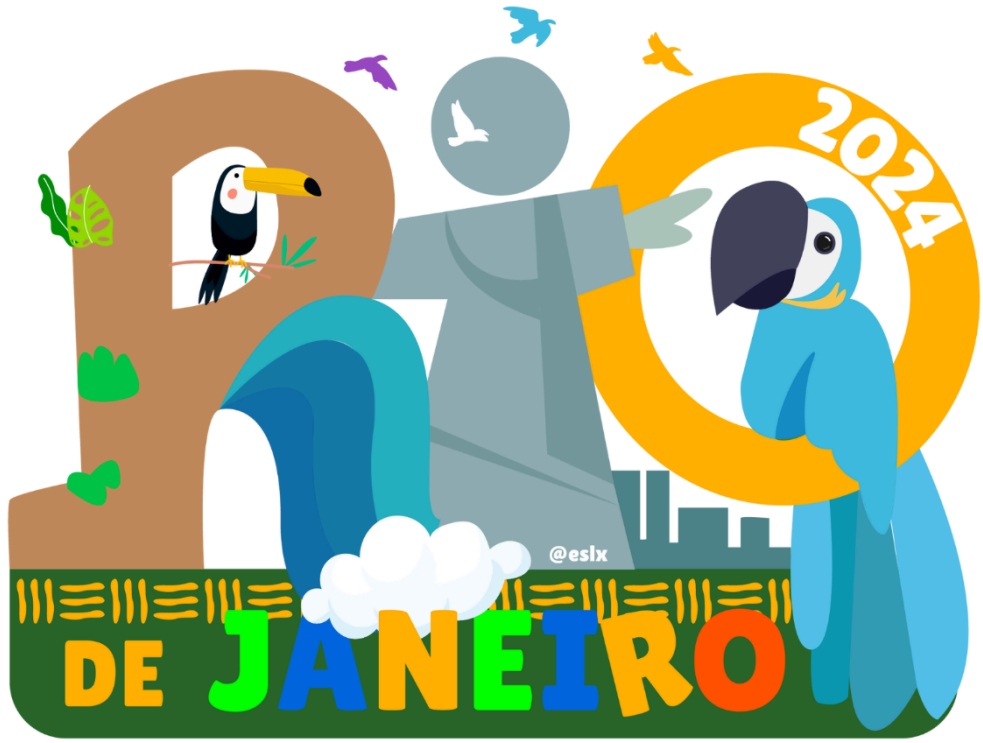

LABI SUPERRES

Latin America Bioimaging

CENABIO
National Center for Structural Biology and Bioimaging

MBX
Mexican Bioimaging Workshops

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CONTENTS

Organizing Committee Members

- **Kildare Miranda** (LABI Co-Chair & Local Organizer) - Centro Nacional de Biologia Estrutural e Bioimagem (CENABIO), Universidade Federal do Rio de Janeiro, Brazil.
- **Lía Pietrasanta** (LABI Co-Chair) - Centro de Microscopía Avanzada, Universidad de Buenos Aires, Argentina.
- **Andrés Olivera** (LABI Executive Assistant) - Institut Pasteur de Montevideo, Uruguay.
- **Iván Rey** (LABI Board Member) - MicroCore, Universidad de los Andes, Colombia.
- **Christopher Wood** (LABI & BINA Board Member) - Laboratorio Nacional de Microscopía Avanzada, Universidad Nacional Autónoma de México, México.
- **Mariana De Niz** (LABI Outreach & Integration WG) - Nikon Imaging Center, Northwestern University, United States.
- **Marcia Attias** (Local Organizer) - CENABIO, Universidade Federal do Rio de Janeiro / Sociedade Brazileira de Microscopia e Microanálise
- **Camila Gonçalves** (Local Organizer) - CENABIO, Universidade Federal do Rio de Janeiro, Brazil.
- **Adélia Belém** (Local Organizer) - CENABIO, Universidade Federal do Rio de Janeiro, Brazil.
- **Carla Woyames** (Local Organizer) - CENABIO, Universidade Federal do Rio de Janeiro, Brazil.
- **Fernando Almeida** (Local Organizer) - CENABIO, Universidade Federal do Rio de Janeiro, Brazil.
- **Jean Pierre Santos** (Local Organizer) - CENABIO, Universidade Federal do Rio de Janeiro, Brazil.
- **Vânia Vieira** (Local Organizer) - CENABIO, Universidade Federal do Rio de Janeiro, Brazil.
- **Moara Lemos** (Local Organizer) - CENABIO, Universidade Federal do Rio de Janeiro, Brazil.
- **Ingrid Augusto** (Local Organizer) - CENABIO, Universidade Federal do Rio de Janeiro, Brazil.
- **Adán Guerrero** (Superres Committee Member) - Laboratorio Nacional de Microscopía Avanzada, Universidad Nacional Autónoma de México, México.
- **Mariano Buffone** (Superres Committee Member) - Instituto de Biología y Medicina Experimental (IBYME), Buenos Aires, Argentina.

- **Valeria Piazza** (Superres Committee Member) - Centro de Investigaciones en Óptica, A.C. (C.I.O.) México.
- **Yuriney Abonza** (Superres Committee Member) - Laboratorio Nacional de Microscopía Avanzada, Universidad Nacional Autónoma de México, México
- **Haydee Hernandez** (Superres Committee Member) - Laboratorio Nacional de Microscopía Avanzada, Universidad Nacional Autónoma de México, México
- **Janaina García** (Superres Committee Member) - Mexican Bioimaging Workshop Ambassador

Please tweet during the event using #LABIxSuperres2024

We thank the Supporters and Sponsors listed on the back of this program for their participation and greatly appreciate their support of LABIxSuperres2024.

