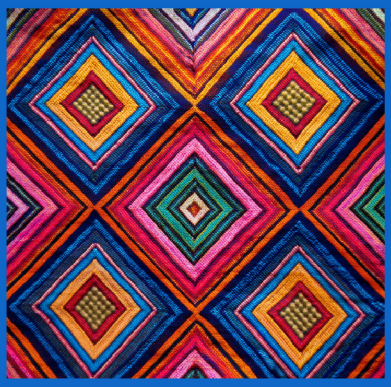
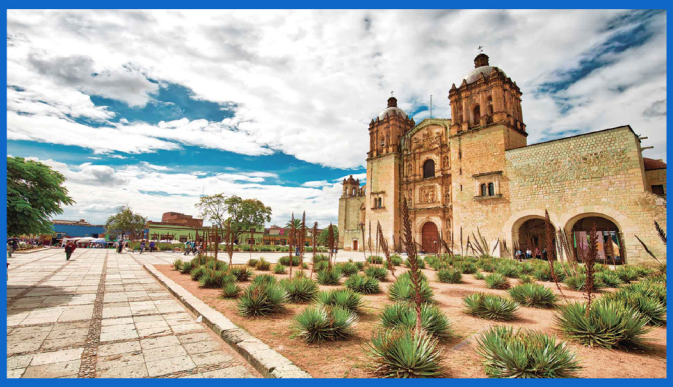
Sociedad Mexicana de Bioquímica A.C.

XXIV Reunión Bioenergética y Biomembranas





Scientific Program

October
26 - 30, 2025

Oaxaca, México

Universidad Nacional Autónoma de México

Instituto de Investigaciones Biomédicas

Universidad Michoacana de San Nicolás de Hidalgo

Instituto de Fisiología Celular UNAM

Facultad de Química

Tecnológico de Monterrey

Coordinación de la Investigación Científica

DISTRIBUIDORA QUIMICA HELSAM S.A. DE C.V.
REACTIVOS QUÍMICOS, VIDRIERÍA Y EQUIPO PARA LABORATORIO

uniparts
Opciones Integrales para las Ciencias de la Vida

XXIV Reunión Bioenergética y Biomembranas

October 26 - 30, 2025

SMB

TIME	SUNDAY October 26th		MONDAY October 27th	TUESDAY October 28th	WEDNESDAY October 29th	THURSDAY October 30th
7:30 – 9:00	Arrival		Breakfast	Breakfast	Breakfast	Breakfast
9:00 – 10:00			Plenary Lecture Dra. Alicia Kowaltowski	Plenary Lecture Dr. Pierre Cardol	Plenary Lecture Dr. Héctor Valdivia	
10:00 – 11:30			Oral Session I Electron Transport Chains	Young Career Researcher´s Symposium	Oral Session VI Regulation of Energy Metabolism	Check out
11:30 – 12:00			Coffee Break	Coffee Break	Coffee Break	
12:00 – 13:00			Oral Session II ATP synthases, ATPases and pyrophosphatases	Oral Session IV Photosynthesis	Simposium ALACF	Departure
13:00 – 14:00	Registration	Check in		Oral Session V Lipids and membranes		
14:00 – 16:00		Lunch	Lunch	Lunch	Lunch	
16:00 – 16:30	Welcome ceremony		Plenary Lecture Dr. Alfredo Cabrera Orefice	Plenary Lecture Dr. José Manuel Pérez Aguilar	Oral Session VII Mitochondrial pathologies	
16:30 – 17:00	Cultural Conference Dr. Abraham Jahir Ortiz Nahon					
17:00 – 17:30			Oral Session III Structure and function of membrane proteins	Poster Session	Plenary Lecture Dra. Valentina Parra Ortiz	
17:30 – 18:00	Coffee Break					
18:00 – 19:00	Plenary Lecture Dr. John Lemasters		Free Time		Closing Ceremony	
19:00 – 19:30	José Laguna´s Medal Award			Business Session	Free Time	
19:30 – 20:00						
20:00 – 22:00	Dinner		Dinner	Dinner	Dinner and Farewall Party (20:30 – 1:30)	

Sunday, October 26th

16:00 – 16.30 Welcome Ceremony

16:30 – 17:30 **Cultural Conference**

Fotografía en comunidades afromexicanas: documentación sociohistórica, diversidad pluricultural y memoria visual

Abraham Jahir Nahón
Universidad Autónoma Benito Juárez de Oaxaca

Chair: Luis Alberto Luévano
Tecnológico de Monterrey

17:30 – 18:00 Coffee break

18:00 – 19:00 **Plenary Lecture**

Mitochondria in Pathobiology

John Lemasters
Medical University of South Carolina, USA

Chair: Christian Cortés Rojo
Universidad Michoacana S.N.H.

