



Diagnostic Versus Higher-Resolution Immunohistochemical Scoring for Multi-Marker DNA Repair Pathway Analysis in Breast Cancer

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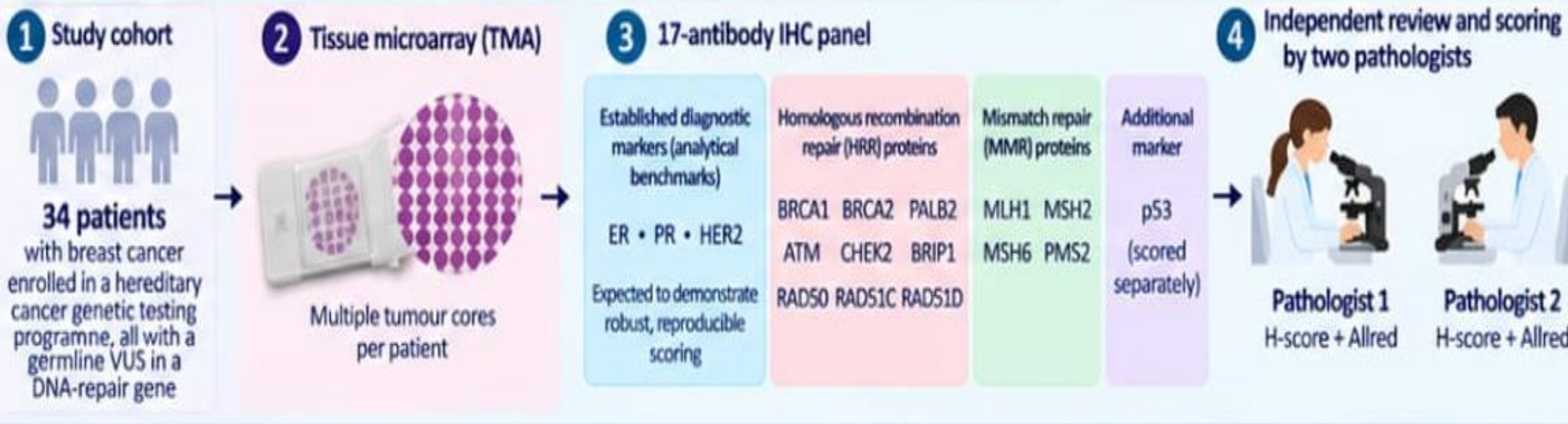
Background:

Diagnostic IHC scores such as Allred support binary clinical decisions, whereas pathway-based research needs quantitative detection of subtle expression differences, continuous variation and intratumoral heterogeneity across many markers. Whether diagnostic scoring preserves this information has not been systematically evaluated.

