CONGRESO SAIB 2022

Resúmenes de Comunicaciones Orales y Posters

Abstracts of Oral Communications & Posters

SAIB

Sociedad Argentina de Investigaciones en Bioquímica y Biología Molecular

LVIII Annual Meeting of the Argentine Society for Biochemistry and Molecular Biology Research

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PROGRAM AT A GLANCE

	Tuesday 8th	Wednesday 9th	Thursday 10th	Friday 11th
8:30 10:30		**Oral Communications** "Sala Magna" Microbiology "Sala Plumerillo" Plants "Sala Horcones" Lipids - Neurosciences	**Oral Communications** "Sala Magna" Plants "Sala Plumerillo" Microbiology "Sala Horcones" Cell Biology	**Oral Communications** "Sala Magna" Cell Biology "Sala Plumerillo" Plants - Biotechnology "Sala Horcones" Signal Transduction – Enzymes
10:30 11:00		Coffee break	Coffee break	Coffee break
11:00 12:30		*"Sala Magna"* Plenary Lecture **Dr. Ernesto Podesta**	*"Sala Magna"* Plenary Lecture **Dr. Mario Feldman**	*"Sala Magna"* Plenary Lecture "Cono Sur" **Dr. Rodrigo Gutierrez**
12:30 14:30	Registration	"Sala Magna" Round Table Surf your career Free time for lunch	Free time for lunch	Free time for lunch
14:30 16:30		**Symposium** "Sala Magna" Signal Transduction "Sala Plumerillo" Plants "Sala Horcones" Young Investigators	**Symposium** "Sala Magna" Lipids "Sala Plumerillo" Microbiology "Sala Horcones" Young Investigators	**Symposium** "Sala Magna" Cell Biology "Sala Plumerillo" Plants "Sala Horcones" Short Plenary Lectures
16:30 17:00		Coffee break	Coffee break	Coffee break
17:00 19:00	"Sala Magna" *Opening Ceremony* *Plenary Lecture Alberto Sols.* **Dra. Isabel Varela Nieto**	POSTERS (Central Hall)	POSTERS (Central Hall)	POSTERS (Central Hall)
19:00 20:30	"Sala Magna" Plenary Lecture **Dr. Craig Roy**	"Sala Magna" Plenary Lecture Hector Torres **Dra. Ana Belén Elgoyhen**	"Sala Magna" Plenary Lecture Ranwel Caputto **Dra. Alejandra del Carmen Alonso**	"Sala Magna" Plenary Lecture **Dr Maximiliano Gutierrez**
20:30 22:00	Welcome Cocktail *Central Hall*		SAIB Society Annual Meeting	Awards presentation and Closing Ceremony

LI-03

Fusion of micron-size vesicles: interplay between the mitochondrial Mfn2 protein and lipids

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Membrane fusion is crucial for the coordination of mitochondrial dynamics. An imbalanced mitochondrial dynamic leads to the formation of fragmented mitochondria and a decrease in intracellular ATP levels, contributing to the development of important diseases, including neurodegenerative, cardiac or cancer conditions. The fusion process is energetically unfavorable, thereby requiring specialized proteins. In mammals, Mitofusins (Mfn) 1 and 2 are responsible for mitochondrial outer-membrane (OMM) fusion. They belong to the dynamin superfamily of multi-domain GTPases. Recent structural studies suggest that, upon GTP hydrolysis, Mfns dimerize to promote the approaching and fusion of OMM. However, the OMM fusion seems to require multiple regulatory factors that control the dynamics and kinetics of mitochondrial fusion throught the formation of heterotypic Mfn1-Mfn2 dimers. In this study, we purified and functionally reconstituted the full-length mouse Mfn2 in large and giant unilamellar vesicles (LUVs and GUVs, respectively). Vesicles were prepared with POPC alone or with 30% of plasmalogen-PC or DOPE. Unlike GDP, after incubation with GTP, vesicles underwent fusion. Fast video microscopy imaged the Mfn2-dependent membrane fusion pathway which involves the formation and expansion of a membrane diaphragm and the opening of a fusion pore. The incorporation of DOPE (30% mol) in the lipid composition did not alter the fusion sequence but enhanced the fusion kinetics significantly, as revealed by a lipid-mixing assay. Our observations show that Mfn2 alone can promote the fusion of micron-sized vesicles, without the presence of other proteins in the membrane. In addition, the lipid environment is an important factor in the modulation of Mfn2-dependent membrane fusion, a process that seems to require topological lipid intermediates with negative curvature.