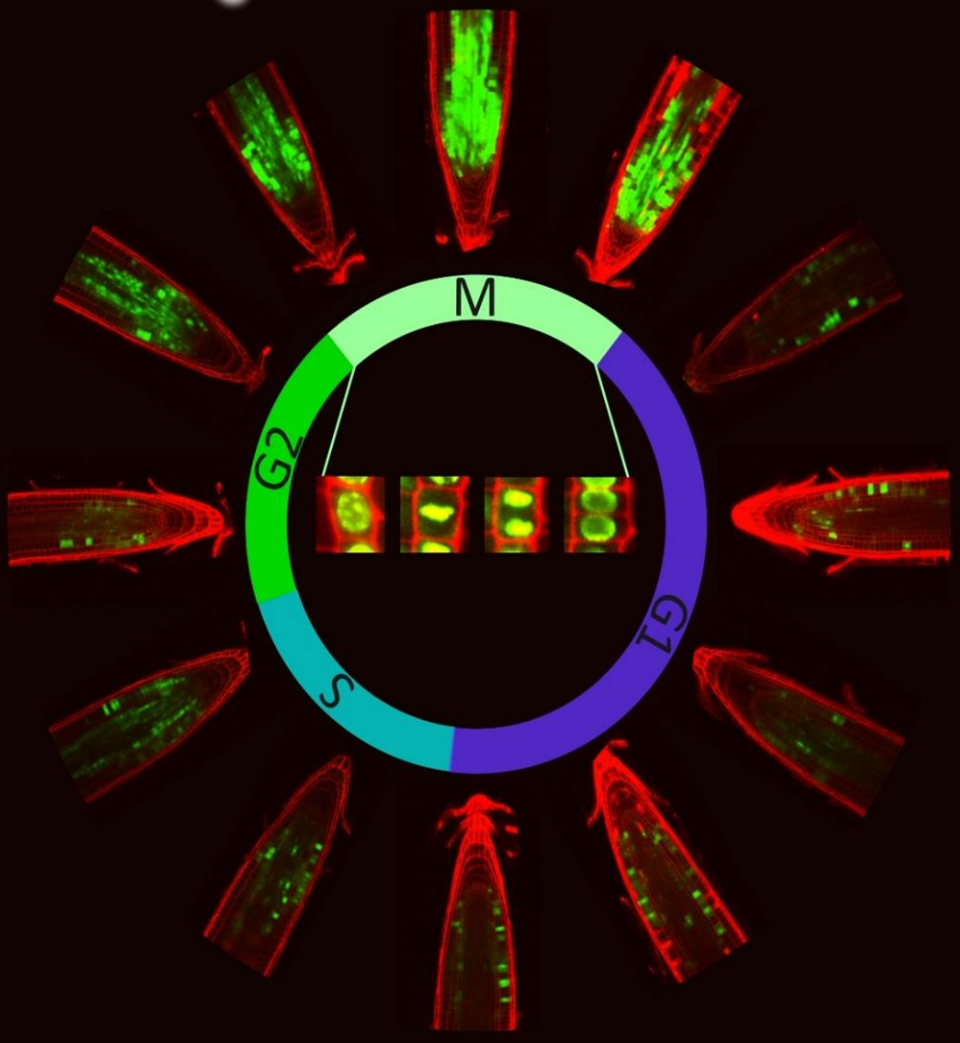
SAIB



52TH ANNUAL MEETING

ARGENTINE SOCIETY FOR BIOCHEMISTRY AND MOLECULAR BIOLOGY

LII REUNIÓN ANUAL

Sociedad Argentina de Investigación en Bioquímica y Biología Molecular

Pabellón Argentina. Universidad Nacional de Córdoba

November 7-10, 2016

- SAIB -
52th Annual Meeting
Argentine Society for Biochemistry and Molecular Biology

LII Reunión Anual
Sociedad Argentina de Investigación en Bioquímica y Biología Molecular

November 7th–10th, 2016
Córdoba, República Argentina
Pabellón Argentina
Universidad Nacional de Cordoba

Cover Page:

