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La Tapa (Ver p. IV)
Imagen ígnea, 1996.
María Esther Gené

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BUENOS AIRES, VOL 77 Supl. I - 2017

REUNIÓN CONJUNTA DE SOCIEDADES DE BIOCIENCIAS

LXII REUNIÓN ANUAL DE LA SOCIEDAD ARGENTINA DE INVESTIGACIÓN CLÍNICA (SAIC)

LIII REUNIÓN ANUAL DE LA SOCIEDAD ARGENTINA DE INVESTIGACIÓN BIOQUÍMICA Y BIOLOGÍA MOLECULAR (SAIB)

LXV REUNIÓN ANUAL DE LA SOCIEDAD ARGENTINA DE INMUNOLOGÍA (SAI)

REUNIÓN DE LA SOCIEDAD ARGENTINA DE ANDROLOGÍA (SAA)

XLVI REUNIÓN ANUAL DE LA SOCIEDAD ARGENTINA DE BIOFÍSICA (SAB)

XIX REUNIÓN ANUAL DE LA SOCIEDAD ARGENTINA DE BIOLOGÍA (SAB)

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REUNIÓN ANUAL DE LA SOCIEDAD ARGENTINA DE FISIOLOGÍA (SAFIS)

REUNIÓN DE LA SOCIEDAD ARGENTINA DE HEMATOLOGÍA (SAH)

XXIX REUNIÓN ANUAL DE LA SOCIEDAD ARGENTINA DE PROTOZOOLOGÍA (SAP)

13-17 de noviembre de 2017
Palais Rouge– Buenos Aires

1 Mensaje de Bienvenida de los Presidentes
2 Conferencias, Simposios y Presentaciones a Premios
92 Resúmenes de las Comunicaciones presentadas en formato E-Póster

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BUENOS AIRES, VOL 77 Supl. I - 2017

JOINT MEETING OF BIOSCIENCE SOCIETIES

LXII ANNUAL MEETING OF ARGENTINE SOCIETY OF CLINICAL INVESTIGATION (SAIC)

LIII ANNUAL MEETING OF ARGENTINE SOCIETY OF BIOCHEMISTRY AND MOLECULAR BIOLOGY (SAIB)

LXV ANNUAL MEETING OF ARGENTINE SOCIETY OF IMMUNOLOGY (SAI)

MEETING OF ARGENTINE SOCIETY OF ANDROLOGY (SAA)

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ANNUAL MEETING OF ARGENTINE SOCIETY OF PHYSIOLOGY (SAFIS)

MEETING OF ARGENTINE SOCIETY OF HEMATOLOGY (SAH)

XXIX ANNUAL MEETING OF ARGENTINE SOCIETY OF PROTOZOOLOGY (SAP)

November 13 -17, 2017
Palais Rouge– Buenos Aires

1 **Welcome Message from Presidents**
2 **Lectures, Symposia and Award Presentations**
92 **Abstracts of E-Poster Presentations**

- - - -

LA TAPA

María Esther Gené, **Imagen ígnea**, 1996.

Acrílico sobre tela, 110 x 95 cm. Cortesía de la Comisión Nacional de Energía Atómica, Predio TANDAR, Centro Atómico Constituyentes. Presidente de la Comisión Organizadora de la Exposición Permanente: Dr. A.J.G.Maroto.

María Esther Gené nació en Buenos Aires. Cursó Historia del Arte y Estética con Blanca Pastor y Nelly Perazo. Se inició en el taller de Centa Bertier y continuó su formación con Miguel Dávila. Participó del grupo de investigación plástica que dirigió Emilio Renart. Integró el Grupo Gen y formó el Grupo Fusión. Realizó numerosas exposiciones colectivas e individuales (Museos Municipal de Bellas Artes de Luján, Fernán Félix de Amador, de Arte Moderno de la Ciudad de Buenos Aires, Fundaciones San Telmo y Banco Mayo, Fundación Andreani, Patio Bullrich, Galería Kristel K., Salón ICCED de Pintura, entre otros). Sus obras se encuentran en colecciones privadas de Argentina, México, Alemania, España, Uruguay y EE.UU.

