



**8th Symposium
of the Mexican
Proteomics Society**

**3rd PanAmerican
-Human Proteome
Organization
(Pan-HUPO) Meeting**

**2nd Ibero-American
Symposium on Mass
Spectrometry**

October 20-23, 2019

Acapulco, Guerrero, Mexico
Grand Hotel Acapulco & Convention Center

8th Symposium of the Mexican Proteomics Society
3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting
2nd Ibero-American Symposium on Mass Spectrometry

BOOK OF ABSTRACTS

8th Symposium
of the Mexican
Proteomics Society

3rd PanAmerican
-Human Proteome
Organization
(Pan-HUPO) Meeting

2nd Ibero-American
Symposium on Mass
Spectrometry

October 20-23, 2019

Acapulco, Guerrero, Mexico
Grand Hotel Acapulco & Convention Center



**8th Symposium of the Mexican Proteomics Society
3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting
2nd Ibero-American Symposium on Mass Spectrometry**

POSTER INDEX

Poster Index

**8th Symposium of the Mexican Proteomics Society
3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting
2nd Ibero-American Symposium on Mass Spectrometry**

ANIMAL PROTEOMICS

P1	Leopoldo Gómez-Caudillo Centro de Ciencias Genómicas-UNAM	Mitochondrial proteome analysis highlights Warburg effect and other carcinogenesis mechanism in cervical cancer
P2	Rebollar-Valdez Daniela Universidad Autónoma de Ciudad Juárez	Effect of a nootropic drug on liver proteome from rats under induced chronic psychological stress
P3	Soto-Fuenzalida Gonzalo Tecnológico de Monterrey	Differential protein pattern during development of cervico vaginal cancer using quantitative proteomics
P4	Vásquez-Procopio Johana CINVESTAV-IPN	Metalloomic, transcriptomic and proteomic analysis of the midgut of <i>Drosophila melanogaster</i> raised on a manganese-depleted diet
P5	Leopoldo Gómez-Caudillo CCG-UNAM	Principal Component Analysis on LC-MS/MS and 2DE-MALDI/TOF Glioma cell lines shows Mitochondria act as organelle sensors of Glioblastoma metabolic state
P6	Salazar Marcos H. Universidad de Panamá	Proteomic analysis of the venom of <i>Tityus (Atreus) championi</i> from Panama
P7	Ortega-Lozano Ariadna J CCG-UNAM	Mitochondrial proteomic profiles of breast cancer subtypes
P8	Alonso-Bastida Ramiro CCG-UNAM	Stoichiometry analysis of ubiquitination in cervical cancer cell lines
P9	Ríos-Castro Emmanuel CINVESTAV-IPN	Label-free based DIA quantification of a lung cancer cell line and its potential application in nanomedicine
P10	Silva-Gaona Oscar G. Universidad de Guanajuato	Curcumin regulates glycation and protein expression changes in liver of mice fed a high-fructose diet
P11	Sánchez-Reyes LLY Autonomous University of Guerrero	Structures of $\Delta 40p53$ and $\Delta 133p53$ isoforms
P12	Avila-Rodríguez María Isabela Tecnológico de Monterrey	Characterization of proteases from <i>Pangasius hypophthalmus</i> epithelial mucus and their potential use as wound healing agents
P13	Pérez-Vázquez Victoriano Guanajuato University	Curcumin acts as antiglycant agent and improves the expression of PPAR α , CPT1, MCAD and ACAA2 on cardiac proteins of mice fed high-fructose diet
P14	Ramón Antaño-Arias Autonomous University of Guerrero	No missense mutations are found in the gene of the E7 oncoprotein HPV16 in women from state of Guerrero with cervical carcinoma
P15	Meneses Romero Erika Patricia IBT-UNAM	Label free quantification and parallel reaction monitoring validation of target proteome of H9c2 cells activated with high glucose concentration and digoxin
P16	Garibay Cerdenares Olga Lilia Universidad Autónoma de Guerrero	Proteomics based on LC-MS/MS in tissues of patients with ovarian epithelial cancer chemoresistant to platinum.
P17	Moreno-Ulloa Aldo CICESE	A systems biology approach to profile the molecular perturbations of simulated diabetes on coronary endothelium
P18	Pérez Salazar Eduardo CINVESTAV-IPN	Protein profile from extracellular vesicles of breast cancer patient's serum

