tumors typically have low proliferation and high hormone receptor expression. These tumors are associated with a low-risk score and good prognosis. Conversely, Luminal B tumors characteristically have high proliferation rates, making these patients candidates for adjuvant chemotherapy (9).

Breast cancer gene expression profile assays differ significantly in gene sets, analytical platforms, and the patient populations used in their development and validation. The genes included are related to cell proliferation, cancer growth, and survival, along with several housekeeping genes. Gene sets range between 5 and 70 genes depending on the assay (Table 2).

The instrument platforms also differ between assays. Oncotype DX, Breast Cancer Index, and EndoPrint use quantitative reverse transcription-polymerase chain reaction-based assays while MammaPrint, BluePrint, and TargetPrint use microarray-based assays. Differences in the genes these assays analyze and the methodologies they deploy could lead to varying outcomes for the same patient.

To illustrate, a study comparing the Prosigna and Oncotype DX assays in the same patient population found significant differences in risk classification (7). Despite the two assays showing concordance greater than 80% for the high-risk and low-risk RS groups, the study found substantial disagreement between the tests in the intermediate-risk RS group.

In the latter category, half of the patients were categorized as low-risk by the Prosigna test but high-risk by the Oncotype DX test. These differences could have translated to different treatment outcomes based on which test the oncologist ordered: Half of the patients in the intermediate-risk RS category might have received chemotherapy had they undergone Oncotype DX testing, whereas they would not have received chemotherapy based on the Prosigna test.

This discordance may confuse clinicians and affect patient outcomes. This makes it imperative for laboratorians and clinicians to critically evaluate the clinical validation data of these assays and to understand the differences between methods that might lead to discrepant risk classification.

### Emerging MAAAs in Women’s Health

An emerging application of MAAA testing, especially in Europe, is to detect preeclampsia (PE). PE complicates 2%–3% of pregnancies and is a major cause of mortality and morbidity for mothers and babies. Severe PE can lead to preterm birth at <37 weeks’ gestation. The traditional approach to screening for PE is through maternal demographics and medical history, and this is the only approach recommended by ACOG. Risk factors include nulliparity, being older than age 40, having a body mass index (BMI) ≥35 kg/m², conceiving via in-vitro fertilization, having a history of previous pregnancy with PE, family history of PE, chronic hypertension, chronic renal disease,