19:00 – 19:30 **José Laguna's Medal Award**

Chair: Manuel Gutiérrez Aguilar
Facultad de Química, UNAM

19:30 – 21:30 Welcome cocktail

Monday, October 27th

9:00 – 10:00

Plenary Lecture

Diets, mitochondria and calcium transport

Alicia Kowaltowski
Institute of Chemistry, University of São Paulo

Chair: Luis Alberto Luévano Martínez
Tecnológico de Monterrey

10:00 11:30 *Oral Session I*

Electron Transport Chains

Chair: Ariann Elizabeth Mendoza
Instituto de Fisiología Celular, UNAM

The NDi1 starts the electron flux in the Saccharomyces cerevisiae respirasome
Oscar Flores Herrera. Facultad de Medicina, UNAM

Identification of oxidative phosphorylation complexes of Paramecium multimicronucleatum
María Guadalupe Quintanar Solis. Instituto de Investigaciones Biomédicas, UNAM

Kinetic characterization of Bos taurus respirasome
Carolina Guerrero Teudosio. Facultad de Medicina, UNAM

Ancient respirasome: Kinetics and polypeptide composition
Mercedes Esparza Perusquía Facultad de Medicina, UNAM

Characterization of Mitochondrial Oxidative Phosphorylation Complexes from Auxenochlorella protothecoides
Tóshiko Takahashi Íñiguez. Instituto de Investigaciones Biomédicas, UNAM

Kinetic characterization of respirasomes and free complex I from Yarrowia lipolytica
Giovanni García-Cruz García Cruz. Facultad de Medicina, UNAM

11:30 – 12:00 Coffee break

12:00 – 14:00 *Oral Session II*

ATP synthases, ATPases and pyrophosphatases

Chair: Mercedes Esparza Perusquía.
Facultad de Medicina, UNAM

Kinetic characterization and polypeptide composition of the dimer and monomer of the FoF1-ATP synthase from Yarrowia lipolytica
Alejandro Cruz-Cárdenas. Facultad de Medicina, UNAM

Does the δ-subunit of F_1-ATPase from Polytomella parva has a role in regulating the hydrolytic activity of this enzyme?
Marcos Ostolga Chavarría. Instituto de Fisiología Celular, UNAM)

Kinetic characterization of dimeric F_1F_O-ATP synthase
Anaiza Rico Luna. Instituto de Investigaciones Biomédicas, UNAM

Distribution of the F_1F_O-ATP synthase regulatory ζ subunit in alphaproteobacterial
Fidel Serrano López. Facultad de Ciencias, UABC

Cysteine Oxidation as a Regulator of the A Subunit of the Vacuolar ATPase in Saccharomyces cerevisiae
Mariana Michell Garcia Reyes. Instituto de Fisiología Celular, UNAM

Exploring the druggability of the binding site of exogenous allosteric inhibitors of F_1F_O -ATP synthase
Enrique García Hernández. Instituto de Química, UNAM

Gene expression modulation of SERCA3 in MCF-7 cells treated with the extract of Capsicum annuum L. var. Fascinato
Roberto Jorge García Mendoza. Facultad de Ciencias Naturales, UAQ

Epigenetic regulation of ATP2A2 and ATP2A3 genes and their potential role in hepatocellular carcinoma progression
Guadalupe Hernández Martínez. Universidad Veracruzana

14:00 – 16:00 Lunch

16:00 – 17:00 **Plenary Lecture**

Exploring the mitochondrial complexome: from protein complexes to nucleoprotein assemblies

