

Objective

Comparative analysis of prognostic tests is important to evaluate the performance of different prognostic tests in a population and assess how a new test performs in relation to established, validated ones. We have compared CanAssist Breast (CAB) with Nottingham prognostic index (NPI), PREDICT, Oncotype DX (ODX), and MammaPrint (MP), and here we showcase the results of those comparative studies.

Background

- ~70% of HR+/HER2- early breast cancer (EBC) patients have a low risk of recurrence, highlighting the importance of accurate prognostication to guide chemotherapy decisions.
- Online tools NPI, PREDICT, etc, are often used as they are quick and free. However, the use of proteomic and genomic prognostic tests like CAB, ODX, MP, etc, is increasing.
- CanAssist Breast (CAB) is the first AI-driven immunohistochemistry-based prognostic test that analyses key tumour biomarkers to predict breast cancer recurrence risk, helping oncologists identify "low-risk" or "high-risk" patients, guiding treatment decisions.
- CAB is validated in global studies and in the real world, used by ~10,000 patients to date in the Indian subcontinent, UAE, Turkey, Iran, and Saudi Arabia to plan optimum treatment.

Methodology

- A patient cohort of 1474 from Europe, India and the US was used to compare CAB with NPI and PREDICT.
- Risk stratification was assessed across three prognostic tests: NPI categorized patients into good (GPG-NPI index ≤ 3.4), moderate (MPG 3.41–5.4), and poor (PPG > 5.4) groups; PREDICT defined low risk as $< 2\%$ chemotherapy benefit and high risk as $\geq 2\%$; and CAB used a cut-off score of 15.5 to classify patients as low (≤ 15.5) or high risk (> 15.5) categories. Agreement between CAB and NPI/PREDICT risk groups was evaluated by kappa coefficient.
- Comparison of risk stratification by CAB with ODX and MP was done with 109 (US and India) and 43 (EU) patients, respectively, in a retrospective setting, and prospectively with a total of 116 Turkish patients- 58 patients in each group. Accuracy/negative predictive value was calculated using MedCalc. Concordance of CAB with ODX or MP was calculated using the overall percentage agreement.

Figure 1: CanAssist Breast Test (CAB) risk prediction.

Results

Comparison of CanAssist Breast with online tools

Retrospective cohort (n=1474)

Figure 2: Risk Proportions of CanAssist Breast, NPI, and PREDICT

Test	Low-Risk (%)	High-Risk (%)
CAB	74%	26%
NPI	55%	38%
PREDICT	63%	37%

Figure 3: Re-stratification of PREDICT risk groups and NPI-MPG by CanAssist Breast.

Test	CAB Low-Risk (%)	CAB High-Risk (%)
PREDICT Low-Risk	88%	12%
PREDICT High-Risk	49%	51%
NPI MPG	65%	35%

Prospective Cohort from 2016-Nov 2025 (n=9074)

Figure 4: CanAssist Breast Risk Stratification

Risk Category	Percentage
CAB Low-risk	71%
CAB High-risk	29%

Figure 5: NPI Risk Stratification and Re-stratification of NPI-MPG by CanAssist Breast

Test	Low-Risk (%)	High-Risk (%)
NPI	65%	35%
NPI-GPG	32%	68%
NPI-PPG	3%	97%
CAB	61%	39%

Comparison of CanAssist Breast with genomic tests

Retrospective study cohort

Table 1: Concordance of CanAssist Breast with ODX

Concordance	ODX vs CAB	ODX-Tx vs CAB
Low-risk	82.4%	82.7%
High-risk	14.3%	9.1%
Overall concordance	76.0%	75.2%

Table 2: Performance of CanAssist Breast and ODX

NPV	Total cohort	Endocrine Therapy alone	Node negative
CAB	93.4%	93.6%	93.8%
ODX	91.8%	90.8%	92.8%

Figure 6: Concordance of CanAssist Breast with MP

MammaPrint Category	CAB Low-risk (%)	CAB High-risk (%)
Low-risk	83%	17%
High-risk	42%	58%

Prospective study cohort

Figure 7: Risk Proportions of CanAssist Breast, ODX and MP

Test	Low-risk (%)	Intermediate-risk (%)	High-risk (%)
ODX (cut-off 18)	55%	38%	7%
MP	48%	52%	0%
CAB	83%	17%	0%

Figure 8: Concordance of low-risk patients across CanAssist Breast and ODX

Category	CAB (%)	ODX (%)
Overall	77%	83%
Pre-menopausal	75%	83%
Post-menopausal	58%	83%
N0	83%	83%
N1	58%	83%

Figure 9: Concordance of low-risk patients across CanAssist Breast and MP

Category	CAB (%)	MP (%)
Overall	77%	75%
Pre-menopausal	75%	75%
Post-menopausal	79%	75%
N0	100%	75%
N1	53%	75%

Figure 10: Five-year survival analysis of real world prospective CanAssist Breast data 2016-2020 (n=252)

Survival Category	Survival (%)
CAB Low Risk (71%)	97.1%
CAB High Risk (29%)	90.8%

Figure 11: Real-world reach of CanAssist Breast

Conclusions

- CAB is useful for EBC patients and especially valuable for NPI-MPG and PREDICT high-risk groups to support accurate chemotherapy decisions.
- CAB shows 83% concordance with ODX and MP in low-risk categories and 93% accuracy with ODX.
- In a first-ever prospective comparison of the CAB with ODX and MP, CAB demonstrated concordance of >75% in the low-risk categories.
- Real-world data of CAB shows an excellent 5-year survival of 97% in the CAB low-risk patients. Backed by the data, CAB emerges as an excellent, cost-effective, and quick alternative.

References

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