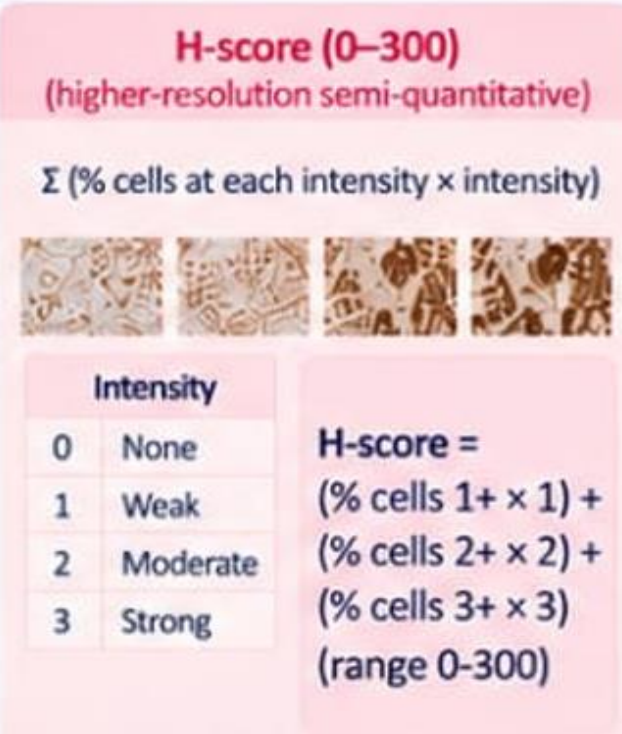
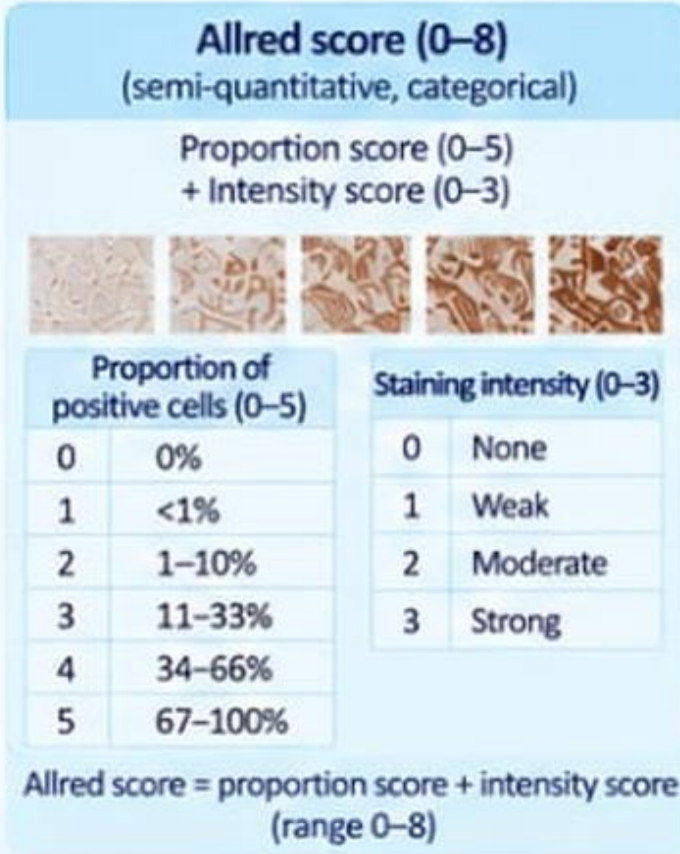
Aim:

To determine whether diagnostic immunohistochemical scoring preserves sufficient quantitative information for multi-marker pathway analysis, using Allred and H-score as lower and higher resolution semi-quantitative approaches.