Alfredo Cabrera Orefice
Biochemical Institute. Justus Liebig Universität Giessen

Chair: Salvador Uribe Carvajal
Instituto de Fisiología Celular, UNAM

17:00 – 18:00 *Oral Session III*

Structure and function of membrane proteins

Chair: Luis González de la Vara
Cinvestav Irapuato

The role of the ubiquitn Ligase Gzl in apical-basal transytosis during the development of Drosophila
Víctor Ángel Urbieta Ortiz. Instituto de Investigaciones Biomédicas, UNAM

Study of the function of Pet494 in Cox3 biogenesis in mitochondria of Saccharomyces cerevisiae
Juan Pablo Berry Leon. Instituto de Fisiología Celular, UNAM

Estrogen Deficiency Aggravates Mitochondrial and Cardiac Dysfunction in a Female Mouse Model of Cardiometabolic Injury Through Impaired Phospholamban Signaling
Silvia Araceli López Morán. Escuela de Medicina y Ciencias de la Salud, ITESM

Bioenergetics in aging yeast: the interplay between sirtuin2 and caloric restriction
Carolina Ricardez García. Instituto de Fisiología Celular, UNAM

18:00 Free evening

Tuesday, October 28th

9:00 – 10:00 **Plenary Lecture**

Evolutionary Remodeling of Respiration and Photosynthesis in Euglena gracilis

Pierre Cardol
Université de Liège, Belgium

Chair: Héctor Miranda Astudillo
Instituto de Investigaciones Biomédicas, UNAM

10:00 – 11:30 **Young Career Researcher's Symposium**

Chair: Alfredo Cabrera Orefice
Justus Liebig Universität Giessen

Light harvesting regulation and photodamage interplay in Chlamydomonas reinhardtii
Wojciech J Nawrocki
Institut de Biologie Physico-Chimique, CNRS, France

The physiology of methane-producing archaea under stress
Michel Geovanni Santiago Martínez
University of Connecticut

11:30 – 12:00 Coffee break

12:00 – 13:00 *Oral Session IV*

Photosynthesis

Chair: Tóshiko Takahashi Íñiguez.
Instituto de Investigaciones Biomédicas, UNAM

Far-Red Component Enhances Paramylon Production in Photoautotrophic Euglena gracilis
Zhaida Itzel Aguilar González. Instituto de Investigaciones Biomédicas, UNAM

Quantifying the photoprotective effect of qE NPQ in Chlamydomonas
Felix Vega de Luna. Institut de Biologie Physico-Chimique, Sorbonne Université

Ammonia detoxication via photosynthetic reactions: a tale about a natural solar powered ammonia scrubbing system in salamander eggs
Alonso Zavafer. Brock University

The protein import machinery in the colorless plastids of the chlorophycean alga Polytomella parva
Sergio Fuentes Hernández. Instituto de Fisiología Celular, UNAM

13:00 – 14:00 *Oral Session V*

Lipids and Membranes

Chair: Miriam Vázquez Acevedo.
Instituto de Fisiología Celular, UNAM

Contribution of sphingolipids to the regulation of plasma membrane H+-ATPase activity in Arabidopsis
Laura Carmona Salazar. Facultad de Química, UNAM

Design and movement: Sphingolipid influence on membrane fluidity
Marina Gavilanes Ruíz. Facultad de Química, UNAM

The plasma membrane of beetroots submitted to waterlogging
Luis E. González de la Vara. Cinvestav Irapuato

Effect of killer conjugated Ag nanoparticles over biological systems
Carlos Alberto Molina Vera. Facultad de Ciencias Naturales, UAQ

14:00 – 16:00 Lunch

16:00 – 17:00 **Plenary Lecture**

Application of computational methods to understand the function of membrane proteins

José Manuel Pérez Aguilar
Benemérita Universidad de Puebla

Chair: Christian Cortés Rojo. IIQB - UMSNH

17:00 – 19:00 Posters Session

19:00 – 20:00 Bussines session SMB

Wednesday, October 29th

9:00 – 10:00 **Plenary Lecture**

Cardiac Ryanodine Receptor Channelopathies: From Membrane Bioenergetics to Clinical Phenotypes

Héctor Valdivia
University of Wisconsin Medical School

Chair: Gerardo García Rivas
Tecnológico de Monterrey

10:00 – 11:30 *Oral Session VI*

Regulation of Energy Metabolism

Chair: Francisco Guillermo Mendoza Hoffmann
Universidad Autónoma de Baja California

