48th Annual Meeting of the Brazilian Society for Biochemistry and Molecular Biology (SBBq)

Águas de Lindóia, SP, Brazil
May 14th to 17th, 2019

.

Ilustração da Capa: Alexandre Takashi

Welcome Letter

Welcome!

The 48a. Annual Meeting of the Brazilian Society of Biochemistry and Molecular Biology - SBBq will be held at the hotel MAJESTIC, in Águas de Lindóia, SP, from May 14th to 17th, 2019.

The Congress aims to provide a broad view of research frontiers and recent developments in Biochemistry and Molecular Biology and their applications. The always strong presence of international researchers offers to the participants a special opportunity to follow closely advances and challenges, in both methodologies and in applied topics.

The Annual Meeting of the Brazilian Society of Biochemistry and Molecular Biology (SBBq) is currently one of the most traditional events in the Brazilian scientific community. For more than four decades, these meetings have served as the setting and forum for debates on the advancement of fundamental knowledge of biochemical phenomena and their integration with other segments of the biological, physico-chemical and health sciences, to the benefit of society.

Also noteworthy is the strong presence of commercial exhibitors, who bring to the participants the latest worldwide technologies in terms of equipment, methodologies, materials, protocols and services in the field. A further highlight is the remarkable presence of young researchers and students, from undergraduate research students to postdoctoral fellows, making the poster sessions particularly vibrant and productive when compared to other congresses of a similar nature.

Selma M.B. Jeronimo

President of SBBq

Luiz Bezerra de Carvalho Jr

Vice President of SBBq

SBBq Executive Committee

Board of Directors

Acting President:	Selma Jeronimo (UFRN)
Past President:	Glaucius Oliva (USP-IFSC)
Vice-President	Luiz Bezerra de Carvalho Jr (UFPE)
General Secretary:	Walter R. Terra (USP-IQ)
First Secretary:	Eduardo M.R. Reis (USP-IQ)
Treasurer:	Maurício da Silva Baptista (USP-IQ)
First Treasurer:	Aline Maria da Silva (USP-IQ)

Scientific Council

Carlos Bloch Jr (Embraba-Cenargen)
Emanuel Maltempi de Souza (UFPR)
Fabio C.L. Almeida (UFRJ)
Jorge A. Guimarães (UFRGS)
Carlos Termignoni (UFRGS)
Maria de Fátima Dias Costa(UFBA)
Maria Elena de Lima (UFMG)
Walter Colli (USP-IQ)

Regional Representatives

Bahia	Maria de Fátima Dias Costa (UFBa)
Ceará	Marcio Viana Ramos (UFC)
Distrito Federal	Marcelo Valle de Souza (UnB)
Minas Gerais	
Paraná	Marcello Iacomini (UFPR)
Pernambuco	Vera Lúcia Menezes de Lima (UFPE)
Rio de Janeiro	Hatisaburo Masuda (UFRJ)
Rio Grande do Norte	Hugo Alexandre de Oliveira Rocha (UFRN)
Rio Grande do Sul	Carlos Alberto Saraiva Gonçalves (UFRGS)

Executive Secretariat

Cynthia Sayuri Bando
Arnaldo Casari
Marcelo Andrade
Marcia Braga

SP.22- Argentina-Brazil Symposium: Signal transduction and defense in plants

Chair: Marcio V. Ramos (UFC)

SP.22.01 - Plant Natriuretic Peptides in Plant-Pathogen Interactions

F Masotti[1], B S Garavagliaq[1], N Gottig[1], **Jorgelina Ottado [1]**
[1] Biologia Molecular, Instituto de Biologia Molecular y Celular de Rosario (Argentina)

