PROSIGNA

Genetic signature for breast cancer prognosis and management

In the world, every year, more women are diagnosed with breast cancer, which places the disease as the most common cancer in the female population. It is also the leading cause of cancer death in women. Its incidence increases with age, being more common in postmenopausal women.
In recent years breast cancer knowledge has evolved significantly, being understood as a complex and heterogeneous disease in which different factors must be considered to determine the patient's prognosis. These include tumor stage, size, intrinsic subtype, and number of affected lymph nodes.

The Prosigna (PAM50) intrinsic subtypes

Prosigna was developed based on the PAM50 gene signature, which measures the expression of 50 genes[1] to classify tumors into 1 of 4 intrinsic subtypes:

- Luminal A
- Luminal B
- Her2-enriched
- Basal-like

Intrinsic subtypes[2] provide valuable prognostic information to guide clinical decisions[3]. Since 2011, St. Gallen's guidelines include the classification of the intrinsic subtype to establish systemic therapy recommendations, which differ by biological subtype.

About 80% of breast cancer cases occur in postmenopausal women.

Prosigna Scientific Development

Prosigna is developed from the genetic signature PAM50[1] and provides information on the Risk Of Recurrence (ROR) based on tumor size, intrinsic molecular subtype and tumor proliferation status[1,4]. ROR is the genomic form of staging that incorporates the gene expression of the tumor into the classic TNM staging information (TNM Classification of Malignant Tumours).

The test has been validated in several clinical studies with postmenopausal women with early-stage breast cancer and breast cancer patients who underwent surgery along with locorregional treatment and adjuvant endocrine therapy[5,6,7]
In addition, different studies have been carried out to compare the ROR predictive value with the Recurrence Score (RS) risk of Oncotype DX®. Both values categorized a similar number of patients as low risk, however the ROR classified a higher number of patients as high risk and a smaller number as at intermediate risk[5]. Both ROR and RS provided an additional prognostic value to that provided by clinical pathological factors, but the increase was greater for ROR.[5,6]
The value of ROR offered better discrimination of patients in low and high risk of recurrence groups at a distance of 5 to 10 years than that provided by RS.[8]

ROR is provided as a numerical score on a 0-to-100 scale that estimates the probability of distant recurrence over 10 years.

Patients

Prosigna is indicated for use in postmenopausal women with hormone receptor-positive, node-negative (Stage I or II) or node-positive (Stage II or IIIA) early-stage breast cancer to be treated with adjuvant endocrine therapy.
The test is not recommended for patients with 4 or more positive lymph nodes.[4]

Prosigna can be used in combination with other patient risk factors to determine whether, in addition to endocrine therapy, additional chemotherapy may be necessary.

Results

The report contains several parameters:

- Nodal status: modifies the patient's risk classification.
- ROR value: A numerical value from 0 to 100 that correlates with the risk of 10-year remote recurrence, based on the size, intrinsic molecular subtype, and proliferation status of the tumor.
- Risk classification: sets the probability of recurrence at a distance to 10 years, classifying your risk into three possible groups: low, intermediate or high risk. The probability varies depending on the nodal status[4].

Nodal status	ROR value	Risk classification
Node-negative	0-40 41-60 61-100	Low Intermediate High
Node-positive (1-3)	0-15 16-40 41-100	Low Intermediate High

STUDIES OFFERED BY CIDEGEN

CIDEGEN conducted the **Prosigna study (PAM50)** for the prognosis and management of breast cancer detection of somatic mutations in the blood using digital PCR.

Sample requirements: FFPE tumor block or tumor tissue slides (number of slide sent will depend on the tumor size).

Processing time: 2-3 weeks after sample receipt. Unless the sample is poor, deteriorated or has characteristics that do not allow the study to be carried out.

Please remember to send a copy of the study's request and informed consent by email: info@cidegen.com

CIDEGEN will keep, whenever possible, the original sample for a minimum period of 5 years, in case it is necessary to continue later with other studies.

References:

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