Mitochondrial ROS induces lysosomal dysfunction impairing autophagic flux in human cells carrying the ApoE4 allele
Sandra Aurora Esquivel Niño. Cinvestav Zacatenco

Effect of cancer cells-derived conditioned medium on cardiomyocyte energy metabolism
Fernando Emiliano Jiménez Mondragón. Instituto Nacional de Cardiología "Ignacio Chávez"

Exercise combined with metformin and tert-butyl hydroquinone improves hepatic mitochondrial bioenergetics and redox status in middle-aged obese female Wistar rats
Mina Konigsberg Fainstein. Universidad Autónoma Metropolitana – Iztapalapa

Upregulation of oxidative metabolism through HIF-1a is related to the high cytokine and chemokine levels in peripheral blood mononuclear cells from patients with pulmonary arterial hypertension
Rodrigo de Jesús López Velázquez. Escuela de Medicina y Ciencias de la Salud, ITESM

Cannabidiol modulates via PPARγ endocrine activity of white-like adipocytes
Omar Lozano García. Escuela de Medicina y Ciencias de la Salud, ITESM

Muscle-type–specific mitochondrial stress responses reveal dissociation between function and structure in a murine cardiometabolic HFpEF model
Bianca Nieblas León. Escuela de Medicina y Ciencias de la Salud, ITESM

11:30 12:00 Coffee break

12:00 – 14:00 **Symposium ALACF**

Biophysical and bioenergetic alterations in skeletal and cardiac muscle in different pathological situations

Chair: Carmen Valdivia
University of Wisconsin

Mitochondrial adaptation mechanisms as a possible target of non-pharmacological interventions in the treatment of sarcopenic obesity
Andrea Del Campo
Facultad de Química y de Farmacia. Pontificia Universidad Católica de Chile

Postnatal Environment and Cardiovascular Adjustments in Hypertension
Luciana Venturini Rossoni
Institute of Biomedical Sciences, University of São Paulo

Alterations in cardiomyocyte ionic currents in maladaptive hypertrophy. Possible therapeutic strategies
Alejandro Aiello
Facultad de Ciencias Médicas, UNLP-CONICET

K2p Channels in cellular biophysics
Carlos Saldaña
Facultad de Ciencias Naturales, UAQ

14:00 – 16:00 Lunch

16:00 – 17:00 *Oral Session VII*

Mitochondrial Pathologies

Chair: Manuel Alejandro Vargas Vargas
Universidad Michoacana de San Nicolás de Hidalgo

Lysine hyperacetylation impairs the mitochondrial ATP synthase complex in the cardiometabolic HFpEF heart
Abraham Méndez Fernández. Biomedicina cardiovascular, ITESM

Cannabidiol prevents pathological cardiac hypertrophy via activation of PPARs and preservation of mitochondrial function
Carolina Alejandra Morales Ochoa. Biomedicina cardiovascular, ITESM

MCU inhibition via AAV9 transfection confers cardiac protection by maintaining mitochondrial health
Felipe de Jesús Salazar Ramírez. Escuela de Medicina y Ciencias de la Salud, ITESM

4H-benzo[d][1,3]oxazines inhibits Proliferation, Migration, and Invasion Cervical Cell Lines
Jesús Adrián López. Universidad Autónoma de Zacatecas

17:00 – 18:00 **Plenary Lecture**

LEAP-2 and cardiac dysfunction in MASLD: exploring the mitochondria–lipid droplet axis in metabolic steatotic liver disease

Valentina Parra
Universidad de Chile

Chair: Luis Alberto Luévano
Tecnológico de Monterrey

18:00 – 19:00 Closing Ceremony

20:30 – 1:30 Dinner and Farewell Party

POSTER SESSION

Tuesday October 28, 2025
17:00 – 19:00

ATP synthases, ATPases, Phosphatases y pyrophosphatases

1. *Gene context and location of the ζ subunit from the F_1F_O-ATP synthase of the different alphaproteobacterial*
   Francisco Guillermo Mendoza Hoffmann. Universidad Autónoma de Baja California
2. *Identification of F_1F_O ATP synthase from Phaeodactylum tricornutum*
   Rafael Suárez Torres. Instituto de Investigaciones Biomédicas. UNAM