Poster Index

**8th Symposium of the Mexican Proteomics Society
3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting
2nd Ibero-American Symposium on Mass Spectrometry**

P19	Tranquillino García Brenda IBT-UNAM	Relative protein quantification of human HEK293 cells activated with glucose by high resolution mass spectrometry
P20	Daniel León-Aparicio Departamento de Fisiología-UNAM	Proteomic analysis of the hyperpolarization activated and cyclic nucleotide gated HCN channels in human embryonic kidney cells revealed their localization in mitochondria
P21	Zárate-Córdova Vareska CICESE	Quantitative Proteomics by SWATH-MS reveals molecular differences among malignant and benign breast tumors in Mexican woman
P22	Bello-Rios C Universidad Autónoma de Guerrero	Structural differences of the HPV16 E7 oncoprotein and its variants A712 and G647/C789/G795
P23	Araujo L Universidad Autónoma de Guerrero	Structural insights of a molecular dynamics simulation of a domain from a member of the super family of proteins MAGUK MAGI-1
P24	Mancillas-Paredes Jesus Manuel ADESUR-CONACYT	Proteases and Chitinases Induced in <i>Beauveria bassiana</i> during Infection by <i>Zabrotes subfasciatus</i> (Mexican bean weevil)
P25	Guzmán Ana Laura Hospital Infantil de México "Federico Gómez"	Characterization of the cerebrospinal fluid proteome of patients with acute muscular atrophy type 1 treated with Nusinersen
P26	Lino-López Gisela J Universidad de Colima	IN SILICO ANALYSIS OF <i>Heloderma horridum horridum</i> TRANSCRIPTOME
P27	García-Chávez J. Noé CINVESTAV-IPN	Mitochondrial label free shotgun proteomics integration with metabolic and transcriptomic data throughout the development of hepatocellular carcinoma chemically induced in rats
P28	Hernández-Ancheyta Lizbeth Escuela Nacional de Ciencias Biológicas- IPN	<i>Crotalus ravus</i> : Proteomic characterization of a Mexican endemic rattlesnake and antiserum reactivity
P29	Aparicio-Bautista INMEGEN	Alteration in the proteomic expression pattern in human neuroblastoma cell line exposed to extremely low-frequency electromagnetic fields
P30	Rodríguez Ruiz Hugo Alberto Universidad Autónoma de Guerrero	Structural analysis of E6 oncoprotein HPV-16 and its variants in a p53 interaction model
P31	Catalan-Castorena Oscar Universidad Autónoma de Guerrero	Lumican as a potential biomarker for squamous intraepithelial lesions with multiple viral infection
P32	Cruz Pineda Walter David Universidad Autónoma de Guerrero	Comparative analysis from individuals with and without insulin resistance, proteomic approach
P33	Nevárez-Ramírez Abraham Josue UPIBI-IPN	Plasma extracellular vesicles show distinctive proteomic profiles in drug induced cutaneous reactions
P34	Celestino-Montes Antonio CINVESTAV-IPN	<i>Aedes aegypti</i> : proteins during the larva/pupae development of the indirect flight muscle precursor indicate tissue destruction-construction and immune activities

Poster Index

**8th Symposium of the Mexican Proteomics Society
3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting
2nd Ibero-American Symposium on Mass Spectrometry**