[1] Comisión Nacional de Energía Atómica. Artistas Plásticos con la CIENCIA, Centro Atómico Constituyentes, Predio TANDAR, Buenos Aires, 1999; En: *http://www2.cnea.gov.ar/xxi/artistas/artistasplasticos.htm*

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Buenas noches queridos amigos y colegas. En nombre de las Comisiones Directivas de las 10 Sociedades que participan en este evento, les damos la más cálida de las bienvenidas a la Reunión Conjunta de Sociedades de Biociencias 2017. Este evento sin precedentes ha reunido a más de 3200 científicos de todo el país, de los países vecinos, y de aquellos provenientes de diversos orígenes del orbe.

Sin dudas una reunión de ésta naturaleza, no es posible realizarla regularmente cada año por sus dimensiones excepcionales, aunque sin embargo estamos convencidos que es realmente gratificante plantearnos el desafío y organizarlas con una mayor frecuencia. La motivación para emprender tamaña tarea, que demanda mucho esfuerzo, no puede ser otra sino la de aspirar a objetivos superadores basados en la interdisciplina y la transversalidad como motores de innovación del conocimiento y de la calidad científica.

Honrando los antecedentes de este tipo de actividades, la primera Reunión Conjunta surgió como un sueño, propiciado en 2004 por mi predecesor, el Dr. Omar Pignataro, quien logró nuclear a 7 distinguidas sociedades científicas. En esa oportunidad, junto con SAIC, participaron la Sociedades Argentinas de Inmunología, de Fisiología, de Farmacología Experimental, de Neuroquímica, de Biología y de Biofísica. Este año, si bien no pudo incluirse por una cuestión de agenda a la SAN, se sumaron las Sociedades de Bioquímica y Biología Molecular, Andrología, Hematología y Protozoología, con la firme intención de hacer honor al éxito y brillo de aquella primera experiencia. Para ello, partiendo de un programa científico de excelencia enriquecido por la diversidad temática, intentamos posibilitar el intercambio interdisciplinario entre investigadores con diferentes perspectivas, pero con el objetivo común de incentivar el desarrollo de las Biociencias en el ámbito local y con proyección internacional.

La participación de sociedades de investigación, tanto básica como clínica, brinda la posibilidad de lograr un aporte transversal desde cada disciplina a las distintas áreas temáticas que abarca el congreso. Asimismo, se focaliza en la difusión de los avances que se producen en el campo de la investigación traslacional y la discusión de los desafíos que la misma implica y su contribución a la medicina de precisión.

También ha sido nuestro objetivo, facilitar el contacto de los docentes, estudiantes e investigadores jóvenes de todas las áreas, con científicos líderes en su campo de experticia, en un ámbito que favorezca la creación de vínculos interdisciplinarios que generen tormentas de ideas que puedan traducirse en proyectos que contribuyan al crecimiento de la producción científica de calidad.

En el trayecto hacia este día comprendimos que tan ambiciosos fines necesitaban de un compromiso firme de todas y cada una de las sociedades involucradas, y por sobre todo, de un genuino trabajo en equipo. En este sentido, haré referencia a los dichos del Dr Bocco en el contexto de la Asamblea de SAIB de diciembre de 2016, cuando se refirió a que debían “perder la individualidad para ganar con el Conjunto”. Este es el espíritu que tuvo la organización de esta reunión, que esperamos se vea evidenciado en todo su desarrollo y que inspire a nuevos sueños como fuente de destacados logros en el marco de las ciencias de la vida.

El desarrollo tecnológico nos ha llevado a vivir en un mundo hiper-conectado, donde cualquier suceso no queda en anécdota aislada, sino que inmediatamente se convierte en algo de público conocimiento. La ciencia obviamente, como actividad trascendente para la vida, también se encuentra atravesada por este fenómeno. Es por eso que en esta reunión se han incorporado estas herramientas para la inclusión eficiente de las presentaciones mediante e-pósters y mini orales y favorecer así la comunicación y la disponibilidad del trabajo de nuestros jóvenes durante toda la duración del evento.

Por otro lado, hemos puesto a disposición de los participantes, y nuevamente de especial de los jóvenes, un espacio al mediodía con actividades educacionales que incluyen formación en asuntos que hacen a su labor científica como el planteo de proyectos y la formulación de pedidos de subsidios, discusiones sobre temas especiales y divulgación de las acciones de organismos oficiales y diversas fundaciones en Biociencias en beneficio de la comunidad en su conjunto.