Biophysics of channels and transporters

3. *Electrochemical Gradient and K^+ Transporters Shape Killer Sensitivity in Saccharomyces cerevisiae*
   Brenda Téllez de la Garza. Universidad Autónoma de Querétaro

Electron Transport systems

4. *STAT5 regulates mitochondrial energy metabolism genes in cervical cancer cells stimulated with Interleukin 2*
   Rubén Alejandro Fuentes Pascacio. FES - Zaragoza, UNAM
5. *Role of STAT3 on the regulation of mitochondrial activity in cervical cancer cells after IL-2 treatment*
   Rodrigo Rojas-Mercado. FES - Zaragoza, UNAM
6. *Insights in activation of COX1 mRNA translation in yeast mitochondria*
   Yolanda Margarita Camacho Villasana. Instituto de Fisiología Celular, UNAM
7. *Distinct roles of NAC and RAC complexes in mitochondrial protein import and cytosolic proteostasis*
   Ariann E. Mendoza Martínez. Instituto de Fisiología Celular, UNAM
8. *Allotopic expression of the COX2 gene lacking the sequence encoding the leader peptide*
   Miriam Vázquez Acevedo. Instituto de Fisiología Celular, UNAM
9. *Impact of respirasome organization on species-specific inhibition of complex III in human parasites*
   Anaiza Rico-Luna. Instituto de Investigaciones Biomédicas. UNAM

Lipids and membranes

10. *Interaction of Amphotericin B with Lipid Bilayers via Molecular Dynamics*
Miriam Merari García Ronces. Centro de Investigación en Ciencias. UAEM

11. *Lipid Antigen-Driven Activation of T γδ Cells via NPA-Containing Liposomes in a Murine Model of Lupus*
Edgar Iván Galarce Sosa. Escuela Nacional de Ciencias Biológicas, IPN

12. *Mitochondrial dynamics and mtROS regulate B cell differentiation in response to non-bilayer phospholipid arrangements*
Giovanna Berenice Barrera Aveleida. Escuela Nacional de Ciencias Biológicas, IPN

Mitochondria and diseases

13. *The unsaponifiable fraction of avocado oil improves non-alcoholic fatty liver disease, insulin resistance, and mitochondrial dysfunction in rats fed a high-fat, high-fructose diet*
Marcela González Montoya. Universidad Michoacana de San Nicolás de Hidalgo

14. *Effect of the unsaponifiable fraction of avocado oil on electron transport chain function in liver and kidney mitochondria of rats fed a high-fat and fructose diet*
María Guadalupe Cuiniche Méndez. Universidad Michoacana de San Nicolás de Hidalgo

15. *Mitochondrial Dysfunction in Menopause: A Journey Through the Liver, Kidney, Muscle, Heart, and Brain*
Stefanie Paola López-Cervantes. Universidad Autónoma Metropolitana

16. *ZmVDAC and ZmHXK4 are involved in the modulation of cell death during drought stress*
Sobeida Sánchez Nieto. Facultad de Química, UNAM

17. *Avocado oil ameliorates liver damage and insulin resistance by improving mitochondrial dysfunction, diacylglycerol and ROS levels, in rats with non-alcoholic fatty liver disease*
Olin Torres Isidro. Universidad Michoacana de San Nicolás de Hidalgo

18. *Avocado Oil Improves Renal Damage, Mitochondrial Dysfunction, and mPTP Opening in rats with Type 2 Diabetes*
Manuel Alejandro Vargas Vargas. Universidad Michoacana de San Nicolás de Hidalgo

19. *Effect of IFC-305 on F1FO-ATPase dimerization and fibrosis in acute myocardial infarction remodeling in rats*
María Concepción José Núñez. Instituto de Fisiología Celular, UNAM

20. *Neonatal neglect increases the risk of the cardiometabolic disorder in adulthood: a pre-clinical model*
Victoria Palafox-Sánchez. Institute for Obesity Research. Tecnológico de Monterrey

Structure and function of membrane proteins

21. *Predicting the entry routes of nuclear-encoded mitochondrial proteins into yeast mitochondria*
Diego González Halphen. Instituto de Fisiología Celular, UNAM

