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Development of a novel IHC based test for prediction of risk of recurrence for breast cancer patients

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Estimation of risk of distant recurrences in breast cancer patients based on biomarkers beyond current gold standard e.g. ER, PR, Her2, node status and Stage to influence treatment decision is of critical importance. At present there are a few molecular tests viz oncotype dx, mamma-print available for patients with ER+, node and HER2 negative, Stage 1 tumors for prediction of risk of recurrence. However use of these tests in India is very minimal as >70% of patients get diagnosed in node+, Stage 2 disease and due to cost constraints. We decided to develop an Immunohistochemistry based prognostic test to predict 'risk of recurrence' for ER+ patients in Stage 1-2. With this aim we carried out a retrospective, non-interventional, anonymized study on 420 left over breast FFPE tumor samples of Stage 1-3 with known outcomes about distant recurrence in first 5 years. We tested about 25 different biomarkers via immunohistochemistry belonging to multiple pathways: Proliferation, resistance, quiescence, adhesion etc. Statistical analysis finalized an algorithm with 6 biomarkers which predicts risk of recurrence as low or high for each patient. Early validation on ~200 cases shows 95% specificity and 54% sensitivity of prediction. Our biomarkers are targetable as they are membrane associated and thus in future high risk patients will be treated with new targeted drugs to reduce risk of recurrence. Thus, we believe we have developed a simple, inexpensive and highly specific test useful to majority of breast cancer patients across the globe with high specificity and sensitivity. We would like to describe the details of development of the test in my talk.

Biography

Manjiri Bakre is a PhD holder in Cell Biology from the Indian Institute of Science, Bangalore has immense work experience in cell signaling and multiple technologies in the USA, Singapore & India. She led a group in cancer drug discovery in a biotech company in India, multi-disciplinary research on 'point-of-care' diagnostics at Philips Research. She received Young Scientist Award from International Union of Biochemists and Molecular Biologists and along with it also received Paper of the Week Award by Journal of Biological Chemists. She has published in peer reviewed journals. She has patents and given seminars in many international and national conferences. She founded OncoStem Diagnostics Pvt. Ltd., and has been instrumental in every aspect of development of multiple prognostic oncology tests.

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