En momentos difíciles y decisivos, consideramos fundamental volcar la mirada de la sociedad hacia el quehacer de los científicos argentinos. Para ello, implementamos la Jornada de divulgación “De la Ciencia a tu Salud” satélite de este evento y que llevamos a cabo el 12 de noviembre, en el Centro Cultural de la Ciencia del MINCYT. Esperamos que esta exitosa jornada con gran afluencia de público sea la piedra fundamental para futuros espacios similares de interacción de nuestros científicos con la comunidad. Asimismo hemos comprobado el interés de los asistentes en el ejercicio de la ciencia. Esperamos por ello haber despertado vocaciones científicas y haber concientizado a la población sobre la necesidad de crecer que el país tiene en este sentido.

Nuestro agradecimiento más profundo y obligado va a comenzar con nuestras familias, que, como dicen los jóvenes “nos hicieron el aguante” en todo…sin su apoyo incondicional y aliento constante este evento hubiera quedado sim-

plemente en deseos…
Va también nuestro agradecimiento a nuestras “familias científicas”, nuestros becarios, investigadores y mentores que siempre acompañaron nuestros pasos y se ajustaron a nuestros tiempos de espera.
Finalmente queremos remarcar la buena predisposición, el apoyo y el trabajo sostenido de todas nuestras Comisiones Directivas en la organización y desarrollo de este encuentro. Y nuevamente resaltar la importancia que tiene para la ciencia argentina que los investigadores trabajen en conjunto porque en conjunto se alcanzan siempre metas más ambiciosas y lejanas.
Resulta oportuno citar un viejo proverbio de origen africano, que dice así:

- **“To go fast, go alone.**
To go far, go together.”

Ese es el espíritu que nos movió y que nos motivó para trabajar mancomunadamente, codo a codo, una Sociedad junto a la otra, cada una con sus tradiciones, sus intereses propios y su idiosincrasia, pero siempre en un marco de respeto mutuo, priorizando siempre un horizonte de un interés común para ofrecerles una propuesta superadora. Este es el trabajo de 10 Sociedades que les pertenecen, Uds. son los que las sostienen con su trabajo diario, agradecemos la convocatoria y deseamos que disfruten plenamente del evento.

Finally, in this opening ceremony of this exceptional and exciting scientific meeting, please, allow me to switch the language from Spanish to English, to give a warm welcome to all the scientists who are coming to our beautiful Buenos Aires from foreign countries. On behalf of all the community of 10 Argentinean Societies of Biosciences, many thanks to all of you for participating in this Meeting, many thanks also for travelling to this part of the world... almost...”il finne del mondo....” to share with us your science and your expertise.

Hence, once again, Welcome to the Joint Meeting of Biosciences Societies,

ENJOY IT!!!

Dra. Graciela Cremaschi
Presidente SAIC

En nombre de los Presidentes de las 10 Sociedades que participan de la Reunión Conjunta de Sociedades de Biociencias:

Dr. José Luis Bocco
Presidente SAIB

Dra. Virginia Rivero
Presidente SAI

Dr. Alberto Crottogini
Presidente SAFIS

Dra. Victoria Lux-Lantos
Presidente SAB

Dr. Sergio Sanchez-Bruni
Presidente SAFE

Dra Marta Zerga
Presidente SAH

Dra. Silvina Wilkowsky
Presidente SAP

Dr. Ernesto Grasso
Presidente SAA

Dra. Lia Pietrasanta
Presidente SAB

15 hours. The mean percentages of time in CL with glycaemia between 70-250 mg/dl was 94.66% [83.81, 98.38]; between 70-180 mg/dl was 82.55% [69.88, 95.22]; <70 mg/dl was 4.11% [0.83, 17.95]; and <50 mg/dl was 0.22% [0.01, 3.47], all with IC 95%. One mild nocturnal hypoglycemia occurred. No severe hypoglycemia occurred. No serious adverse events were reported.