- P35** Amarilis Liborio Bautista
Universidad Autónoma de Guerrero
REST interacts with the RE1 sequence of the E6 gene of HPV16, HPV 35 and HPV 58
- P36** González-Calixto C
CINVESTAV-IPN
Identification of phosphoproteins for effect of PGE2 in C6/36 HT cells from *Aedes albopictus*
- P37** Domínguez-Dueñas Francisca
INR-Luis Guillermo Ibarra Ibarra
Quantitative proteomic analysis of serum from patients with primary open angle glaucoma
- P38** Herlinda Clement
IBT-UNAM
Characterization and heterologous expression of proteases and phospholipases from *Bothrops ammodytoides* venom and its immunogenic properties
- P39** Arcos-Encarnación Bolívar Jesús
Instituto de Biotecnología, UNAM
The absence of KChIP3 in a murine model of Alzheimer's disease rescues synaptic transmission pathways
- P40** Álvarez-Sánchez María Elizabeth
Ciencias Genómicas, Universidad Autónoma de la Ciudad de México
Identification of a 69-kDa metalloproteinase of *Tritrichomonas foetus* with affinity MBDK cells

ANIMAL METABOLOMICS

- P41** Oropeza Valdez Juan José
IMSS-Zacatecas
Identification of a metabolomic profile in urine associated with diabetic nephropathy
- P42** López-Hernández Yamilé
Universidad Autónoma de Zacatecas
Effect of gestational diabetes mellitus on the metabolomes of the mother and the newborn
- P43** Ramírez-Salazar Eric
INMEGEN
A serum metabolomics-based analysis in low mineral density postmenopausal women
- P44** Álvarez-Jiménez Marycruz
INECOL
Comparative analysis of the metabolic profiles of soil (rhizospheric and non-rhizospheric) of *Coffea arabica* and *C. canephora* under the influence of the earthworm *Pontoscolex corethrurus*
- P45** Olalde-Mendoza Liliana
Universidad Autónoma de Querétaro
Lipidomic analysis after consumption of soft drink with nutritive and non-nutritive sweeteners

PLANT- MICROBES PROTEOMICS

- P46** García-Soto Ivette
Center of Genomic Science, UNAM
Study of ROPs proteins post-translational and interactome modifications in *Lotus japonicus* during rhizobial endosymbiosis
- P47** González-Fernández Raquel
Universidad Autónoma de Ciudad Juárez
Proteomic analysis and physicochemical, antioxidant, and sensory characteristics of three wild and two commercial prickly pears fruits from Mexico
- P48** Lima Analía
Institut Pasteur de Montevideo Uruguay
Whole proteome analysis of DpknG Mycobacterium tuberculosis reveals a role of PknG in bacterial adaptation to host environment
- P49** Valenzuela-Cota Daniel F
Universidad de Sonora
Changes in the proteome of *Fusarium verticillioides* in response to antifungal fraction of *Jacquinia macrocarpa*
- P50** Morales-Amparano Martha Beatriz
CIAD, A.C. Hermosillo, Sonora
Immunoproteomic identification of allergenic proteins in pecan nut pollen (*Carya illinoensis*), and epitope mapping of allergens for specific diagnosis and therapy of respiratory allergy

Poster Index

**8th Symposium of the Mexican Proteomics Society
3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting
2nd Ibero-American Symposium on Mass Spectrometry**

