

An immunohistochemical study of sarcoglycan subcomplex on normal and pathological breast

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The sarcoglycan complex (SGC) is a multimember transmembrane complex interacting with other member of dystrophin-glycoprotein complex (DGC) in order to provide a mechano-signaling connection from the cytoskeleton to the extracellular matrix in myocytes. Previous investigations have demonstrated that in skeletal and cardiac muscle, the SGC is a heterotetrameric unit constituted by the α -, β -, γ -, and δ -sarcoglycans. Other authors demonstrated that the expression of α -sarcoglycan is restricted to striated muscle cells, whereas ε -sarcoglycan, is also expressed in several other tissues. Moreover, further analysis showed the presence, in vascular and visceral smooth muscle, of other sarcoglycan subcomplex, consisting of ε -, β -, γ -, and δ -sarcoglycan, associated with sarcospan.

In order to verify composition of sarcoglycan subcomplex in other tissues, we analyzed glandular epithelium of breast, testing it both in normal and in pathological conditions. In particular we performed immunofluorescence reactions using all sarcoglycans (α -, β -, γ -, δ -, and ε -) on biopsies of ten normal subjects, and ten subjects with fibrocystic mastopathy. Our results showed that in normal breast all tested sarcoglycan are detectable; whereas in biopsies of pathological breasts all sarcoglycan were less detectable and ε -sarcoglycan was absent, specially in mioepithelial cells. These data demonstrated that also in epithelium of breast, as well as in all epithelia previously tested by us, the sarcoglycan subcomplex play a key role in mediating the signalling between cell and extracellular matrix; moreover, the absence of ε -sarcoglycan in fibrocystic mastopathy, and in particular in mioepithelial cells, demonstrated that this glycoprotein can play an important role in signalling for contraction of these cells.

Key word

Breast, sarcoglycan, epithelium, immunohistochemistry