22. *Methanolic Extracts of Capsicum annuum var. Fascinatum (MECaF) Disrupt Calcium Homeostasis in MCF-7 Breast Cancer Cells*
Joel Hurtado Patiño. Universidad Autónoma de Querétaro

23. *Role of sodium-hydrogen exchanger 1 in cardiometabolic injury vs. pressure overload pure model*
Julieta Palomeque. Institute for Obesity Research. Tecnológico de Monterrey

24. *Evaluation of cellular changes and cell membrane-associated proteins (metalloproteinases and ABCB1) in etoposide and paclitaxel resistant cells*
Jesús Adrián López. Universidad Autónoma de Zacatecas

25. *New real-time method (Nar JJ) to measure the activity of membrane nitrate reductase (Nar) of denitrifying bacteria*
José J. García-Trejo. Facultad de Química. Universidad Nacional Autónoma de México

Physiochemistry and transport phenomena through membranes

26. *The use of thioflavin T to estimate the plasma membrane potential (PMP) in different yeast strains and the effect of pH*
Norma Silvia Sánchez S. Instituto de Fisiología Celular, UNAM

Free radicals and antioxidants.

27. *Administration of the aqueous extract of the aerial part of Eryngium carlinae and its combination with silver nanoparticles improves mitochondrial function in a model of type 2 diabetes*
Jenaro Lemus de la Cruz. Instituto de Investigaciones Químico Biológicas. UMSNH

28. *MERCs and regulation of sulforaphane-modulated ER stress in cardiomyocytes subjected to chemical hypoxia*
Gabriela Navarrete Anastasio. Instituto Nacional de Cardiología "Ignacio Chávez"

29. *Evaluation of Phaseolus vulgaris L. extracts in breast cancer cells*
Angelica Judith Granados López. Universidad Autónoma de Zacatecas

Regulation of energy metabolism.

30. *Evaluation of L-glutaminase activity in the extremophile yeast Rhodotorula mucilaginosa*
Paola I. Acosta-Valdelamar. Instituto de Fisiología Celular, UNAM

31. *Adenosine derivative compound IFC-305 reverses epithelial-mesenchymal transition induced by palmitic acid and TGF-β1 in HepG2 cells*
Irina Cardoso-Lezama. Instituto de Fisiología Celular, UNAM

32. *Bioenergetic disruptions in neutrophil-like differentiated HL-60 cells caused by high glucose culture*
Jorge Andrés Cazares-Preciado. Tecnológico de Monterrey

33. *Cannabidiol as an anti-inflammatory and mitochondrial function-protective therapy in cardiorenal syndrome*
Héctor Chapoy Villanueva. Tecnológico de Monterrey

34. *Wolbachia metabolism after incubation in an axenic medium*
Natalia Chiquete Félix. Instituto de Fisiología Celular, UNAM

35. *Effects of IFC-305 on mitochondrial function in the B-cell precursor acute lymphoblastic leukemia (pre-B ALL) cell line NALM-6*
Ana María Hernández Jiménez. Instituto de Fisiología Celular, UNAM

36. *An unexpected alliance: riboflavin production by Wolbachia in Saccharomyces cerevisiae*
Ofelia Alejandra Méndez Romero. Instituto de Fisiología Celular, UNAM

37. *Disrupted mitochondrial calcium handling impairs pancreatic β-cell function under palmitate-induced lipotoxic stress*
Nora Greys Zamora Benavides. Tecnológico de Monterrey

38. *The methylome transcriptional regulatory network activated by copper: impact on basal metabolism and energy production genes*
Mauricio Latorre. Universidad de O'Higgins, Chile

39. *Bioenergetic Architecture of a Decoupled Aquaponic System: Metagenomic Characterization of Microbial Flux and Nutrient Cycles*
Saulo E. Andrade-Rincón. Universidad Autónoma de Baja California

40. *Intermittent fasting improves cardiorenal function in a murine model of heart failure.*
Emanuel Adrián Guajardo-Correa. Tecnológico de Monterrey

41. *FKBP51 disrupts the insulin signaling pathway and impairs mitochondrial bioenergetics in HepG2 cells*
Rodrigo Troncoso. INTA. Universidad de Chile