P51	Reyes-Pérez Agustín Centro de Ciencias Genómicas-UNAM	Proteome analysis of biofilm formation in <i>Rhizobium etli</i> CFN42
P52	Quintero García Omar Jasiel UAEM	Analysis of the secretome of <i>Aspergillus sydowii</i> -like h1 cultivated under hypersalin conditions (1m nacl) and wheat straw as unique carbon source
P53	Hernández Orihuela L. IBT-UNAM	Proteomics analysis of <i>Rhynchosia precatoria</i> seeds
P54	Rivera-Rivas Luis Alberto CINVESTAV-IPN	Effect of iron on the <i>Trichomonas vaginalis</i> cysteine proteinases
P55	Gómez-Zepeda David LANGEBIO	Proteome changes during fruit development of chili pepper (<i>Capsicum annuum</i>)
P56	Taboada Castro H CCG-UNAM	From proteomics to the genomic circuitry inferred with the RhizoBindingSites database. An exercise with a proteome from vesicles induced in presence of naringenine in <i>Rhizobium etli</i> CFN42
P57	Camacho-Vázquez Martha C INECOL	The jasmonates signal pathway associate with high-quality traits in Tommy Atkins mangoes (<i>Mangifera indica</i> L.)
P58	Salgado-Bautista Daniel UAM-Iztapalapa	Increasing glucose concentrations in solid-state fermentation induces a high diversity of proteins in the secretome of <i>Aspergillus brasiliensis</i>
P59	Carol A. Olivares-García INECOL	Protein patterns during the development of somatic embryos of avocado (<i>Persea americana</i> Mill var. Hass)
P60	Huerta-Ocampo José Ángel CONACYT-CIAD, A.C.	Proteome of Amycolatopsis BX17: an actinobacterial strain with biotechnological potential isolated from soil of traditional milpa agroecosystem
P61	Arroyo Rossana CINVESTAV-IPN	The nuclear proteome of <i>Trichomonas vaginalis</i> grown under normal and iron-rich conditions
P62	Juarez-Escobar Janet INECOL	Shotgun proteomics of zygotic embryogenesis in avocado
P63	Elizalde-Contreras José Miguel INECOL	Looking for posttranslational modifications in somatic embryos of avocado
P64	Hernández-Ortiz Magdalena CCG-UNAM	Comparison between aerobic and fermentative metabolism by two-dimensional gel electrophoresis in <i>Rhizobium etli</i> CFN42
65	Sandra Contreras Martínez CCG-UNAM	Phosphoproteomic analysis of <i>Rhizobium etli</i> in Free Life (MM) and in Symbiosis with <i>Phaseolus vulgaris</i>
P66	Arellano de los Santos Jiovanny INECOL	Search engines applied to protein identification in avocado ripening
P67	Bautista-Valle Mirna Verónica INECOL	Setting up of a protein extraction protocol of zygotic embryos of <i>Persea americana</i> Mill. Var. Hass

Poster Index

**8th Symposium of the Mexican Proteomics Society
3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting
2nd Ibero-American Symposium on Mass Spectrometry**

- P68** Kazimierz Wrobel
University of Guanajuato
Comparative evaluation of the secretome from two strains of *Fusarium oxysporum* f. sp. *lycopersici* by LC-MS after in vivo 15N metabolic labeling
- P69** Morales-Bernardino Víctor Hugo
Universidad Autónoma de la Ciudad de México
Structural characterization of Tv-PSP1 of *Trichomonas vaginalis*

