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Sarcoglycan subcomplex on normal and pathological prostatic tissue: an immunohistochemical and molecular study

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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 alfa, beta, gamma and delta-sarcoglycans. Other authors demonstrated that the expression of alfa-sarcoglycan is restricted to striated muscle cells, whereas epsilon-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 epsilon, beta, gamma and delta-sarcoglycan, associated with sarcospan.

In order to verify composition of sarcoglycan subcomplex in other tissues, we analyzed glandular epithelium of prostate, testing it both in normal and in pathological conditions. In particular we performed immunofluorescence reactions using all sarcoglycans alfa, beta, gamma, delta and epsilon) on biopsies of ten normal subjects, and ten subjects with prostatic hyperplasia and prostatic cancer. Our results showed that in normal prostate all tested sarcoglycan are detectable both in epithelial and in myoepithelial cells; whereas in biopsies of prostatic hyperplasia all sarcoglycans were less detectable, whereas in prostatic carcinoma they were almost absent in both cell types. These data demonstrated that also in epithelium of prostate, 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 all sarcoglycans in pathological glandular tissue, and in particular in mioepithelial cells, demonstrated that this glycoprotein can play an important role in signalling for contraction of these cells.

Keywords: prostate, sarcoglycan, epithelium, immunohistochemistry.