Confocal microscopy images of Arabidopsis thaliana *root are displayed in the cover. The selected roots are expressing a GFP reporter of a mitotic cyclin (CYCB1;1-GFP, green), also they are counterstained with propidium iodide (IP, red) to display the cell structure. In order to follow the progression through the cell cycle phases, the root cells were synchronized in S phase using HU, and after pictures were taken every 2 hours. This type of experiment was also used to generate RNA samples to analyze the dynamics of different gene expression during the cell cycle. Inside the circle, which shows the cell cycle phases, images of cells expressing a histone fused to the fluorescent protein VENUS and stained with IP, are displayed. Those images allow following the steps of mitosis in vivo inside the root (PL-P56: Identification of cell cycle regulators inplants, by Goldy, C; Ercoli, MF; Vena, R; Palatnik, J, Rodriguez, Ramiro E.)*

Diseño de tapa: Natalia Monjes

IQUIBICEN-CONICET
Facultad de Cs Exactas y Naturales Universidad de Buenos Aires

Monica Delgado
Auditor
INSIBIO - CONICET. Universidad Nacional de Tucumán

Verónica Gonzalez Pardo
Auditor
INBIOSUR - CONICET
Universidad Nacional del Sur

DELEGATES OF SCIENTIFIC SESSIONS

-Cell Biology-
Laura Morelli
IIBBA – CONICET

-Lipids-
Ana Ves Losada
INIBIOLP - CONICET. Universidad Nacional de La Plata

-Microbiology-
Viviana Rapisarda
INSIBIO - CONICET. Universidad Nacional de Tucumán

-Plant Biochemistry and Molecular Biology-
Jorgelina Ottado
IBR - CONICET. Universidad Nacional de Rosario

-Signal Transduction-
Alejandro Colman Lerner
IFIBYNE–CONICET, Universidad de Buenos Aires

LI-P12
THE ROLE OF XBP-1 IN OSMOTIC ACTIVATED-LIPID SYNTHESIS.

Malvicini R[1]; Weber K[12]; Goldman L[3]; Mancovsky S[3]; Saban T[3]; Casali C[1]; Fernandez M*[1]*
[1]UBA-FFYB-BCM; [2]CONICET-IQUIFIB; [3]ET. ORT. CABA, ARGENTINAE-mail: fertome@ffyb.uba.ar

It is known that hypertonicity induces an abrupt synthesis of several osmoprotective proteins such as urea transporters, COX2, AQP2, AQP3, among others, and organic osmolytes. It is also known that a massive protein synthesis could cause endoplasmic reticulum (ER) stress. Previously, we showed that hypertonicity activates the expression of ER stress markers in MDCK cells subjected to high NaCl concentrations, XBP-1 and CHOP, among them. The active form of XBP-1 is a transcription factor that activates the expression of lipogenic genes which, in turn, activate membrane biogenesis and ER stress alleviation. As hypertonicity significantly increases lipid synthesis in renal cells, in the present work we evaluated whether XBP-1 is involved in such response. To do that, prior to hypertonicity treatment, MDCK cultures were treated with XBP1siRNA. After 24 h of hypertonic treatment, the synthesis of lipids and the expression of key lipogenic enzymes were assayed. NaCl treatment, significantly increased the synthesis of both phospholipids (PL) and triglycerides (TAG); XBP1 silencing reduced the levels 1,2 DAG and TAG formed. This finding was consistent with the decrease in the levels of Lipin2 and DGAT2 mRNA. Interestingly, PL synthesis was not affected. These results clearly evidence a major role of XBP1 in the regulation of lipid synthesis in renal epithelial cells.*Both last authors.