It is peremptory to empower patients with chronic diseases. Developing algorithms such as the ARG algorithm, with promising initial results, contributes to this aim. However, further trials are needed to establish the safety and efficacy of the ARG algorithm.

Key words: #ArtificialPancreas; #Algorithm; #Sensor-augmented; #Diabetes; #CSII

(689) **CHRONIC ENDOGENOUS GLUCOCORTICOID EXCESS AND WHITE ADIPOSE TISSUE BROWNING**

Florencia Magalí Martín (1, 2), Eduardo Julio Spinedi (1), Andres Giovambattista (2)
(1) CENEXA. (2) IMBICE.

Glucocorticoids (GC) have different effects on white adipose tissue (WAT) and inhibit brown adipose tissue (BAT) thermogenesis; however, whether GC affects browning or not remains unclear. Our aim was to study the effect of chronic endogenous GC excess on browning activity of epididymal WAT (eWAT) stromal vascular fraction cells (SVFs) from 90 day-old, neonatally-treated, monosodium L-glutamate (MSG) male S-D rats. MSG and litter-mate controls (CTR) eWAT pads were dissected and processed for histological appearance and mRNA (qPCR) analysis. Then, isolated eWAT SVFs were processed for gene expression analysis or cultured up to reach confluence. Confluent cells were 3 day-differentiated with a classical pro-browning cocktail. On differentiation day 8, cells were stimulated with 10μM forskolin (4 h) or not, and cell UCP1 mRNA levels were quantified. Body weight and food intake were lower ($p<0.05$) in MSG rats, although eWAT mass was higher ($p<0.05$) and contained larger ($p<0.01$) adipocytes. Insulin, corticosterone (B), leptin and triglyceride plasma levels were high ($p<0.01$) in MSG rats. Remarkably, MSG eWAT pads showed low ($p<0.05$) mineralocorticoid and glucocorticoid receptor (MR and GR, respectively) gene expression levels. Interestingly, beige adipocyte markers (Cidea and PRDM16) were noticed in MSG eWAT and SVFs only. Differentiated MSG SVFs showed higher ($p<0.01$ vs. CTR) UCP1 expression levels before been stimulated (basal), although once stimulated with forskolin both cells groups developed a significant ($p<0.05$ vs. basal values) increase in UCP1 mRNA levels, although being both similar among them. Altogether our data are highly indicative for a GC-resistance developed by MSG rats (decreased eWAT, MR/GR mRNAs and high plasma B levels). We conclude that the beige adipocyte lineage could be favored due to the lack of a full GC inhibitory effect on MSG SVFs. (FPREDM052015; PICT-2013-0930)

Keywords: epididymal adipose tissue, endogenous glucocorticoids, WAT browning.

(1715) **DIABETIC ENVIRONMENT INFLUENCES THE BASAL CONDITION OF DENTAL PULP PROGENITOR CELLS**

Maria Virginia Gangoiti, Ana Maria Cortizo
LIOMM-Fac Cs Exactas-UNLP

Our objective was to characterize the basal state of the progenitor cells from dental pulp (DPPC) of control rats (C) and with diabetes mellitus (D). Adult Wistar rats injected with streptozotocin and nicotinamide (model of diabetes with partial insulin deficiency) or untreated (control) were used. The DPPCs were extracted from the dental pulp of the lower incisors of both experimental groups and were maintained in DMEM-10% fetal bovine serum at 37 °C and 5% CO_2. Once the cells reached semi-confluence, proliferation capacity (violet crystal bioassay), actin cytoskeleton distribution (Alexa fluor-phalloidin) and expression of osteogenic (Runx2), adipogenic transcription factors (PPARγ) as well as inflammation markers (HMGB1, IL1) and the receptor RAGE by RT-PCR were evaluated. DPPC-C proliferated linearly during one week of culture, while DPPC-D showed a significant decrease in the ability to proliferate at the end of that period ($p<0.05$). On the other hand, the DPPC-D showed a reorganization of the actin filaments with thicker and isolated fibers, compared to the actin network of the DPPC-C. In addition, DPPC-D expressed approximately 16 times more PPARγ than DDPC-C, which in turn expressed 14 times more Runx 2 than DPPC-D. This finding was accompanied by an increase in the expression of inflammatory markers such as HMGB1, IL1 and the receptor RAGE (15, 6 and 10 times respectively) in DPPC-D. According to our results, the DPPC-D have a marked inclination to the adipocytic phenotype and reflect the inflammatory condition associated with diabetes.

