation variability → Subjective reads in mpMRI & pathology**
- ✓ **Non-specific IHC markers → Cross-reactivity reduces specificity**
- ✓ **Artifacts & mimickers → Prostatitis or benign tissue may simulate cancer**
- ✓ **Fragmented data sources → Imaging, pathology, and clinical data rarely integrated**

Applications of AI in urologic oncology

Tumor type	AI applications in medical imaging
Prostate	- Interpretation of multiparametric MRI (mpMRI) - Improved PI-RADS classification - Gleason score prediction - Assessment of surgical margins - Detection of local recurrence during follow-up
Bladder	- AI-powered automated cytology - Preliminary models for muscle-invasive disease prediction (PET/MRI-based) - Cystoscopy image analysis
Kidney	- Differentiation of benign vs. malignant renal masses (CT-based) - Histological subtyping (e.g., clear cell vs. papillary RCC) - Tumour aggressiveness prediction

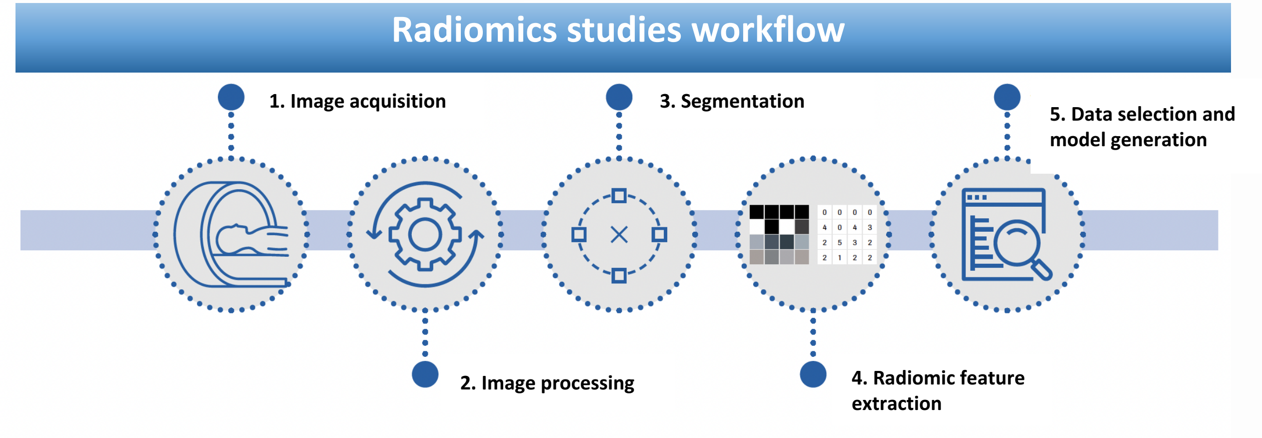
From diagnosis to risk stratification, AI-powered tools are emerging across key imaging modalities such as mpMRI, CT and PET

Medical imaging: a missing opportunity?

Every day, 10 million medical images are generated globally — yet less than 0.1% contribute to clinical research or AI development

	FLOW DATA ACQUISITION	PREDICTIVE PANELS	PRECISION MEDICINE
GENOMICS	illumina	FOUNDATION MEDICINE, GUARDANT, GRAIL	MERCK, Roche, Johnson&Johnson Innovative Medicine, Pfizer, NOVARTIS
EHR/PATH	Epic	flatiron, Paige, OWKIN	
IMAGING	SIEMENS, GE HealthCare, Canon, PHILIPS, Viz.ai	Quibim	Pharmaceutical companies

Radiomics: extracting clinical value from medical imaging



What is radiomics?

Science that enables the extraction of quantitative data from medical imaging to generate clinically useful biomarkers

Clinical applications

- **Non-invasive tumor and molecular classification**
- **Prediction of response to systemic therapies**
- **Anticipation of treatment-related toxicities**
- **Risk assessment of recurrence or progression**
- **Survival prognosis**
- **Support for clinical decision-making and treatment personalization**

https://www.institutoroche.es/static/archivos/Informes_anticipando_2022_RADIOMICA.pdf

Key challenges for clinical application of radiomics

- Standardization of methods and workflow
- Data quality and heterogeneity
- Need for external and prospective validation
- Interpretability and the "black box" problem
- Multidisciplinary collaboration and clinical integration
- Regulatory, ethical, and legal issues
- Biological and clinical relevance

