



Seminarios internos del IBFG

Connexin 43 impacts exogenous mitochondrial acquisition by glioblastoma cells

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Salón de actos del IBFG

The acquisition of mitochondria through intercellular connections or via endocytosis is a biological concept recently shown to promote tumor growth in glioblastoma, the most common and aggressive brain tumor. However, the molecular mechanisms behind those processes are yet to be characterized. Here, we have used a series of genetic and pharmacological approaches to uncover how exogenous organelle importation rewires the native mitochondrial content and function in glioblastoma cells. Capitalizing on connexin-43 (Cx43) as a key modulator of mitochondrial acquisition, we show a differential impact for this protein on the acquisition of isolated or transferred mitochondria from co-cultured fibroblast and primary astrocytes. The importation of exogenous organelles remodels the content, protein composition and native configuration, as well as the functionality of the endogenous mitochondrial network in glioblastoma. In sum, we provide evidence for a functional remodeling of the native mitochondrial network in glioblastoma cells, paving the way to correct alterations in the respiratory metabolism aimed to halt tumour development.