PLANT & MICROBES METABOLOMICS

- P70** Morlett-Chávez Jesús
Autonomous University of Coahuila
Pomegranate Peel Extract Increases Apoptosis Activity in HeLa Cell Lines
- P71** Patiño-Rodríguez Omar
CEPROBI-IPN
Evaluation of metabolites, antioxidant capacity and starch digestibility of alternative raw materials for the development of nutraceutical foods
- P72** Reyes-Vaquero Lorena
CEPROBI-IPN
Variation of the chemical profile of *Ruta graveolens* by the effect of environmental factors
- P73** Manke Fabiane
Universidad Autónoma de Chile
Probing the mechanism of microwave-assisted Ru(II)-catalyzed regioselective hydroxymethylation of β -carbolines and isoquinolines via C-H functionalization by online ESI-MS screening
- P74** Javier Andres Tejeda-Mora
CICESE
Metabolomic and metagenomic profiling of hydrocarbon-degrading microorganisms obtained from deep-sea sediments of the Gulf of Mexico
- P75** Guillén-Alonso Héctor
CINVESTAV-IPN
Ambient Ionization mass spectrometry for monitoring volatile organic compounds in real-time
- P76** González-Rodríguez América Tzitziki
CINVESTAV-IPN
Genetic mapping of maize metabolites by untargeted high-throughput mass fingerprinting
- P77** Canedo-Téxon Anahí
INECOL
Integrated metabolome and transcriptome analysis of *Cassia fistula*, a plant with the potential to synthesize natural fungicides and pesticides against ambrosia beetles and their associated fungi
- P78** Camargo-Escalante Martín Orlando
CINVESTAV-IPN
Volatile detection using Low Temperature Plasma (LTP)-Mass Spectrometry in fungus *Trichoderma atroviride* in the response to mechanical damage
- P79** Cadena-Zamudio Jorge David
INECOL
Candidate genes involved in the biosynthesis of chlorogenic acid in *Cecropia obtusifolia* identified by omic analysis
- P80** Alcalde-Vázquez Raúl
CINVESTAV-IPN
The MoBiMS: an instrumental tool for biological-volatiles analysis
- P81** Carrillo Rayas María Teresa
CINVESTAV-IPN
Metabolic profiling of 120 Coffee Varieties using ultra-performance convergence chromatography (UPC2-MS) vs high-performance liquid chromatography coupled to mass spectrometry (UPLC-MS)
- P82** Rosas-Román I.
CINVESTAV-IPN
Volatile Organic Compound measurements using an Ion Mobility Spectrometer operating under ambient pressure conditions
- P83** Moreno-Pedraza Abigail
CINVESTAV-IPN
Ambient mass spectrometry imaging from plant metabolites with laser desorption/ low-temperature plasma ionization

Poster Index

**8th Symposium of the Mexican Proteomics Society
3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting
2nd Ibero-American Symposium on Mass Spectrometry**

LATE BREAKING ABSTRACTS

P84	Luz Victoria Sánchez Meza Autonomous University of Guerrero	Effect of HPV 16 E6 oncoprotein variants on the alteration of the C33a cell line proteome
P85	Vareska Lucero Zarate Cordova Departamento de Innovación Biomédica, CICESE, México	Quantitative Proteomics by SWATH-MS reveals molecular differences among malignant and benign breast tumors in Mexican woman
P86	Ana Odeth Quintana-Escobar CICY, Mérida, Yucatán, México	Comparison of the biochemical state between in vivo and in vitro plant tissues in <i>C. arabica</i> by Proteomic analysis
P87	Jacqueline Fuentes-Jaime Universidad Nacional Autónoma de México, CDMX, México	Degradative and proteomic analysis of polyurethane biodegradation by <i>Alicyclophilus denitrificans</i> BQ1
P88	Luz Ofelia Franco-Sandoval Hospital Infantil de México "Federico Gómez" Secretaría de Salud	Proteomic and biochemical analysis in <i>Plasmodium berghei</i> under in vivo treatment with kramicina.
P89	Betsy Muñoz-Serrano CINTROP, Chemotherapy Unit, Industrial University of Santander, Bucaramanga, Colombia	High lateral resolution MALDI mass spectrometry imaging of peptides in formalin-fixed paraffin-embedded (FFPE) cutaneous leishmaniasis lesions.
P90	Juan José Oropeza Valdez Unidad de Investigación Biomédica Zacatecas, IMSS. Zacatecas. México	IDENTIFICATION OF A METABOLOMIC PROFILE IN URINE ASSOCIATED WITH DIABETIC NEPHROPATHY
P91	Pedro Antonio Gama-López CICESE, Baja California, Mexico	Synthesis of Enzymatic Bionanoreactors VLP-kind.
P92	Víctor Alberto Maravelez-Acosta Hospital Infantil de México "Federico Gómez" SSA	How the anti-tumor effect of anti- <i>T. cruzi</i> antibodies interacts on acute lymphoblastic leukemia cells?
P93	Viridiana García Ruiz Facultad de Medicina, UNAM, Mexico	Differences in the probable glycosylation profile of <i>Mycobacterium microti</i> recombinant strains
P94	Martín Ledesma Universidad de Buenos Aires, Hospital de Clínicas "Jose de San Martín"	A machine learning approach to detect <i>Clostridioides difficile</i> toxigenic biomarkers by MALDI-TOF-MS
P95	José Ángel Rubio Miranda Laboratorio de Entomología Molecular, CINVESTAV-IPN	Analysis of the interaction profile of septin 1 and 2 protein in Aag2 cells derived from <i>Aedes aegypti</i>
P96	Sergio A. Román-González Unidad de Proteómica, INMEGEN	Proteomic Study of the <i>Conus regularis</i> venom from Bahía de los Ángeles California vs Sonora coasts.
P97	Cleópatra AS Caldeira Universidade Federal de Rondônia, rede BIONORTE, Porto Velho, Brazil	Comparative venomomics of <i>Micrurus frontalis</i> , <i>M. spixii spixii</i> , and <i>M. surinamensis</i> suggests different evolutionary regimes operating on terrestrial and aquatic coral snakes
P98	Rosalba Cruz Mirón CINVESTAV-IPN	Proteomic composition of the <i>Toxoplasma gondii</i> pellicle