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TRANSFORMING IMAGES INTO ACTIONABLE PREDICTIONS

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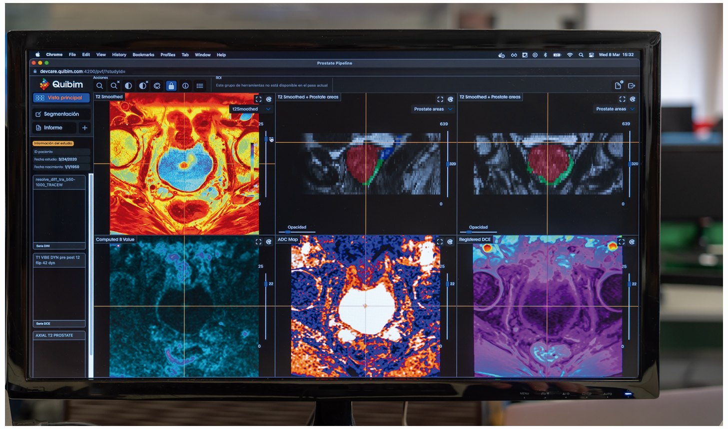
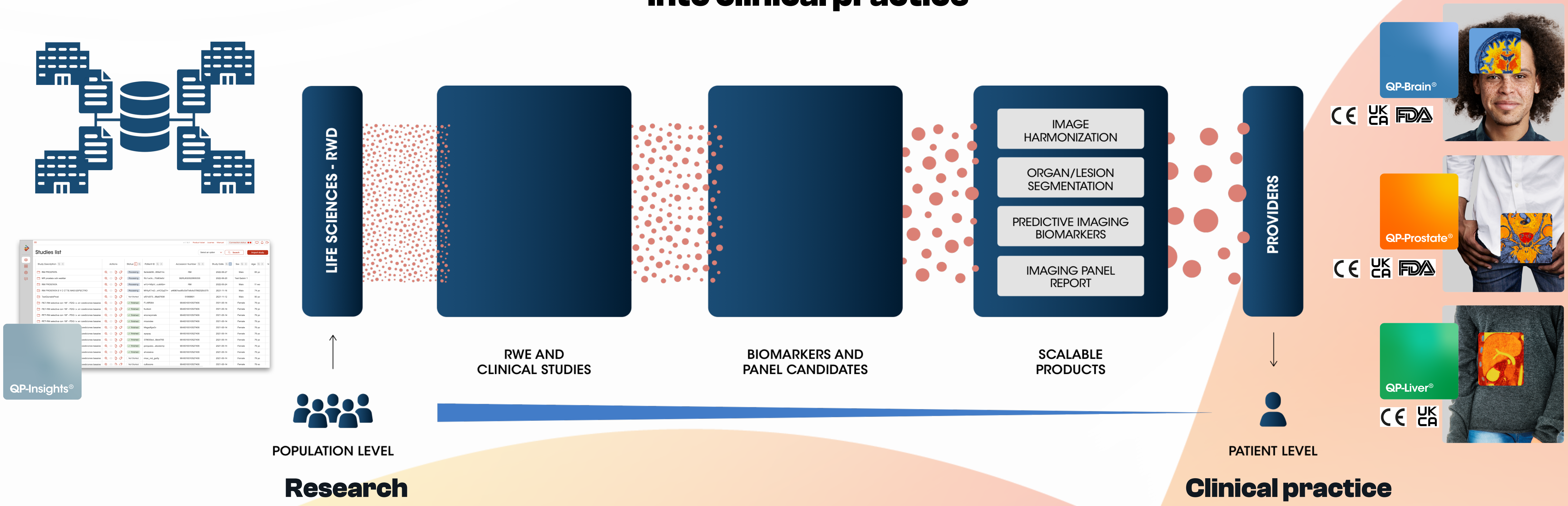
QUIBIM AT A GLANCE



4	TOP-20 BIOPHARMA WORK WITH US
9	FDA / CE / UKCA CLEARANCES
90+	EMPLOYEES Great Place To Work®
170+	SITES USING QUIBIM
1000+	CLINICIAS USING OUR PLATFORM
100M+	DE-IDENTIFIED MEDICAL IMAGES
150k+	DE-IDENTIFIED ONCOLOGIC PATIENTS
350+	SCIENTIFIC PUBLICATIONS
ISO 27001 ISO 13485	CERTIFICATION
HIPAA/GDPR	COMPLIANCE

How do we work?

