

OP 1

Immunohistochemical detection of Claudin low breast cancer; which subcellular level to be assessed?

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Objectives: Claudin low breast cancers are often high grade, triple negative tumours with poor prognosis. They are identified at genetic level and are not diagnosed routinely by immunohistochemistry. The objective was to determine the best subcellular level to detect Claudin low breast cancer by immunohistochemistry, in terms of their histopathological prognostic features.

Methods: This cross sectional study included all archival breast cancer tissue collected up to December 2015 in our unit. Tissue microarrays (TMA) were constructed using 23 breast cancer cores with a diameter of 2mm, in each TMA. TMAs were immunohistochemically stained for Claudin 3 expression and was scored as; no staining=0, weak staining=1, moderate staining=2 and strong staining=3, separately for membrane, cytoplasmic and nuclear staining. A score <2 was considered Claudin low and analysed against the histopathological prognostic features of the breast cancer.

Results: A total of 546 breast cancers were assessed. Claudin low expression was identified at cytoplasmic, membrane and nuclear level in 74.9%, 74.5% and 42% of breast cancers respectively. Low nuclear expression of Claudin 3 was associated with high grade (p=0.028), Nottingham Prognostic Index of >3.4 (p=0.028), ER and PR negative (p<0.001) and HER 2 negative (p=0.013) tumours while low membrane staining was associated with low grade (p=0.038), HER 2 negative (p<0.001) breast cancers. Low cytoplasmic staining was associated with HER 2 negative breast cancer only (p=0.002).

Conclusions: Nuclear staining for Claudin should be assessed to identify Claudin low breast cancer by immunohistochemistry as it significantly associates with most of the Claudin low breast cancer characteristics.