Plant natriuretic peptides (PNPs) participate in the regulation of ions and water homeostasis, and a role for them in plant immune responses has also been proposed. Xanthomonas citri subsp. citri contains a gene encoding a PNP-like protein (XacPNP) that mimics its Arabidopsis thaliana homologue AtPNP-A. First, A. thaliana leaves were infiltrated with pure recombinant PNPs, and showed enhanced expression of genes related to the defense response and a higher resistance to pathogen infections. Moreover, AtPNP-A expression increased in A. thaliana leaves after Pseudomonas syringae pv. tomato infection. Next, A. thaliana lines over-expressing XacPNP, lines over-expressing AtPNP-A and AtPNP-A-deficient plants were generated. Plants over-expressing XacPNP or AtPNP-A were more resistant to bacterial infection than control plants, whereas PNP-deficient plants were more susceptible. Also, in abiotic stress, plants over-expressing XacPNP or AtPNP-A were more resistant to saline or oxidative stress than PNP-deficient lines. A receptor for AtPNP-A, named AtPNP-R, that possesses a leucine-rich repeat (LRR) domain and guanylyl cyclase activity has been found. It was proposed that this receptor is responsible for cGMP-dependent signaling once AtPNP-A is bound to the amino terminal LRR domain. Accordingly, AtPNP-R expression was induced in PNP-treated A. thaliana leaves and in plants with enhanced expression of XacPNP and AtPNP-A. Also, plant responses that depend on AtPNP-A, such as stomatal opening, required the presence of AtPNP-R. AtPNP-R localization in the plant cell membrane was observed and both plant and bacterial peptides co-localized in vivo with this receptor at the plant cell membrane. The response to pathogen challenge in atpnp-r mutant plants showed that this receptor is involved the defense response activated by PNPs. In conclusion, PNPs are able to trigger different responses to regulate internal homeostasis by the interaction with AtPNP-R and also, they have a role in the plant defense response.

Keywords: Plant Natriuretic, Plant-Pathogen, AtPNP-R

SP.22.02 - Regulation of auxin signaling: A key node of plant development and acclimation to stress.

Claudia A Casalongué [1], M J. Iglesias[1], M C. Terrile [2]
[1]Instituto de Investigaciones Biológicas, Universidad Nacional de Mar del Plata (Mar del Plata, Argentina), [2]Facultad de Ciencias Exactas y Naturales, Universidad Nacional de Mar del Plata (Mar del Plata, Argentina)

Auxin has been implicated in developmental switches as well as in transient and dynamic cellular responses during acclimation to abiotic stress. The core components of the auxin signaling machinery mainly involves the F-box TRANSPORT INHIBITOR RESPONSE 1/AUXIN SIGNALING F-BOX PROTEIN (TIR1/AFB) auxin co-receptors, the Auxin/INDOLE-3-ACETIC ACID (Aux/IAA) transcriptional repressors, and the AUXIN RESPONSE FACTOR (ARF) transcription factors. In particular, TIR1 and AFBs as part of SCFTIR1/AFB E3 UB-ligase complexes are regulated by multiple post-transcriptional and post-translational mechanisms, resulting in different regulatory layers to auxin perception. We investigated how nitric oxide (NO), through S-nitrosylation of the cysteine (C) residue (C140) of TIR1 and C37 of the scaffold protein ASK1 is involved in SCFTIR1/AFBs assembly impacting on Arabidopsis development. Overexpression of the tir1C140A protein in the tir1-1 background resulted in enhanced tolerance to NaCl-mediated salt stress, while overexpression of TIR1 restores salt sensitivity. In addition, to post-transcriptional regulation, we demonstrated that NaCl-mediated salt stress induces miR393 expression leading to a concomitant reduction in the levels of the TIR1 and AFB2 receptors and a modulation of antioxidant metabolism. Thus, TIR1/AFBs could be critical node between auxin signaling and specfic redox-associated components in order to coordinate time-specific growth responses during acclimation to salt stress. Taking together our findings provide a functional link to a better understanding of how auxin, NO and miR393 interactions can be integrated and regulated by environmental signals in Arabidopsis plants. From a biotechnological perspective, some challenges through the modulation of auxins are being explored

Keywords: Auxin, nitric oxide, miR393, Arabidopsis
Supported by: UNMdP, CONICET, ANPCyT, Argentina.