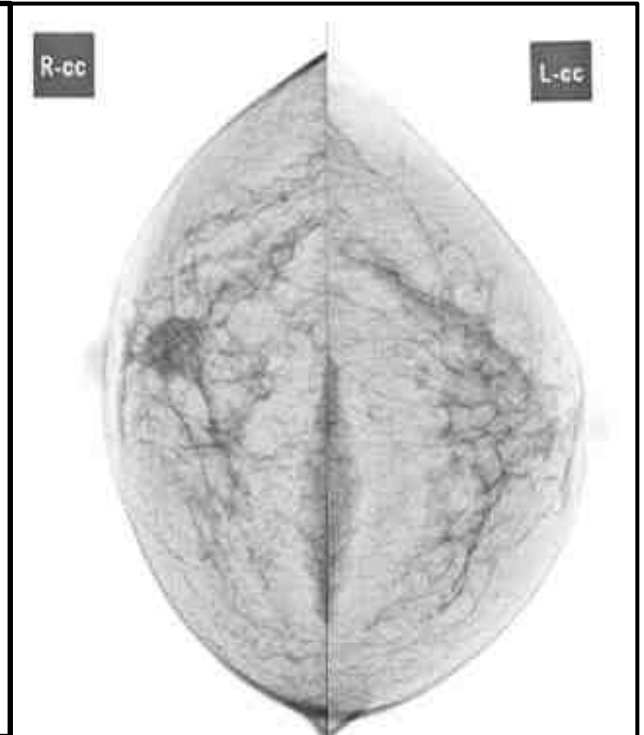


## Breast Cancer Cancer Phenotype: Prometastatic Gene Profiling Test and Immunoscoring

- **Breast cancer is one of the most frequent malignant tumors in women, and the combined use of digital mammography and ultrasound with percutaneous interventional techniques is making it possible to detect it from very early stages, with histological confirmation prior to surgery.**
- **However, metastases are still the main cause of death and, despite its early removal, the prometastatic risk exists from very early stages of breast cancer without lymph node involvement.**
- **Metastatic disease can be initiated in asymptomatic women, with tumors of less than 5 mm, being largely regulated by the interaction between tumor cells and their endocrine-metabolic and immuno-inflammatory microenvironment, and the pathophysiology of each woman being key.**



- Most prometastatic biomarkers have been identified in advanced cancer, and there are very few valid in early stages, where it is not considered that metastatic disease is the problem, simply because it is not visible.
- PBM Researchers have studied the relationship between clinical-pathological, radiological and transcriptional parameters of specific genes involved in the beginning of the breast cancer metastasis process, and have optimized a multivariate predictive model, based on classification and boosting trees, which identifies patients with breast cancer of prometastatic phenotype based on the final score obtained by combining the neutrophil/lymphocyte ratio, age, the pathological index of malignancy of the lesion and the relative expression (lesion versus perilesional tissue) of 4 genes involved in the metastasis of breast cancer (nm23, LPAR1, F3, PLAU).
- The predictive algorithm can be applied to women with high risk lesions (Ellis B3) or breast malignancy (BI-RADS 4-6), with different grades, radiological sizes and clinical manifestations, whose percutaneous biopsies guided with imaging techniques were obtained before any neoadjuvant treatment and that in the 7 days prior to the biopsy they did not receive treatments with NSAIDs, nor immunosuppressors and anticoagulants.
- Gene expression in the biopsy is determined by quantitative RTPCR.