Quibim covers the use of imaging from population to patient, translating research into clinical practice



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Quibim: Empowering biopharma to turn images into actionable predictions using artificial intelligence. Nature – Biopharma dealmakers. June 2023

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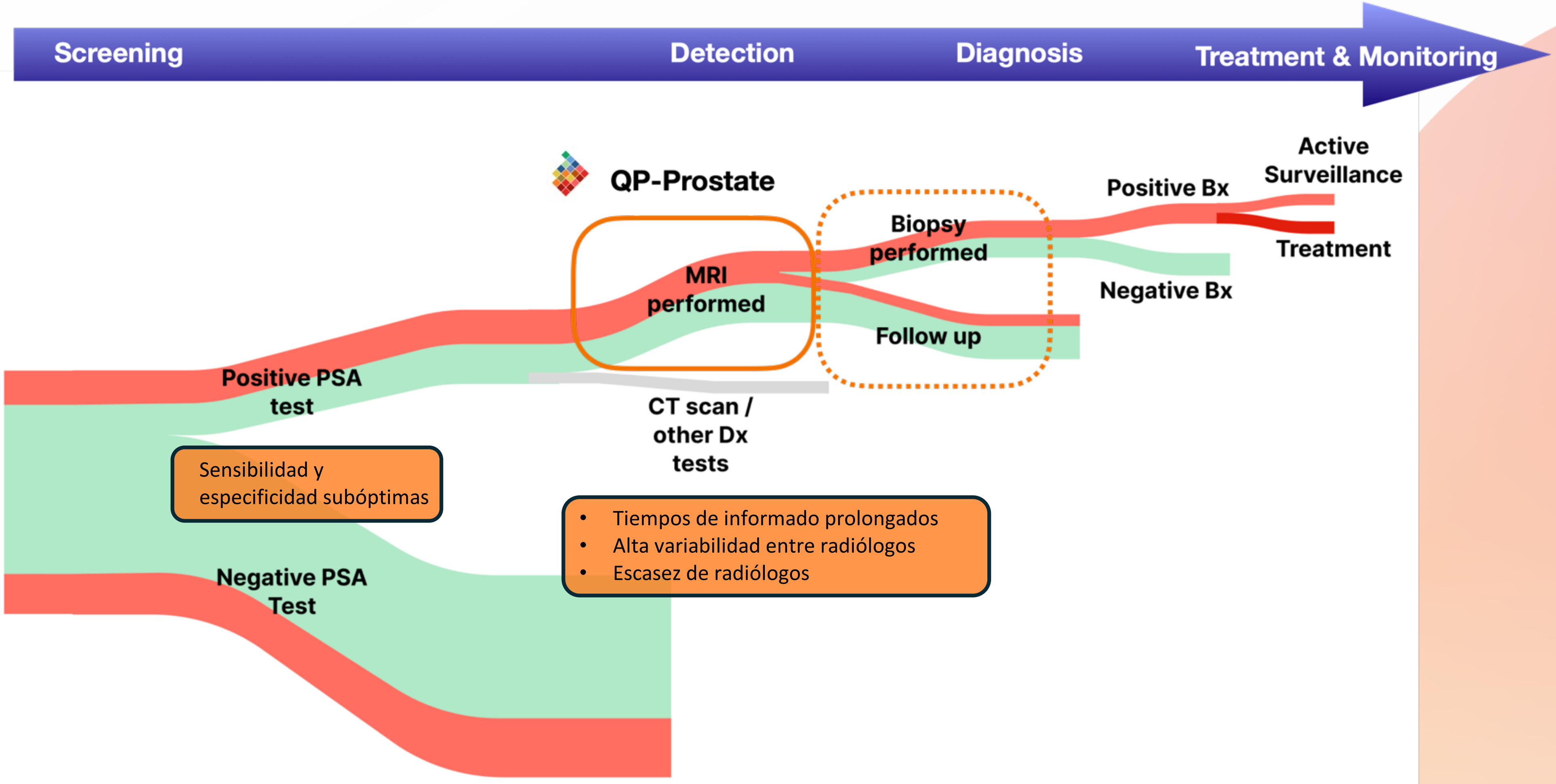
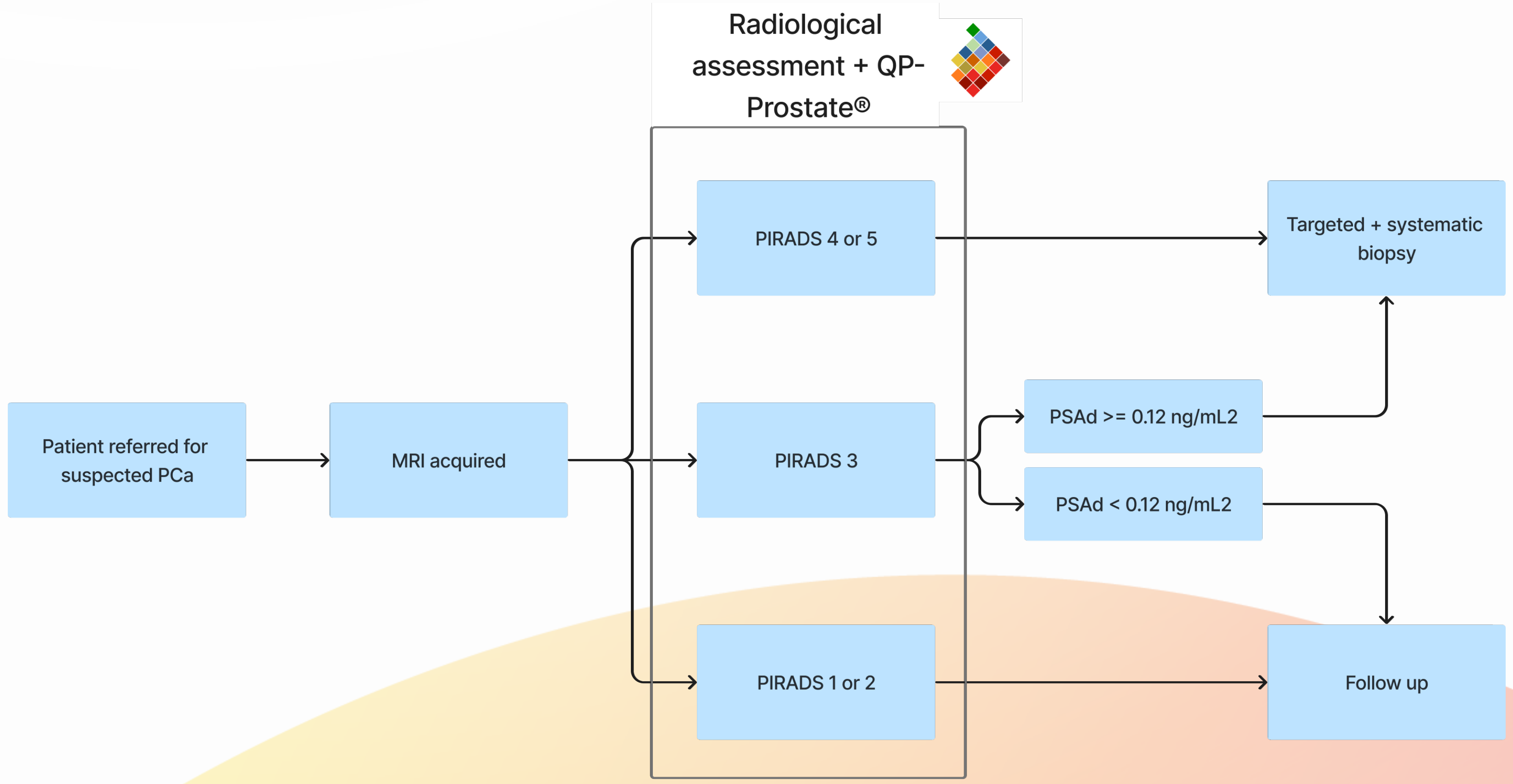
Prostate cancer pathway



