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Lipid uptake and intracellular transport in a parasitic platyhelminth

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Fatty acid binding proteins (FABPs) are intracellular proteins that bind long chain fatty acids and other hydrophobic ligands. They differ in their tissue distribution, the specificity and affinity for its ligands. The specific function of FABPs is still under investigation; however, recently promising findings have been obtained. Some members could be involved in cell proliferation and growth modulation, in gene expression regulation and could collaborate with membrane transporters for fatty acid uptake from the extracellular medium. We have studied FABPs´ roles in the uptake and intracellular transport of BODIPY FL C-16 fatty acid in the parasitic platyhelminth *Mesocestoides vogae*. It is worth mentioning that these parasites are unable to synthesize their own fatty acids by *de novo*. For this reason they should capture these molecules from the host, which would make FABPs essential molecules for their survival. Parasite larvae were submitted to immunomicroscopic analysis *in toto* and in cryosections, showing a diffuse cytosolic distribution of FABPs with some expression in nuclei and mitochondria. FABPs distribution was confirmed by mass spectrometry identification from 2D-electrophoresis of larvae subcellular fractions. Furthermore, the ability of these proteins to bind the fluorescent ligand was analyzed *in vitro*. Our results indicated that FABPs are strong candidates for the intracellular transport of fatty acids, carrying them to different cell compartments including the nucleus. In this sense, *M. vogae* FABPs could participate in several cellular processes fulfilling most of the functions attributed to vertebrate's counterparts.

Biography

Gabriela Alvite has completed her MSc in 2006 and her PhD in 2014 from Science Faculty, University of the Republic (PEDECIBA, Uruguay). She works as a Research Assistant and a Professor in the Biochemistry and Molecular Biology Section of the Science Faculty (UdelaR, Uruguay). She has participated in several national and international scientific research projects and has published more than 10 papers in reputed journals. Her research focuses on the study of the structure and function of parasitic Platyhelminthes fatty acid binding proteins.

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