AIRA MATRIX

Artificial Intelligence Transformed Analyses

Clinical Solutions

About Us

We deliver cutting-edge artificial intelligence solutions for healthcare and life sciences applications. Our innovative products and services drive efficiency, enhance diagnostic accuracy, and provide data-driven insights from digitally scanned images.

Drug Discovery & Preclinical Research

Our comprehensive AI-driven suite for drug discovery and development, streamlines pre-analytical quality control, facilitates tissue triage, and optimizes safety and efficacy assessments, accelerating breakthrough discoveries.

Healthcare Solutions

Our healthcare portfolio offers diagnostic, prognostic, and predictive tools that facilitate risk stratification and enable personalized therapy planning, thus improving treatment outcomes.

Write to solutions@airamatrix.com for more

AIRAQc

Identification and Quantification of Artifacts in WSIs

Automate preanalytical quality checks to accept or flag images for reprocessing or rescanning based on set thresholds

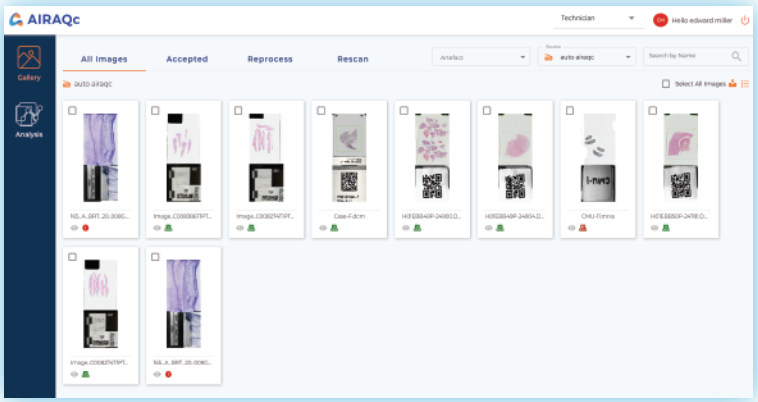
High Performance
Achieve 95% sensitivity and 96% specificity, with a throughput of 10 WSIs per minute (1GB each) for fast and accurate analysis

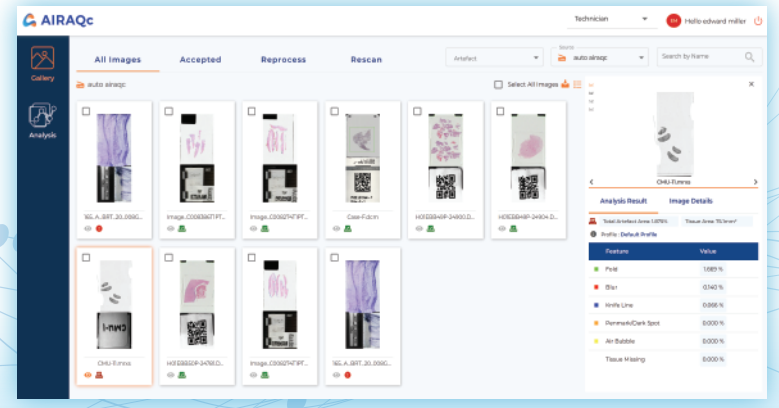
Comprehensive Error Detection
Analyze WSIs to detect and quantify processing artifacts (Tissue Fold, Pen Marks/Dark Spots, Air Bubbles, Coverslip Line, Knife Line) and scanning artifacts (Out of Focus, No Tissue, Missing Tissue)

Customizable Thresholds
Set predefined thresholds based on the extent and type of errors to automatically mark images under accept, reprocess, or rescan

Detailed Analytics
Generate detailed analytics about artifact quantification for insight into the overall WSI quality across your digitized pathology lab

Seamless Integration
Easily integrate with existing digital pathology workflows to streamline quality control without disrupting routine operations