How can AI support the clinical pathway of prostate cancer?



- > **Increased diagnostic accuracy**
- > **Increased consistency across radiologist reporting**
- > **More efficient workflows**
- > **Better patient outcomes**

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QP-Prostate®: Precision and efficiency in prostate MRI interpretation

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Quality Check

Automatic QC against PI-RADSv2.1 guidelines

PACS integration

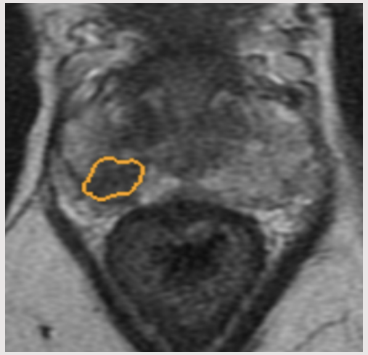
Seamless integration, no need for radiologist to upload studies, results available in PACS

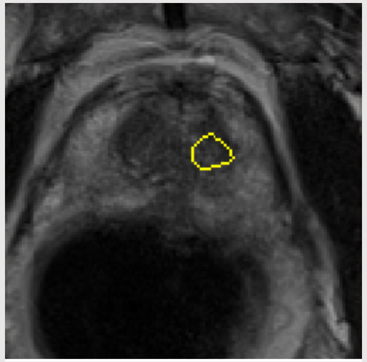
csPCa lesion detection

Automatic lesion detection and risk classification (High and Moderate probability)

AI model trained on systematic + targeted biopsy data

Outputs shown as lesion contour or bounding box with summary PDF report

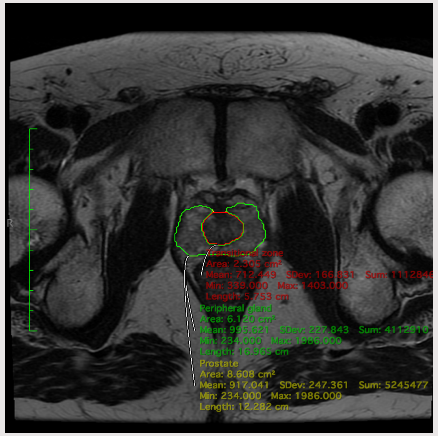




Prostate Segmentation

Automatic segmentation of PZ, TZ and SV

Prostate volume and fusion biopsy planning



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USE CASES

cancers

MDPI

Article

Prostate Region-Wise Imaging Biomarker Profiles for Risk Stratification and Biochemical Recurrence Prediction

Ángel Sánchez Iglesias [1], Virginia Morillo Macías [1], Alfonso Picó Peris [2], Almudena Fuster-Matanzo [2], Anna Nogué Infante [2], Rodrigo Muelas Soria [1], Fuensanta Bellvís Bataller [2], Marcos Domingo Pomar [2], Carlos Casillas Meléndez [3], Raúl Yébana Huertas [2] and Carlos Ferrer Albiach [1,*]

OBJECTIVE

Identify imaging biomarker profiles (perfusion, diffusion, and radiomics) in MRI to predict 10-year biochemical recurrence and assess their predictive value

METHODS

- **128 patients with localized prostate cancer who had received neoadjuvant androgen deprivation and radiotherapy**
- **Automatic prostate segmentation using QP-Prostate**

Sánchez Iglesias Á, et al. Prostate Region-Wise Imaging Biomarker Profiles for Risk Stratification and Biochemical Recurrence Prediction. Cancers (Basel). 2023 Aug 18;15(16):4163

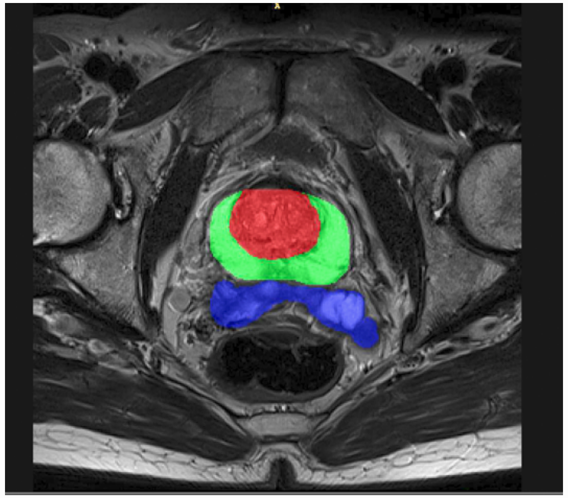
Radiomics enables identification of regional profiles associated with risk of BCR

- **Patients experiencing BCR consistently showed:**
  - ✓ **Higher textural heterogeneity**
  - ✓ **Greater structural complexity**
  - ✓ **Coarser textures and therefore, less fine detail**
- **Smaller prostates, especially in the peripheral zone and seminal vesicles, were associated with higher risk of BCR**
- **Low ADC values in the central, transitional, and peripheral zones indicated higher tumor cellularity and worse prognosis**

