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Sarcoglycan subcomplex during embryonic life of rats: an immunohistochemical 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 a-, b-, g-, and d-sarcoglycans. Other authors demonstrated that the expression of a-sarcoglycan is restricted to striated muscle cells, whereas e-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 e-, b-, g-, and d-sarcoglycan, associated with sarcospan. Previous our studies have demonstrated presence of sarcoglycans also in non-muscle tissue as prostatic and breast glandular epithelial tissues in normal and pathological conditions, hypothesizing a key role for these glycoproteins in mediating the signalling between cell and extracellular matrix (1,2). Furthermore, some Authors have studied the presence of sarcoglycans also in fetal tissues demonstrating that the signals of these proteins in fetal liver are weak or absent (3), or that their immunostaining is clearly detectable (4). Although these discordant assumptions, insufficient data are present on sarcoglycans during fetal period. On this basis, in order to verify composition of sarcoglycan subcomplex during this period, we analysed fetuses of rat at 8 and 14 days using immunohistochemical techniques, observing several organs at fetal stage, as well liver, kidney and brain. Our results have shown that all sarcoglycans are constantly present in all tested embryonic organs and that their staining pattern was more detectable that that the adult life. In our opinion, these data demonstrated that, also in fetal period, sarcoglycans are present confirming a key function for these proteins in regulating of transduction signalling. In this way, sarcoglycan subcomplex could play a crucial role in cytodifferentiation processes in order to check the development of several organs during embryonic life.

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Keywords

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