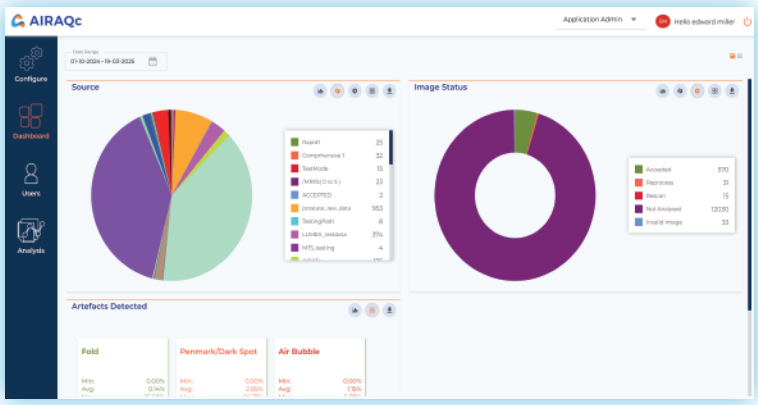


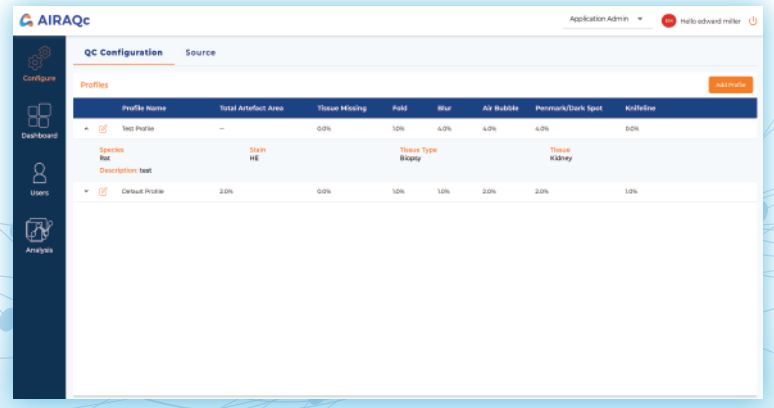


AIRAQc

Specifications

Scanner Agnostic	Compatible with multiple image formats and scanners
Analysis Mode	Auto, Manual
Operation Mode	Rapid, Comprehensive
Stains	H&E, IHC
Deployment	Cloud, On-Premise
Species	All
Export Results	CSV, Excel





AIRAProstate

Platform for Prostate Image Analysis

Automate Gleason grading, ISUP grouping, and prognostic marker quantification in CNB and RP for accurate risk stratification and better treatment decisions

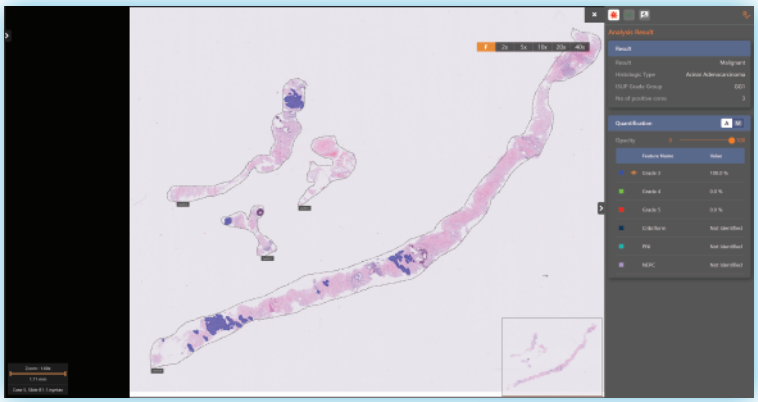
AI-Powered Insights
Leverage deep learning models trained on 10,000+ patient datasets for high-accuracy analysis, achieving upto 0.92 Quadratic Weighted Kappa

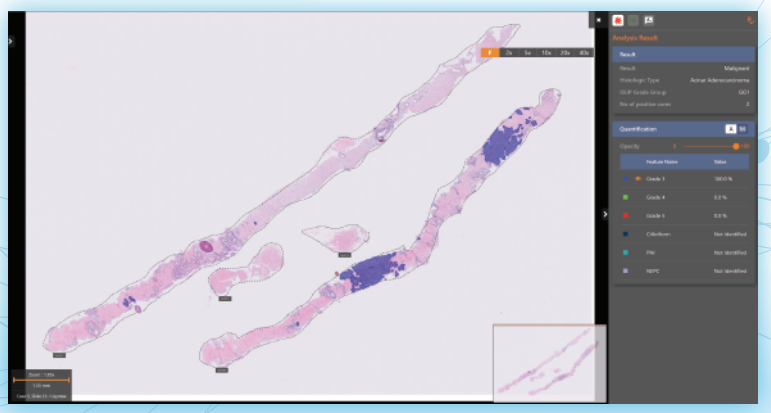
MRN-Based Slide Review
Review all slides for an MRN in one place for a comprehensive case assessment, enabling quicker, more informed decision-making

Comprehensive Case History View
Get a holistic view of a patient's case by accessing the history of all associated MRNs for an in-depth diagnostic overview when making critical treatment decisions