	Group	Meaning	CZ + TZ	PZ	Seminal vesicles	Whole prostate
Textura analysis						
10percentile			–	–	0.0161	–
Median	**Intensity**	Reflejan la señal media o distribución de	–	–	0.0031	–
Skewness		intensidades dentro del tumor, relacionada con	–	–	0.0036↑	0.0118↑
Flatness		celularidad, necrosis o densidad tumoral	–	0.030↑	–	–
Major Axis Length			–	0.002↓	0.0159	0.0057↓
Minor Axis Length	**Shape and texture**	Capturan las dimensiones y geometría del tumor	–	–	0.0261	
Maximum 2D Diameter			–	–	0.0031	
Maximum 3D Diameter			–	0.024↓	–	–
Surface Volume Ratio			–	–	0.0141	–
GLCM_Inverse Difference			–	–	–	0.0079↑
GLCM_IMC1			–	–	0.0079↑	–
GLCM_IMC2	**Texture**	Captura relaciones espaciales entre	–	–	0.0334↓	–
GLCM_Cluster Shade		intensidades; mide homogeneidad, complejidad	–	–	0.0166	–
GLCM_Inverse Variance		y organización	–	–	0.0460	–
GLCM_Maximum Probability			–	–	0.0004	–
GLSZM_LAE	**Texture**	Miden distribución y tamaño de zonas homogéneas.	0.0249↑	–	–	0.0109
GLSZM_LAHGLE			–	–	0.0048	–
GLSZM_LALGLE			–	–	–	0.0025
GLRLM_SRE	**Texture**	Mide cuántas estructuras pequeñas y homogéneas hay en la imagen; valores altos indican textura fina	0.0311 ↓		–	–
GLDM_DE	**Texture**	Mide la relación entre un píxel y el entorno	–	–	0.0086	–
GLDM_LDLGLE		inmediato	–	–	0.0001	0.0047
NGTDM_Strength	**Texture**	*Evalúa la fuerza del contraste local entre un píxel y su entorno. Altos valores indican bordes o estructuras bien definidas.*	–	–	0.0009 ↑	–
Diffusion biomarkers						
ADC_mean		–		0.0292↓	–	–

ADC = apparent diffusion coefficient; **CZ** = Central Zone; **DE** = dependence entropy; **GLCM** = Gray-Level Co-Occurrence Matrix; **GLDM** = Gray Level Dependence Matrix; **GLRLM** = Run Length Matrix; **GLSZM** = Gray Level Size Zone; **IMC** = informational measure of correlation; **LAE** = Large Area Emphasis; **LAHGLE** = Large Area Low Gray Level Emphasis; Large Dependence Low Gray Level Emphasis; **NGTDM** = Neighborhood Gray Tone Difference Matrix; **PZ** = Peripheral Zone; **SRE** = short run emphasis; **TZ** = Transitional Zone; **2D** = onal; **3D** = 3-dimensional.

Prostate region-wise radiomic models predict BCR

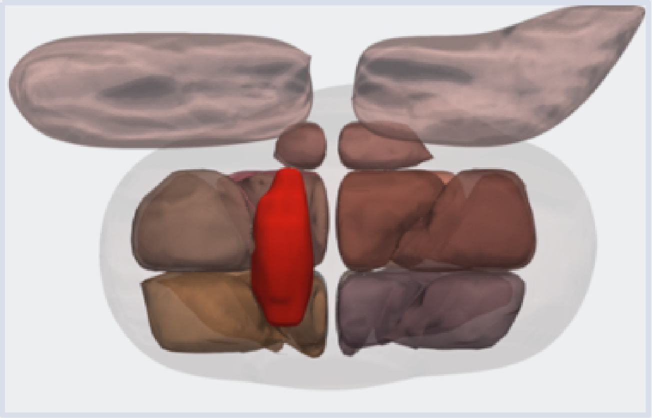


TZ + CZ
PZ
Whole prostate

- Radiomics-based models showed good performance (AUC > 0.725 in most cases)
- Regional prostate analysis outperformed global analysis in predictive accuracy
- Adding clinical variables improved performance (AUC up to 0.877)
- The peripheral zone (PZ) yielded the best predictive results

Regional radiomic feature analysis retains greater predictive power than whole-gland analysis

Metastatic progression prediction in localized PCa



Context (ongoing)

