

XLVIII Reunión Anual de la Sociedad Argentina de Biofísica

Libro de Resúmenes



SAB
XLVIII

27 al 29 de noviembre de 2019
Universidad Nacional de San Luis

XLVIII Reunión Anual de la Sociedad Argentina de Biofísica / compilado por
Sebastián Andujar ...
[et al.]. - 1a ed. - Buenos Aires : SAB - Sociedad Argentina de Biofísica, 2019.
Libro digital, PDF

Archivo Digital: descarga
ISBN 978-987-27591-7-9

1. Biofísica. 2. Investigación. I. Andujar, Sebastián, comp.
CDD 570

Diagramación y Edición

M. Soledad Celej, Juan Pablo Acierno

Diseño de Tapa y Logo

Comité Organizador

Asistencia Técnica Web

Juan Pablo Acierno

Quedan prohibidos, dentro de los límites establecidos en la ley y bajo
apercibimiento legalmente previsto, la reproducción total o parcial de esta obra por
cualquier medio o procedimientos ya sea electrónico o mecánico, el tratamiento
informático, el alquiler o cualquiera otra forma de cesión de la obra sin la
autorización previa y por escrito de los titulares del *copyright*.

Sociedad Argentina de Biofísica

Member of the International Union for Pure and Applied Biophysics



XLVIII Reunión Anual SAB

27-29 Noviembre 2019

San Luis, Argentina

XLVIII Annual Meeting SAB

27-29 November 2019

San Luis, Argentina

Organizing Committee

Sebastián Andujar
IMIBIO-CONICET UNSL, San Luis

Francisco Garibotto
IMIBIO-CONICET UNSL, San Luis

M. Soledad Celej
CIQUIBIC-CONICET UNC, Córdoba

Oswaldo Martin
IMASL-CONICET UNSL, San Luis

Nadia S. Chiamaroni
IMBICE-CONICET UNQ, Quilmes

Jorge Vila
IMASL-CONICET UNSL, San Luis

Ricardo D. Enriz
IMIBIO-CONICET UNSL, San Luis

Collaborators (grad students)

Agustina Arroyuelo
IMASL-CONICET UNSL, San Luis

Luisa Goicoechea Moro
IMIBIO-CONICET UNSL, San Luis

Pedro Ramírez
IMASL-CONICET UNSL, San Luis

Silvina Cabañez
IMIBIO-CONICET UNSL, San Luis

Ezequiel Frigini
IMASL-CONICET UNSL, San Luis

Antonella Bonvillani
IMIBIO-CONICET UNSL, San Luis

Scientific Committee

Sebastián Andujar
IMIBIO-CONICET UNSL, San Luis

Francisco Garibotto
IMIBIO-CONICET UNSL, San Luis

Mario Del Pópolo
ICB-CONICET UNCU, Mendoza

Gabriel Longo
INIFTA-CONICET, La Plata

M. Soledad Celej
CIQIBIC-CONICET UNC, Córdoba

Oswaldo Martin
IMASL-CONICET UNSL, San Luis

Nadia S. Chiramoni
IMBICE-CONICET UNQ, Quilmes

Sergio Pantano
Institute Pasteur Montevideo
Uruguay

Ricardo D. Enriz
IMIBIO-CONICET UNSL, San Luis

Jorge Vila
IMASL-CONICET UNSL, San Luis

SAB Young Researchers Committee

Ezequiel Frigini
IMASL-CONICET UNSL, San Luis

Patricia Maturana
CIBAAL-CONICET UNSE, Santiago del
Estero

M. Florencia González Lizarraga
IMMCA-CONICET, San Miguel de
Tucumán

Luis Benito Pérez Socas
CIQIBIC-CONICET UNC, Córdoba

Agustín Mangiarotti
INIMEC-CONICET, Córdoba

Macarena Siri
CIQIBIC-CONICET UNC, Córdoba

SAB Executive Committee

President

José María Delfino

IQUIFIB-CONICET, FFyB-UBA, Buenos Aires

Vicepresident

M. Soledad Celej

CIQUIBIC-CONICET, FCQ-UNC, Córdoba

Past President

Lía Pietrasanta

IFIBA-CONICET, FCEN-UBA, Buenos Aires

Secretary

Ernesto Ambroggio

CIQUIBIC-CONICET, FCQ-UNC, Córdoba

Treasurer

Noelia Burgardt

IQUIFIB-CONICET, FFyB-UBA, Buenos Aires

Board members

César Ávila

IMMCA-CONICET, FBQyF-UNT, San Miguel de Tucumán

Axel Hollmann

CIBAAL-CONICET, UNSE, Santiago del Estero

Irene Mangialavori

IQUIFIB-CONICET, FFyB-UBA, Buenos Aires

Santiago Di Lella

IQUIBICEN-CONICET, FCEyN-UBA, Buenos Aires

A necessary connection: cholesterol and nicotinic receptors

Fabiani C^a, Peñalva DA^a, Corradi J^a, Antollini S^a

a - Instituto de Investigaciones Bioquímicas de Bahía Blanca (INIBIBB). Departamento de Biología, Bioquímica y Farmacia, Universidad Nacional del Sur (UNS- CONICET), Bahía Blanca, Argentina

It is known that the muscle nicotinic acetylcholine receptor (nAChR) is highly influenced by its lipid environment. It is present in high-density clusters in the muscle cell membrane where it localizes mainly in liquid-ordered (Lo) domains enriched in cholesterol and sphingolipids. Its transmembrane domain forms the ion channel pore and exhibits extensive contacts with the surrounding lipids. In this work we studied the close relationship between nAChR and cholesterol under different experimental conditions in order to enrich with, deplete of, redistribute between both hemilayers, and oxidate cholesterol molecules. These conditions were evaluated either in *T. californica* nAChR-rich membranes, in model membranes containing purified nAChR or in cells expressing nAChR. Cholesterol modifications were confirmed by lipid analysis using thin layer chromatography. Evaluation of a) membrane order perturbations, by Laurdan GP and fluorescence anisotropy, b) increase/decrease of Lo domains, by fluorescence microscopy, c) nAChR-Lo domains correlation, by detergent treatment and SDS-PAGE, and d) nAChR conformation and function, by fluorescence spectroscopy and electrophysiology showed that changes in the amount, distribution or oxidation of cholesterol impacts not only in the size, location and curvature-domain shape of Lo domains and in the nAChR preference for them, but also in nAChR functionality and nAChR structural conformation. A high correlation between the quantitative presence of cholesterol, its transmembrane and lateral asymmetry and nAChR conformation and functionality is postulated.

Acknowledgments

This work was supported by funds from FONCyT, CONICET and SGCyT UNS.