We conclude that the dental pulp represents an accessible and interesting source of adult mesenchymal stem cells, in which a diabetic environment can modulate its proliferative capacity as well as its phenotypic expression.

Keywords: Dental pulp progenitor cell, Diabetes mellitus, proliferation, inflammatory markers

(1494) **EFFECTS OF MELATONIN TREATMENT ON INFLAMMATORY MARKERS AND PITUITARY DYSFUNCTION IN INSULIN RESISTANT RATS**

Juan Salvador Calanni (1), María Elisa Mercau (1), Morena Wiszniewski (1), Marcos Aranda (2), Silvia Sánchez Puch (1), Carolina Vecino (1), Esteban Martín Repetto (1), Cora Beatriz Cymeryng (1)
(1) Laboratorio de Endocrinología Molecular-CEFyBO. (2) Laboratorio de Retinoneurología y Oftalmología experimental-CEFyBO

Excessive consumption of diets with high sugar content has been associated with an increased incidence of insulin resistance and obesity. Several reports have shown a concomitant dysfunction of the hypothalamus pituitary adrenal (HPA) axis in these patients. We have previously reported that rats fed a sucrose rich diet (SRD, 30% sucrose in the drinking water) for 7 weeks show a significant decrease in insulin sensitivity. Analysis of HPA axis activity after 3 weeks of treatment, when changes in insulin sensitivity were still not evident, showed augmented levels of circulating ACTH and a higher pituitary expression of POMC that was accompanied by an increase in oxidative stress parameters.

Present experiments were designed to analyze the involvement of inflammation-related effects on the observed pituitary dysfunction. Animals were randomly distributed in 4 groups: 1) Control, 2) SRD, 3) Mel and 4) SRD + Mel. In groups 3 and 4, subcutaneous melatonin implants (10mg) were surgically implanted. Animals were sacrificed after 3 weeks and pituitary glands were processed to obtain protein and RNA.

Results showed an increase in mRNA levels of TNFα ($p<0.001$) and inflammasome components (ASC, NALP3, IL-1beta, $p<0.01$ *vs.* C) in the SRD group that was prevented by melatonin treatment. In addition, immunohistochemistry analysis of pituitary tissues indicated an increase in both ACTH and Iba1 positive signals in the SRD-group that were attenuated in the SRD-Mel group. Western blot studies also showed higher levels of the macrophage marker F4-80 in the SRD-group. In vitro studies, in the corticotroph AtT20 cell line, showed the induction of POMC by conditioned media obtained from peritoneal macrophages or from J774 cells stimulated with LPS.

In summary, our results suggest that changes in the synthesis and secretion of ACTH detected in SRD-treated rats could be involved the activation of inflammation-related pathways.

Key words: Corticotroph, ACTH, inflammation, macrophage, melatonin.

(572) **IMT504 INHIBITS INSULITIS AND LOWERS BLOOD GLUCOSE IN NOD/Ltj FEMALE MICE IN A SHORT-TERM TREATMENT**

Stefania Bianchi, Milena Massimino, Carlos Libertun, Maria Silvia Bianchi, Victoria Lux-Lantos
Institute of Biology and Experimental Medicine

Immunomodulatory oligonucleotide IMT504 (IMT) induced a marked recovery of glycemia, glucose clearence, insulin secretion and beta cell function (by HOMA beta cell index) on a spontaneous autoimmune diabetes model (in male and female NOD/Ltj mice).

We analyzed the minimun dose at which the IMT has an early effect on glycemic control and insulitis. Diabetic female NOD/LtJ mice (two consecutive non-fasted glycemia (Gly) levels ≥ 250 mg/dl) were treated with a daily dose of IMT for five days (IMT: 2, 6 or 20 mg/kg/day, IMT2, IMT6 and IMT20) or saline as control (DC). Mice were sacrificed the day following the last injection. In fasted conditions, blood samples and pancreases were obtained for Gly and insulinemia measurment and for histological studies respectively.