Partner: Top-20 Biopharma

- Patients treated with curative intent
- +300 MRIs, PSMA PET/CTs and SPECTs + follow-up

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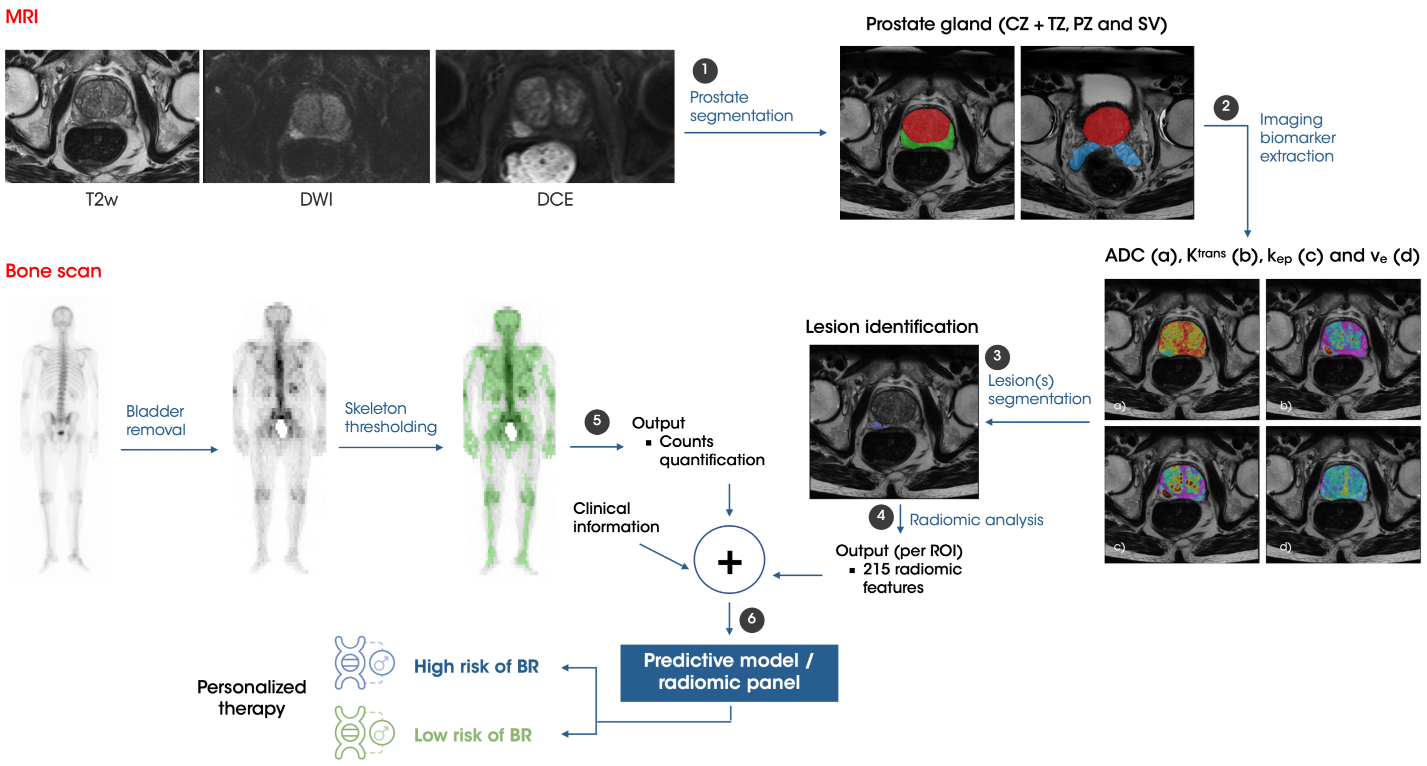
Challenge

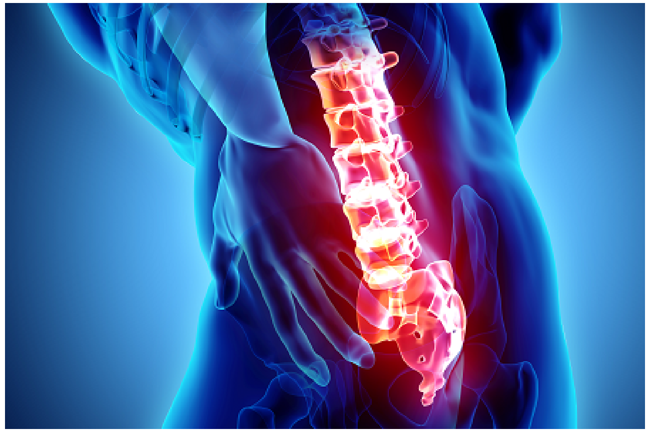
Can Quibim develop an AI model that analyzes baseline diagnostic images and predicts metastatic risk in patients with PCa?