Advanced Viewer Capabilities
Utilize features including hands-free navigation, annotation tools, and synced image comparison for ease of viewing and analysis

Report Generation
Generate reports with customizable formats for manual or automated image analysis

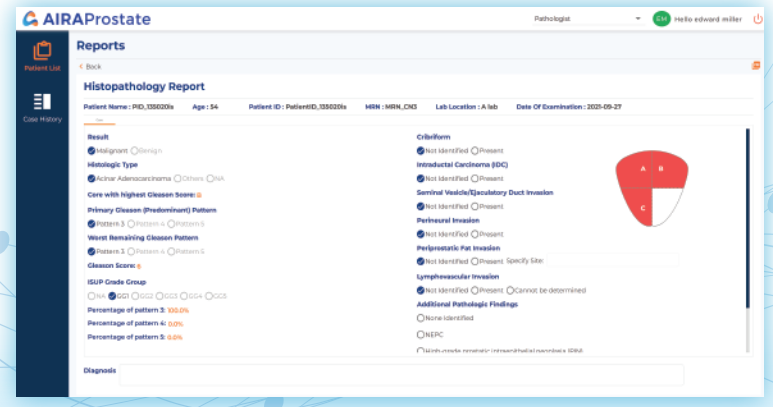




AIRAProstate

Specifications

Scanner Agnostic	Compatible with multiple image formats and scanners
Analysis Mode	Auto, Manual
Specimen	Core Needle Biopsy, Radical Prostatectomy
Stain	H&E
Findings	ISUP Grade Group, Primary and Secondary Gleason Patterns, Cribriform, Peri-Neural Invasion, and Neuro-endocrine PCa
Deployment	Cloud, On-Premise
Export Results	CSV, PDF



AIRAPredict

Explainable Solutions to Predict Molecular Marker Expression

Predict molecular subtypes directly from routine H&E-stained tissue images, optimizing tissue requirements, costs, and turnaround time

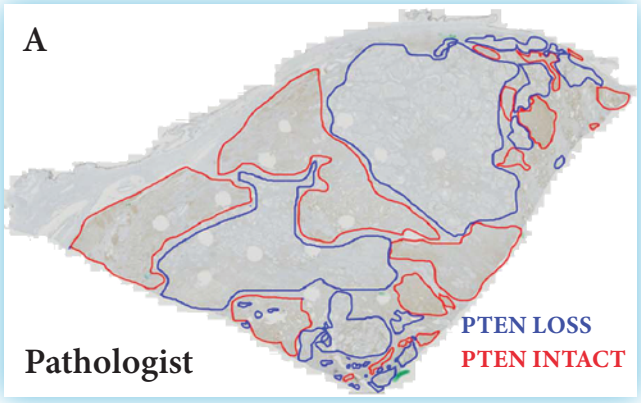
High Confidence Predictions
Delivers up to 91% AUC for accurate and reliable risk assessment

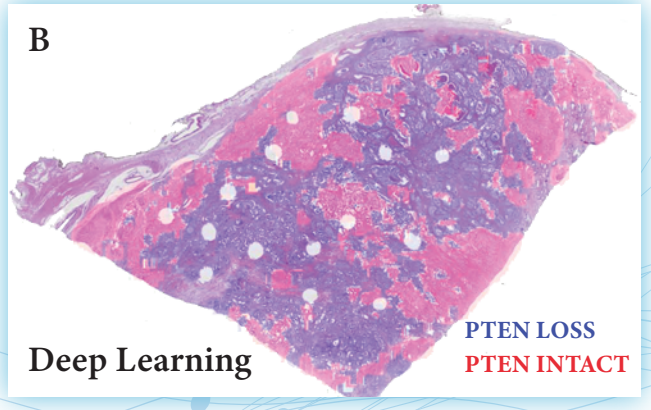
Predict Molecular Alterations
Accurately predict PTEN Deletion, ERG Fusion, and BRCA-2 Expression from H&E-stained prostate biopsy and radical prostatectomy images

Ground Truth Data
Trained on ground truth from IHC and transcriptomic assay outcomes, ensuring reliability

Patient Screening
Screen patients for relevant genomic alterations without expensive genomic sequencing

Cost and Time Optimization
Efficient triaging helps reduce costs and significantly improve turnaround time

