

THE EXPRESSION OF VITAMIN C TRANSPORTERS IN SERTOLI CELLS AND THEIR RELEVANCE FOR THE BLOOD TESTIS BARRIER

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Vitamin C is an essential micronutrient for the development of male germ cells. In the gonad, the germ cells are isolated from the systemic circulation by the blood-testis barrier, which consists of a basal layer of Sertoli cells associated through an extensive array of tight junction complexes. To study the behaviour of Sertoli cells as a first approach to the molecular and functional characterization of the vitamin C transporters in this barrier, we used the 42GPA9 cell line immortalized from mouse Sertoli cells. RT-PCR analyses revealed that the 42GPA9 cells express both vitamin C transport systems, a finding that was confirmed by immunocytochemical and immunoblotting analysis. The kinetic assays revealed that both, ascorbic acid transporters (SVCTs) and facilitative hexose transporters (GLUTs), are functionally active in these cells. Moreover, we demonstrated that 42GPA9 Sertoli cells are capable to form a sealed monolayer and to incorporate ascorbic acid from both apical and basolateral surfaces. The subcellular localization of SVCT2 transporter in polarized epithelium of Sertoli cells was moderately apical when SVCT2-GFP was transfected. These results, indicate that active vitamin C transporters (SVCTs) are expressed in Sertoli cells and that the surface localization of SVCT2 isoform in a polarized monolayer of Sertoli cells have a direct impact on our understanding of the mechanism for vitamin C transport across the hemato-testicular barrier. (FONDECYT 1060135, Dirección de Investigación y Desarrollo, UACH).