We observed that 12.5% (1/8) DC mice showed spontaneous reversion of diabetic condition, whereas IMT improved Gly in 62.5% (5/8), 50% (4/8) and 75% (6/8) of mice treated with 2, 6 and 20 mg/kg/day, respectively (X^2: DC vs IMT20: $p<0.025$).

Gly did not vary with time (day 6 vs day 1) in DC mice while it significantly diminished with IMT treatment [(mg/dl):interaction, $p<0.01$, DC: Day 1: 330 ± 71 vs Day 6: 333.± 118, IMT2: Day 1: 303 ± 49 vs Day 6: 233 ± 57, IMT6: Day 1: 283 ± 22 vs Day 6: 194 ± 44, IMT20: Day 1: 313 ± 42 vs Day 6: 147 ± 42, IMT20: Day 1 vs Day 6: $p<0.02$]. Body weights did not differ among groups. Fasted glycemia also diminshed significantly with IMT20 treatment (DC vs IMT20: $p<0.04$). Since IMT20 showed the most effective response, we analyzed insulitis in this group. Treated mice showed a marked reduction in leukocyte islet infiltration (insulitis index: DC: 0.66 ± 0.05 vs IMT20: 0.48 ± 0.05, $p<0.05$).

Taken together, these results demonstrate that IMT20 treatment promotes an early, significant improvement in the diabetic condition in NOD/Ltj mice warranting further investigation of its mechanism of action.

(CONICET, UBA, ANPCYT, Fund. Williams, Fund. René Barón).

KEY WORDS: DIABETES,INSULITIS,GYCEMIA, OLIGONUCLEOTIDE

(264) **NARINGIN PREVENTS CHANGES IN THE MITOCHONDRIAL PHYSIOLOGY AND MORPHOLOGY OF KIDNEY IN THE EXPERIMENTAL DIABETES MELLITUS**

Adriana Del Valle Pérez (1), Maria Angelica Rivoira (1), Luis Mario Plavnik (2), Nori Tolosa De Talamoni (1)

(1) Bioquimica y Biologia Molecular, Fac. Cs. Medicas,UNC. (2) Histología A, Fac. de Odontología, UNC.

We have previously demonstrated that the Diabetes mellitus (Dm.) inhibits the intestinal Ca^{2+} absorption, which was accompanied by oxidative stress. Other studies in diabetic rats have shown enhanced glomerular filtration rate with raised urinary output and reduced Ca2+ reabsorption. Alteration of the redox state was observed in kidney mitochondria, with reduced ATP synthesis, changes in calcium homeostasis and increased biogenesis. The objective of this study was to determine if naringin (NAR), a natural antioxidant, could block the alterations in the renal morphology, mitochondrial redox state and energy metabolism from kidney in diabetic rats. Adult male Wistar rats were divided in: 1) controls, 2) streptozotocin (STZ) treated (diabetic rats) and 3) STZ + NAR treated. Mitochondria were isolated from renal tissue from each group of animals by differential centrifugation. In the mitochondrial extracts the activities of the enzymes isocitrate dehydrogenase (ICDH-NAD), malate dehydrogenase (MDH-NAD), superoxide dismutase (SOD), catalase (CAT), glutathione (GSH) and superoxide anion levels (˙O2-) were determined by spectrophotometry. Kidney morphology was analyzed by histological studies. Results were assessed by one-way ANOVA and Bonferroni multiple comparison test. The STZ treatment decreased the enzymatic activities of ICDH and MDH and the GSH content, which were avoided by NAR. STZ increased the SOD and CAT activities and the contents of ˙O2- and protein carbonyl. All these effects were blocked by NAR, except CAT activity. In addition, diabetic rats showed disorganized glomeruli, which were smaller than those from controls. The epithelial cells from distal convoluted tubules were also decreased by STZ. All these morphological changes were avoided by NAR. In conclusion, NAR abrogates morphological alterations in the diabetic kidney and changes in the energy metabolism from the renal mitochondria improving the redox state of these organelles.