Poster Index

**8th Symposium of the Mexican Proteomics Society
3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting
2nd Ibero-American Symposium on Mass Spectrometry**

P99	Noé Lagunas-Cortes CINVESTAV-IPN	Immunoproteomic Identification of highly immunogenic proteins from subpellicular cytoskeleton of <i>Toxoplasma gondii</i> .
P100	Diana Lashidua Fernández-Coto Instituto Nacional de Salud Pública	Quantitative proteomics reveals proteins involved in the progression from noncancerous lesions to gastric cancer.
P101	Nayeli Areli Pérez-Padilla CIATEJ	Comparison of two methods for obtained variable domains vNAR from inclusion bodies
P102	Rafael Nambo-Venegas INMEGEN	LDL effect on the metabolomic profile of M1 and M2 macrophages coming from Mexican women.
P103	Juan Sebastián Arcila-Barrera Universidad Nacional de Colombia	Construction of a phosphoproteome signaling network generated by M6P/IGF2R in a trophoblast cell model
P104	Francisco Antonio Reyes-Soria CICY, Mérida, Yucatán, México	Comparative proteomic analysis of mechanical damage to papaya (<i>Carica papaya</i> L.) exocarp during ripening.
P105	Michel Aceves-Sánchez CIATEJ	In vitro proteome analysis of <i>M. tuberculosis</i> to search for antigens that allow the detection of asymptomatic infection in Mexican patients with diabetes mellitus
P106	Jocelin Marari Rizo Villagrana UNAM	Proteomic approach to pozol fermentation
P107	Alberto Enrique Fernández Molina Instituto Nacional de Pediatría, Secretaría de Salud	Immunoproteomics of apple allergy in Mexican pediatric patients
P108	Berenice Palacios González UVC-UNAM-INMEGEN	Metabolomic model of early identification of gestational diabetes in Mexican population
P109	Ricardo Martín Neme Tauil CEQUIBIEM, IQUIBICEN-FCEN (UBA/Conicet), Argentina	MALDI-MS and LC-Orbitrap combined strategy proves that a mid-XIXth century ethnohistorical document from Northern Patagonia was written with human blood
P110	Rosa Victoria Pando Robles National Institute of Public Health, Mexico	Comprehensive proteome profiling in monocytes (U937 DC-SIGN) infected with Dengue virus
P111	Rosa Victoria Pando Robles Instituto Nacional de Salud Pública, Mexico	Protein dynamics of THP1 cells after dengue infection
P112	Janneth Fabiola Santos Rodríguez National University of Colombia	Changes in the carnation root proteome due to infection by <i>Fusarium oxysporum</i> f.sp. <i>dianthi</i>
P113	Cabrera-Cosme Lilia Karina Queen's University Belfast, UK, Facultad de Medicina, BUAP, Puebla	The role of the Nucleosome Remodelling and Deacetylase Complex and its Interacting Proteins in Acute Myeloid Leukaemia
P114	Nancy Shyrley Garcia Rojas Cinvestav Irapuato	Coupling Planar Chromatography and Ambient Ionization Mass Spectrometry (AIMS) for analyzing phytochemical profiles
P115	Jesús Borrego Instituto de Biotecnología UNAM	Uncovering the pharmacophores of spider α -toxins; new tools in the development of peptides with potential biotechnological use