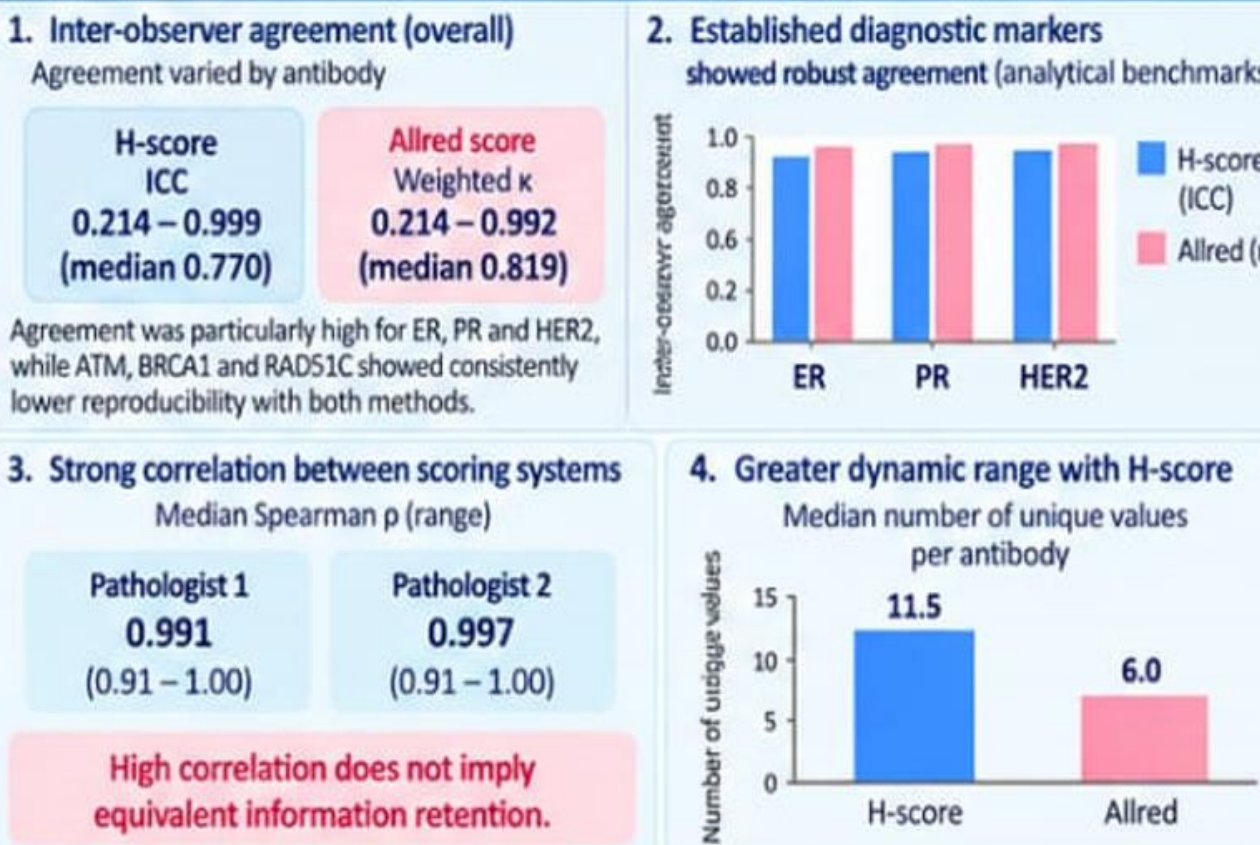
COHORT AND METHODS – STUDY WORKFLOW



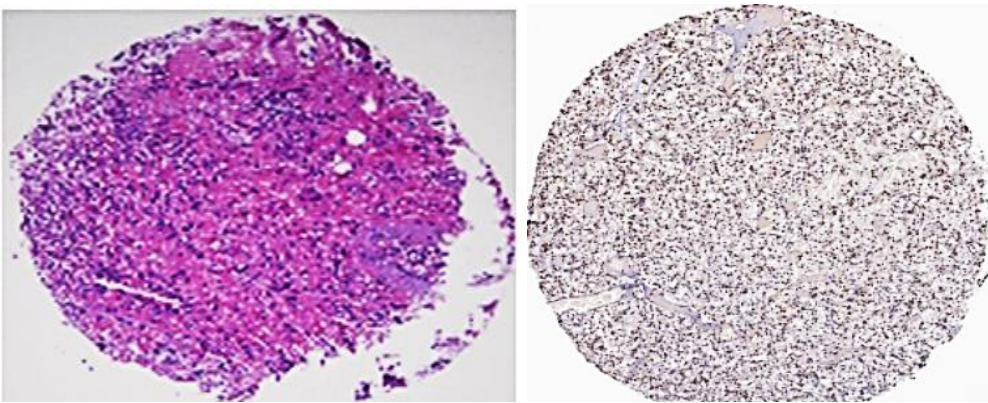
HOW THE SCORING SYSTEMS WORK



KEY RESULTS



Results of two cores for CHEK2 stain with same Allred score but different H-score



Conclusion:

- H-score provided substantially greater analytical resolution and identified inter-core variation compressed into identical Allred categories in approximately 8% of matched comparisons
- These findings demonstrate measurable information loss when reduced to lower resolution diagnostic categories
- Higher-resolution scoring can preserve continuous IHC variation for multi-marker biomarker and pathway-based research.

	Pathologist 1		Pathologist 2	
Two cores of same patient	Core A	Core B	Core A	Core B
H-score	140	70	170	150
Allred Score	6	6	7	7