Keywords: kidney, Diabetes mellitus, redox state

(029) **NARINGIN: AN ANTIOXIDANT THAT IMPROVES HEPATIC DAMAGE PRODUCED BY EXPERIMENTAL DIABETES MELLITUS**

Valeria Andrea Rodriguez (1), Luis Mario Plavnik (2), Nori Graciela Tolosa De Talamoni (1)

(1) Cátedra de Bioquimica y Biologia Molecular, Facultad de Ciencias Médicas, INICSA-UNC. (2) Cátedra de Histología A, Facultad de Odontología, UNC.

Hepatic injury is a major complication of Type 1 Diabetes mellitus (DM1). Since naringin (NA) is a flavonoid with antioxidant properties, it might reduce hepatic complications in DM1. The aim of this study was to know the effect of NA on hepatic oxidative/nitrosative stress and apoptosis in a model of DM1. Two-month male Wistar rats were used: a) controls, b) diabetic rats (induced by 60 mg/kg b.w. streptozotocin: STZ), and c) STZ+NA: diabetic rats treated with NA (40 mg/kg b.w.). Animals were sacrificed at 30 days post-treatment, and serum glucose, HbA_{1c}, insulin, triglycerides (TG), GOT and GPT were determined. Liver slices were stained with H&E for morphometric analyses. Total glutathione (GSH) content, superoxide anion ($\dot{}O_2^-$) levels and superoxide dismutase (SOD) and catalase (CAT) activities from rat liver were measured by spectrophotometry. Nitrosative stress was evaluated by nitric oxide (NO) and nitrotyrosine content and inducible nitric oxide synthase (iNOS) protein expression. Apoptosis was evaluated by counting apoptotic nuclei and Fas, FasL and Bax protein expression. Results were evaluated by ANOVA and Bonferroni test. STZ rats presented higher levels of glycemia, HbA_{1c}, TG, GOT and GPT, and lower insulin levels in relation to those from controls. Although NA treatment did not produce changes in glycemia, HbA_{1c} and insulin, it decreased the levels of TG and transaminases. The cytoplasmic and nuclear areas of the hepatocytes in the STZ rats were higher. STZ rats showed increased apoptotic nuclei and protein expression of molecules involved in apoptosis. STZ rats exhibited GSH depletion and increased $\dot{}O_2^-$ content and SOD and CAT activities. NA treatment normalized these parameters. NO content and iNOS protein expression were higher in STZ rats compared to controls, which were prevented by NA. In conclusion, NA would have the ability to prevent chronic liver injury triggered by DM1 due to its antioxidant, anti-nitrosative and antiapoptotic properties.

Keywords: Diabetes mellitus, liver, naringin

(153) **TYPE 2 DIABETES MELLITUS (DM2) INDUCED BY HIGH-FAT DIET (HFD) IN MICE ARE SENSITIZED TO DEN-INDUCED HEPATIC CARCINOGENESIS**

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DM2 is the most common form of DM characterized by hyperglycemia, insulin resistance, and relative insulin deficiency. DM2 results from interaction between genetic, environmental and behavioral risk factors. Epidemiological studies indicate that DM2 is associated with increased risk of developing cancer. We study the liver sensitivity of DM2 (induced by HFD) to development of hepatocellular carcinoma (HCC) Therefore we have used the carcinogenic agent diethylnitrosamine (DEN), analyzing the proliferative process as early stage of hepatic carcinogenesis. Five-week-old mice C57BL/6 were randomly divided into 4 experimental groups: Control (C, mice were fed a normal chow diet), C treated with DEN (C+DEN), HFD mice that fed a high-fat diet and HFD+DEN animals that fed a high-fat diet and received DEN at 16 weeks (n=4 in each group). Mice were euthanized at 25 weeks after DEN-injection. In liver sections we performed histological studies and quantification of hepatocytes in the different phases of the cell cycle (immunohistochemistry of PCNA). HFD+DEN showed an increase in hepatocytes in phases G1, S and M as well as proliferative index (PI) compared to C ($p<0.05$). HFD+DEN showed an increase in hepatocytes in phase G1 (+138%$^{\#}$), in phase S (+123%$^{\#}$), in phase M (+510%$^{\#}$) and PI (hepatocytes in phase G1, S, G2 and M, +173%$^{\#}$) ($^{\#}p<0.05$ vs C+DEN) which would indicate a promotion in the cell cycle with an increase in phase M.These results are in coincidence with the increase observed in the