Poster Index

**8th Symposium of the Mexican Proteomics Society
3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting
2nd Ibero-American Symposium on Mass Spectrometry**

- | | | |
|-------------|--|---|
| P116 | Germán Aguilar
Instituto de Biotecnología UNAM | Generation of chimeras from two β -scorpion toxins with proper folding in vitro and possible proteomic applications |
| P117 | Andrei Montero
Instituto de Ciencias Físicas, UNAM. | Insight on the interactions between the scorpion toxin blocker Discrepin with the potassium channel Kv4.3 by molecular dynamics simulations |
| P118 | R. Angélica Gutiérrez-Sánchez
Instituto de Ecología | Metabolomics for study of the phytopatogen fungus Fusarium kuroshium, causal agent of Fusarium dieback |
| P119 | VS Priyadarshini
INER | Doublesex and Mab-3 Related Transcription Factor (DMRT3) in Aspirin Exacerbated Respiratory Disease (AERD) |
| P120 | Leonel Armas-López
FES Iztacala, UNAM | Chromatin Remodeling Protein Complexes Assemble and Its Epigenome Occupancy Are Modulated By Mesenchyme Homeobox Transcription Factor: A Functional ChIP-Massive Next Generation Sequencing Study |
| P121 | Rafael Alejandro Maldonado Bravo /
INCMNSZ, Secretaría de Salud | Characterization of the proteomic profile of the host and pathogen in experimental pulmonary Tuberculosis |
| P122 | Vique-Sánchez J. L
ENMH-IPN | Proteomic analysis of adipose tissue due to the effect of stimulation of the Zusanli point (ST36) in a murine model of obesity. |

Poster Index

**8th Symposium of the Mexican Proteomics Society
3rd PanAmerican-Human Proteome Organization (Pan-HUPO) Meeting
2nd Ibero-American Symposium on Mass Spectrometry**

P1

Mitochondrial proteome analysis highlights Warburg effect and other carcinogenesis mechanism in cervical cancer

Leopoldo Gómez-Caudillo¹, Roberto Jiménez Ángel¹, Ángel G. Martínez-Batallar¹, Ariadna J. Ortega-Lozano¹, Ramiro Alonso-Bastida¹, Magdalena Hernández-Ortiz¹, Fernando Minauro-Sanmiguel², Sergio M. Encarnación-Guevara¹

¹Centro de Ciencias Genómicas, UNAM, 62210, Cuernavaca, Morelos, México. ²Unidad de Investigación Médica en Genética Humana, Hospital de Pediatría, Centro Médico Nacional Siglo XXI, IMSS, 06720, Cd Mx, México. encarnac@ccg.unam.mx

Cervical cancer incidence and mortality are rapidly growing. GLOBOCAN estimates that this neoplasia incises on 3.3% and represents 3.2% of deaths in 2018 worldwide. In women, cervical cancer ranks second in incidence and mortality behind breast cancer (1). Human papillomavirus (HPV) is responsible for more than 90 percent of cervical cancer cases worldwide. Besides 70% of this incidence is associated with the persistent infection with high risk human papillomavirus (HR-HPV) 16 and 18, also involved in many types of oral and anogenital cancer. HPV infection is related to alterations of cell cycle, cell death, immune system, deregulation of energetic metabolism, and reach cancer (2).

Warburg effect emphasizes the energetic metabolic change observed in many types of cancer, which could be due to mitochondrial dysfunctions or structural changes. Mitochondria sense cancer metabolism as disease goes to developing. Proteomic data offers some relevant mitochondrial proteins, however solid conclusions cannot make since some mitochondrial events are supposed or difficult to correlate (3).