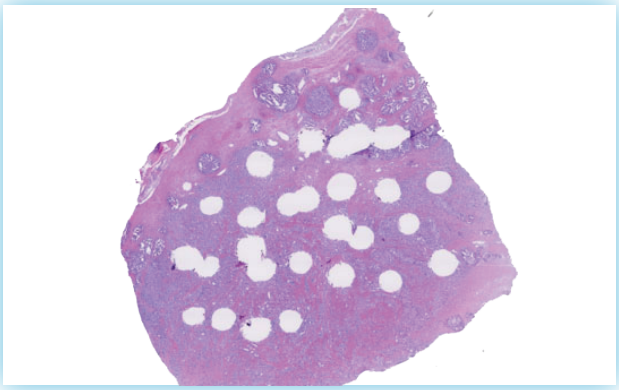


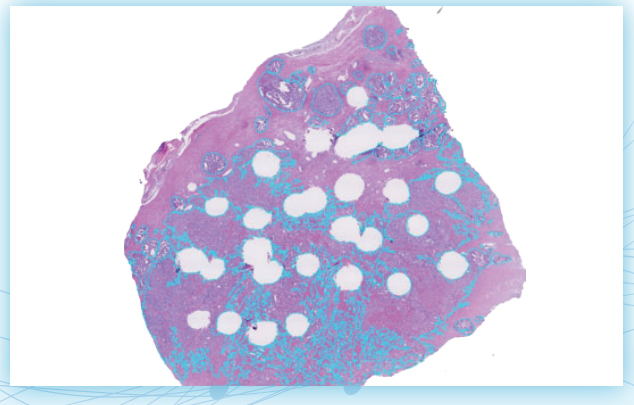


AIRAPredict

Specifications

Scanner Agnostic	Compatible with multiple image formats and scanners
Analysis Mode	Auto, Manual
Specimen	Core Needle Biopsy, Radical Prostatectomy
Stains	H&E
Findings	PTEN Deletion, ERG Fusion, BRCA-2 Expression
Deployment	Cloud, On-Premise
Export Results	CSV, PDF





AIRAStrat

Risk Stratification in Prostate Cancer

Multimodality-trained AI solutions for risk stratification at biopsy and post-RP. Endpoint prediction of tumor upgrades, BCR, metastasis, and metastasis-free survival

Advanced Risk Stratification
Trained on multimodal data with clinical outcomes as ground truth, achieving up to 0.91 AUC and outperforming conventional methods, including genomic classifiers

Smarter Patient Classification
Enhances active surveillance decisions, reducing unnecessary treatments

Optimized Post-Surgical Care
Guides therapy selection to minimize treatment-related complications

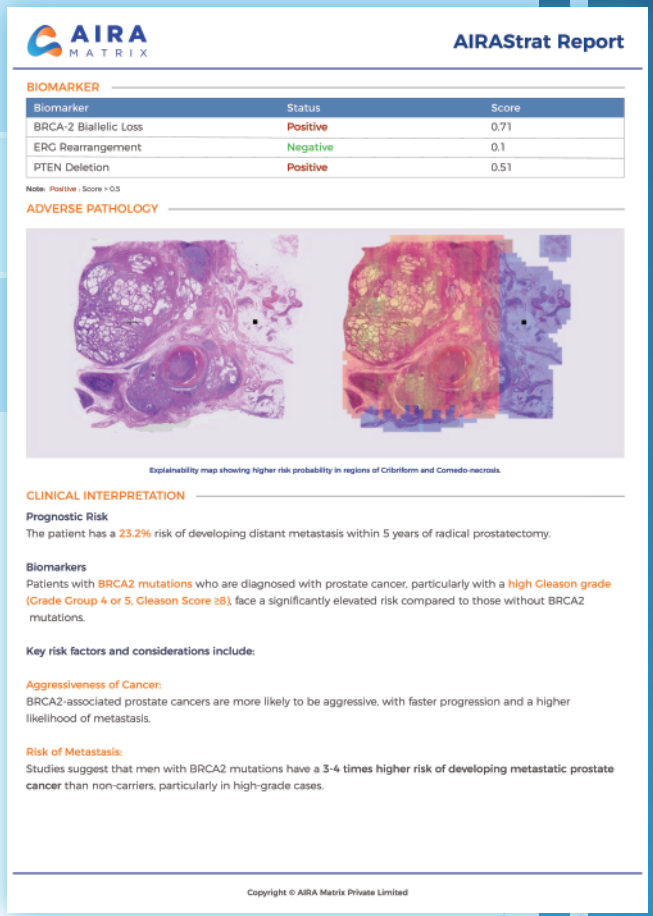
Metastatic Risk Heatmap
Overlay on images highlights metastatic risk levels, integrating clinical data with histopathology for better risk stratification and informed decision-making