Solution

An imaging-based ai model to predict metastatic progression by combining radiomic features and biomarkers extracted from MRI and/or PSMA PET/CT with quantified counts from bone scan analysis



Identify candidates for an approved drug for AxSpa



Context (Ongoing)

Partner: Top-20 Biopharma

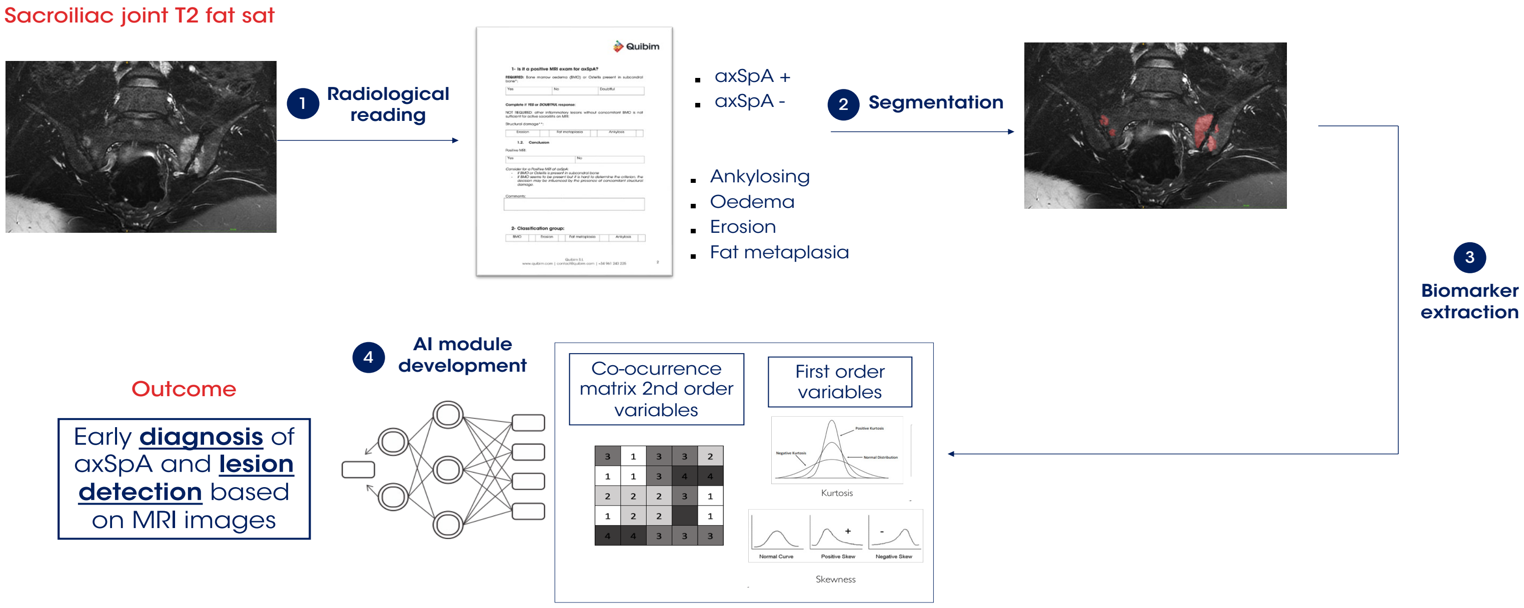
- **Approved treatment for AxSpa**
- **Early diagnosis of disease to promote treatment**
- **Multi-centric ~1000 MRIs + final diagnosis**

Challenge

- **No single test or gold standard to diagnose AxSpa → variable prescribing**
- **Objective diagnosis would improve access to treatment**
- **Can Quibim develop and validate an MRI-based ai algorithm as a companion diagnostic (cdx)?**

Solution

- **Quibim is developing an ai-based tool to diagnose AxSpa through a cloud**
- **In the future, this tool could be offered alongside the drug to support rheumatologists in decision-making**



THANK YOU!

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