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LINE

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CELL SIGNALING

This line studies the molecular mechanisms underlying cell signaling. By combining molecular, electrophysiological, molecular dynamics and fluorescence techniques, our researchers have shed light on the following issues: (1) the molecular structures involved in oligomerization and function of connexins 26 and 43, which form hemichannels and gap junction channels. These channels mediate intercellular communication pathways, and some mutations in their coding genes can cause syndromic and non-syndromic deafness. (2) In the brain, we studied the role of connexin hemichannels in inflammatory responses of neurodegenerative diseases; (3) new roles of pannexin channels in cellular communication, synaptic plasticity, neural excitability, neurosecretion, and potentiation of skeletal muscle contraction. (4) We also studied dynamin-2, a GTPase responsible for endocytosis, in controlling cortactin dynamics during the process of transmitter release as well as mutations in dynamin-2, which cause myopathies, on the intercellular transport of proteins needed for skeletal muscle metabolism.

PRINCIPAL INVESTIGATORS

Juan Carlos Sáez[1], Ana María Cárdenas, Agustín Martínez.

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SELECTED PUBLICATIONS

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