Metastasis Prediction
Offers metastasis-free survival insights by integrating clinical and pathological data for personalized prognosis and long-term cancer management

AIRAStrat

Specifications

Scanner Agnostic	Compatible with multiple image formats and scanners
Analysis Mode	Auto, Manual
Specimen	Core Needle Biopsy, Radical Prostatectomy
Stains	H&E
Deployment	Cloud, On-Premise
Export Results	CSV, PDF
Evaluation Metric	AUC, F1 Score



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AIRAStrat Report

BIOMARKER

Biomarker	Status	Score
BRCA-2 Biallelic Loss	Positive	0.71
ERG Rearrangement	Negative	0.1
PTEN Deletion	Positive	0.51

Note: Positive : Score > 0.5

ADVERSE PATHOLOGY

Explainability map showing higher risk probability in regions of Cribriform and Comedo-necrosis.

CLINICAL INTERPRETATION

Prognostic Risk

The patient has a 23.2% risk of developing distant metastasis within 5 years of radical prostatectomy.

Biomarkers

Patients with BRCA2 mutations who are diagnosed with prostate cancer, particularly with a high Gleason grade (Grade Group 4 or 5, Gleason Score ≥8), face a significantly elevated risk compared to those without BRCA2 mutations.

Key risk factors and considerations include:

Aggressiveness of Cancer:

BRCA2-associated prostate cancers are more likely to be aggressive, with faster progression and a higher likelihood of metastasis.

Risk of Metastasis:

Studies suggest that men with BRCA2 mutations have a **3-4 times higher risk of developing metastatic prostate cancer** than non-carriers, particularly in high-grade cases.

Custom AI Development

Custom AI Models Built for Your Needs

Get tailored, efficient solutions with our custom AI development services for short-term histopathology studies

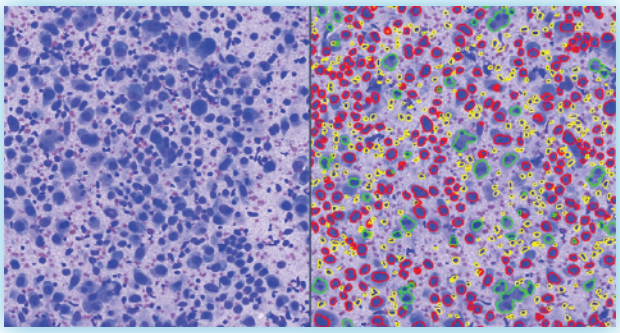
Accelerated Delivery
40% faster turnaround with lower development costs using ready-to-use AI models

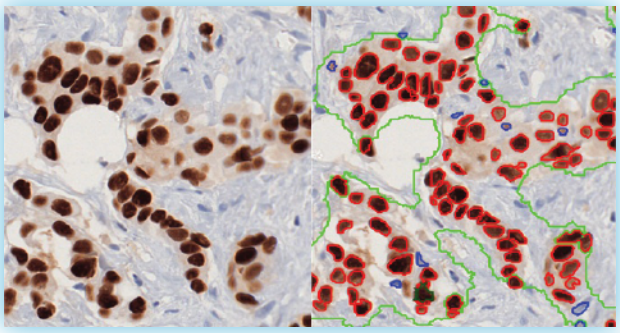
100+ Pre-Built Models
Leverage a vast library of pre-trained models for rapid customization

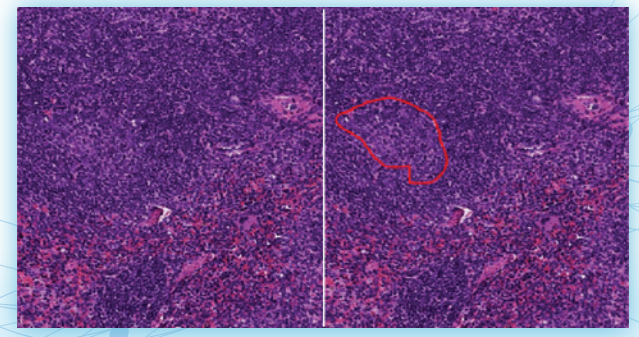
Smart Data Creation
Generate training data rapidly with foundation model-based tools

Stain Adaptation
Easily fine-tune the model for new stain variations

Automated Training
Active learning to accelerate model training







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AM-BR-CLI-MAR-2025-V01