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Editorial   **Open Access**

Myoepithelial Markers in Diagnostic Immunohistochemistry

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Editorial Note

Myoepithelial cells are contractile elements found in salivary, sweat and mammary glands that show a combined smooth muscle and epithelial phenotype. In the normal breast, the ductal and acinar units are lined by two cell layers, the inner layer lining the lumen and an outer layer of myoepithelial cells. An intact myoepithelial cells layer is seen in both benign and in situ lesions, whereas loss of the myoepithelial cells layer is considered the rule for the diagnosis of invasive cancer.

Because myoepithelial cells are not always readily identifiable on routine hematoxylin and eosin-stained sections, many immunohistochemical methods have been used to highlight an intact myoepithelial cells layer. Recent studies have reported CD10 and smooth muscle myosin heavy chain expression in myoepithelial cells of the breast, supporting their use as markers to help distinguish invasive breast carcinoma from ductal carcinoma in situ. CD10 is a 100kD cell surface metalloendopeptidase called neprilysin which inactivates a variety of biologically active peptides. It was initially identified as the common acte lymphoblastic leukemia antigen. Subsequent studies, however, have shown that CD10 is expressed on the surface of a wide variety of nonlymphoid cells and other tissues, such as breast myoepithelial cells. The antibody to SMMHC is also reactive for smooth muscle cells and myopepithelial cells. Thus the immunohistiochemical stainings of these two proteins have to be considered in the cellular context of a given tissue or lesion. In the basal layer of the normal breast epithelium and in proliferative breast lesions that indicate a myoepithelial cells of the breast concluded that CD10 was uniformly positive in myoepithelial cells of normal breast and may serve as a useful marker of breast myoepithelial cells in difficult breast lesions.

Protein p63 is a member of the p53 protein family. Thsi protein is not a specific myoepithelial marker as described in the preceding paragraph, but it is often expressed in the nuclei of myoepithelail cells positively immunostained for basal keratins. p53 is a tumor suppressor gene that, when working normally, helps to stop cells becoming cancerous. Increased p53 expression is a frequent finding in malignant tumors. The predominant localization of p63 is in the basal layer of stratified squamous and transitional epithelai . The basal cells act as the progenitors of the suprabasal cells, which undergo differentiation and cell death in regenerative epithelia. In normal conditions, p63 is expressed in basal cells of the prostate, in the salivary gland, in myoepithelial cells of intercalated duct and acini, and in basla and luminal cells of the breast epithelium. One of the most important important fields of application is making use of their special and characteristic expression patterns in distinct cell types, differentiation stages or functional states-aided by specific myoepithelial antibodies-as immunohistochemical markers in diagnostic tumor pathology. Epithelial tumors maintain-atleast widely-specific features of the expression patterns of the respective cell type of origin, thus helping to identify and classify a given tumor. A relatively small panel of keratin antibodies has attained diagnostic importance in breast pathology with the side of selected antibodies or as part of a panel together with myoepithelial and functional markers. This approach has become a diagnostic standard in state-of-the-art clinical pathology.