Analyzing the mitochondrial proteome in a model of HR-HPV's in cervical cancer (HaCat: control, C-33A: cancerous not infected, SiHa: HPV-16 and CaLo: HPV-18) by means of Principal Component Analysis (PCA), followed of enrichment and PPI networks analyses; we identify a set of proteins related to different cancer HR-HPV mechanisms.

SiHa cells (HPV 16, the most frequently HPV in cervical cancer) follows a Warburg pattern with, glycolytic and viral response proteins. On the other way CaLo cells (HPV 18) interacts straightly to OXPHOS complexes, maybe inducing mitochondrial structural changes, ROS increase, HIF 1 stabilization, among other changes; following a different cancer mechanism.

This strategy helps to define biomarkers or molecular targets of cervical cancer in mitochondrial proteome, since it is able to detect differences between cervical cancer variants and focus in specific targets.

References

1 International Agency for Research on Cancer, GLOBOCAN 2018. 2 López-Saavedra and Lizano-Soberón, *Cancerología* 1(2006):31-55. 3 Vyas S., Zaganjor E. and Haigis, M.C. (2016). *Cell* 166(3):555-566.

This Project was supported by CONACYT grant 27079 and DGAPA grant IN213216 and Posgrado en Ciencias Biológicas, UNAM.

P2

Effect of a nootropic drug on liver proteome from rats under induced chronic psychological stress

Rebollar-Valdez Daniela, ¹Grigoruça Mariana, Chávez-Martínez Sarahí, ¹Valero-Galván José, ²Ruiz-May Eliel, ¹Lobo-Galo Naun, ¹Martínez-Martínez Alejandro, ¹González-Fernández Raquel

¹Dpto. de Ciencias Químico-Biológicas, Instituto de Ciencias Biomédicas, Universidad Autónoma de Ciudad Juárez, 32300-Ciudad Juárez, Chihuahua, México

²Red de Estudios Moleculares Avanzados, Cluster Científico y Tecnológico BioMimic®, El Instituto de Ecología, Carretera antigua a Coatepec 351, El Haya, Xalapa, Veracruz, CP 91070, México

*raquel.gonzalez@uacj.mx

Stress has become a public health problem in emerging countries, as a result of the actual lifestyle. In Mexico, according to the World Health Organization, work stress is already at the top of the world ranking. Stress is an adaptive response of an organism to a stressful situation. At a physiological level, stress can lead to an imbalance between the release of free radicals and antioxidant defenses, causing cell damage on membrane lipids, proteins, and DNA. This response has been associated with neurodegenerative diseases, atherosclerosis, Mellitus diabetes, cancer, or immune system alterations.

One of the therapies utilized to combat the physiological effects produced by the psychological stress in the brain is the use of nootropic drugs, due to its function on modulating neurotransmission, on restoring membrane fluidity, on inhibiting lipid peroxidation, and on slowing oxygen consumption in mitochondria.

To evaluate the effect of nootropic piracetam on other organs like liver, rats were exposed to chronic psychological stress due to predator odor, and an analysis of liver proteome was carried out by 1-DE-nanoLC-MS/MS. Functional analysis of identified proteins showed differences between the stressed rats treated or not treated with the nootropic drug. In stressed rats, liver proteome manifested a significant down- or upregulation in proteins from 10 and 19 pathways, respectively. When the nootropic drug was supplied to stressed rats, 14 pathways were downregulated, and 12 were upregulated, restoring the non-stressed rat liver proteome. Moreover, stressed rats treated with the nootropic drug showed a greater number of antioxidant enzymes identified in liver than non-stressed ones.

Therefore, this drug could return the normal molecular level and stimulate the synthesis of antioxidant enzymes under stress conditions, reflected in the liver proteome.

This Project was supported by Fondos SEP-23-005-A ("Apoyo a la Incorporación de Nuevos PTC 2015"), and the Autonomous University of Ciudad Juárez.