LI-P13
Tl(I) AND Tl(III) INDUCE ALTERATIONS IN LIPID METABOLISM IN DIFFERENTIATED MDCK CELLS

Morel Gomez E; Verstraeten SV; Fernandez MC**
UBA,FFYB,BCM; CONICET, IQUIFIBE-mail: emorelgomez@ffyb.uba.ar

Thallium (Tl) is a toxic heavy metal that contaminates the environment and affects human health. Tl intoxication affects several organs and tissues, being the kidney a main target of Tl toxicity. However, the molecular mechanisms are still poorly understood. Tl has two oxidation states, the monovalent (Tl(I)) and trivalent (Tl(III)) cations. Since most heavy metals disturb cell lipid homeostasis, in the present work we studied if Tl may affect lipid metabolism in differentiated renal epithelial (MDCK) cells. Confluent MDCK cells were differentiated in hypertonic medium for 72 h and further incubated for 48 h in the absence or presence of Tl(I) or Tl(III) (10 or 100 µM). After incubation, cells were collected, counted and lipids were extracted. Chloroformic extracts were resolved by TLC; phospholipids (PLs), cholesterol (Cho) and triacylglycerides (TG) contents were analyzed. Both Tl(I) and Tl(III) significantly increased PLs and Cho. Accordingly, microscopy images showed morphological alterations in cells. Together, results could suggest an expansion of membranes. Also, Tl(I) and Tl(III) significantly increased TG content along with an increased LD´s size and number. Also, Tl(I) and Tl(III) increased endogenous lipids biosynthesis. Obtained results indicate that Tl-mediated damage would involve severe alterations in lipid metabolism. *Both have to be considered as last authors.

LI-P14
ETHER-LINKED LIPIDS OF RAT DEVELOPING AND ADULT EPIDIDYMIS

Luquez JM; Santiago Valtierra FX; Oresti GM; Aveldaño MI; Furland NE
INIBIBB, CONICET-UNS, 8000 Bahía Blanca, ArgentinaE-mail: jluquez@criba.edu.ar

In mammalian tissues, glycerophospholipids (GPL) and tri-glycerides (TG) occur in three sublcasses, depending on wheth-er the chain at the sn-1 position of the glycerol backbone is a fatty acid, a fatty alcohol, or a fatty aldehyde. This study fo-cused on the ether-linked (EL) subclasses of GPL and TG, fol-lowing their changes during postnatal development in rat epidi-dymis and, in the adult, their distribution among epididymal caput, corpus and cauda regions. At postnatal day 30, in a still scarcely differentiated epithelium lacking spermatozoa, the epididymis already contained plasmanyl- and plasmenyl-ethanolamine (Pls-Et) with 22:4n-9 (DTA), the DTA-containing plasmenyl-choline (Pls-Cho) increasing with development and the presence of sperm. In the adult tissue, the DTA-Pls-Et con-centration per mg protein was highest in the corpus and higher than that of DTA-Pls-Cho in the three epididymal regions, sug-gesting a precursor-product relationship. The latter subclass is in turn the one to increase the most in rat spermatozoa as they mature. The epididymal EL-TG were even richer in DTA than the GPL, the 1-alkyl- predominating over the 1-alk-enyl- sub-class at all ages, their concentration being highest in the corpus. These results correlated well with the expression (mRNA) of a key peroxisomal enzyme involved in the biosyn-thesis of these lipids, alkylglycerone phosphate synthase

LI-P15
DISRUPTION OF THE CYTOSKELETON AND ALTERED LIPID METABOLISM IN SERTOLI CELLS

Valles AS; Furland NE; Aveldaño MI
INIBIBB, CONICET-UNS, 8000 Bahía Blanca, Argentina. E-mail: svalles@criba.edu.ar

Previous work demonstrated that exposures to mild hyperthermia results in altered lipid metabolism in cultured Sertoli cells (SC), as evidenced by accumulation of lipid droplets (LD), and that these changes concur with the disruption of SC cytoskeleton. To further investigate the relationship between cytoskeleton disruption and lipid perturbations, in this study SC cultures were exposed at a constant temperature to nocodazole (NCZ), an antineoplastic agent known to interfere with the polymerization of microtubules. As previously did hyperthermia, the cytoskeletal disarrangement induced by exposure to NCZ was accompanied by a significant alteration of the mitochondrial potential, an increase in triacylglycerol levels, a considerable accumulation of LD, and a functional cell impairment manifested in reduced expression of the SC-specific protein transferrin. As also seen after hyperthermia, the effects of NCZ on all these alterations were reverted after ending the exposures. The time-course of the changes suggest that the cytoskeletal disruption could be the primary cause of the SC mitochondrial alterations, which in turn may respond for the lipid metabolic