LABI Meeting 2024

Building a Sustainable Future for Bioimaging in Latin America

Sunday, August 18th

Venue: Museu do Amanhã

	Welcome to Event Organisers and Institutions	
16:00 - 16:25	The event will commence with a warm welcome from the organizers and institutions involved. The progress, growth and activities of the network over the past years will be presented.	25 min
	Lía Pietrasanta - LABI Chair / Universidad de Buenos Aires, Argentina	
	Andrés Olivera - LABI Network Manager	
	Kildare Miranda - LABI Co-Chair & Local Organizer / CENABIO, UFRJ, Brazil	
	Bioimaging Graduate Program Presentation	
16:30 - 17:00	Presentation of the professional graduate program in Bioimaging and Biostructure Technologies, from the Federal University of Rio de Janeiro (UFRJ) **Moderator:** *Kildare Miranda - CENABIO, Universidade Federal do Rio do Janeiro, Brazil*	25 min
	Marcia Attias - CENABIO, Universidade Federal do Rio do Janeiro, Brazil / SBMM ***Silvana Allodi*** - Bioimaging Graduate Program Coordinator ***Roberto Medronho*** - Rector, Universidade Federal do Rio do Janeiro, Brazil	
	Round Table	
17:05 - 17:30	This round table discussion will feature prominent national authorities linked to academic and technological development, who will share their vision on the importance of such events at the local level, future perspectives, and opportunities for collaboration. **Moderator:** *Kildare Miranda - CENABIO, Universidade Federal do Rio do Janeiro, Brazil*	25 min
	Fernando Peregrino - Chief of Staff representing the President of Financiadora de Estudos e Projetos (FINEP), *Celso Pansera*	
	Jerson Lima- Director, Fundação Carlos Chagas Filho de Amparo à Pesquisa do Estado do Rio de Janeiro (FAPERJ)	

	Denise Pires de Carvalho - Presidenta, Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES)	
	Giovanna Machado - Presidente, Brazilian Microscopy and Microanalysis Society (SBMM)	
	Adalberto Vieyra - Director, National Center for Structural Biology and Bioimaging (CENABIO)	
	Q&A and discussion	
	CZI Bioimaging in Latin America	
17:35 - 18:00	**Time:** 25 minutes (20 minutes presentation, followed by 5 minutes for Q&A) **Moderator:** *Andrés Olivera "Oliver"* - LABI Program Coordinator	
	Vania Cao - Program Manager, Imaging, Chan Zuckerberg Initiative (CZI)	20 min
	Q&A and discussion	5 min
	Plenary Lecture Craniopagus twins: a separation that seemed impossible.	
18:05 - 18:50	**Time:** 45 minutes (30 minutes presentation, followed by 15 minutes for Q&A) **Moderator:** *Kildare Miranda* - CENABIO, Universidade Federal do Rio do Janeiro, Brazil	
	Gabriel Mufarrej - *Pediatric Neurosurgeon, Paulo Niemeyer State Brain Institute.* Specialist in Neurosurgery by the Brazilian Society of Neurosurgery and Member of the Brazilian Society of Pediatric Neurosurgery since its foundation, he has a postgraduate degree in Neurosurgery from the PUC Postgraduate Medical School. He currently coordinates Pediatric Neurosurgery and Epilepsy Surgery at the Paulo Niemeyer State Brain Institute, and is also the coordinator of the Postgraduate Program in Pediatric Neurosurgery at the PUC-RIO Postgraduate Medical School.	30 min
	Q&A and discussion	15 min
19:00 - 21:00	***LABI Welcome Opening Cocktail at Museum da Amanha***	
	Monday, August 19th *Venue: Fundação Coppetec*	
	Registration & Meeting Instructions	
08:00 - 08:45	Setting the tone for the LABI Meeting 2024 and expressing gratitude for the participants' presence and support. Program overview and logistic orientations for the following days will be presented	

	Moderated Session 1 LABI Imaging Science Fellows and Program Evaluation	
9:00 - 10:00	This session will include a review of the training and professional development programs implemented by LABI over the past two years, incorporating feedback from participants. A speaker from LABI will present the programs in numbers, followed by the stories of the imaging science fellows. **Time:** 60 minutes (10 minutes program presentation, 7 minutes per imaging scientist fellow, followed by 15 minutes for Q&A) **Moderator:** *Iván Rey - MicroCore, Universidad de los Andes, Colombia*	
	Speaker(s):	
	Andrés Olivera "Oliver" - LABI Program Coordinator Training & Career Development Programs in numbers	5 min
	Luciana Silva - Fundação Ezequiel Dias, Brazil	10 min
	Celina Terán - Universidad Nacional Autónoma de México, México	10 min
	Isaura Suarez - Universidad de Antioquia, Colombia	10 min
	Virginia Albarracin - Centro Integral de Microscopia Electrónica (CIME-UNT-CONICET), Argentina	10 min
	Q&A and discussion	15 min
	Imaging 4 All (i4A): Funding Opportunities for Imaging Scientists by Global BioImaging	
10:05 - 10:25	i4A specifically targets researchers, imaging facility staff and management affiliated with not-for-profit institutions in low- and middle-income countries (LMICs). These funds provide worldwide access to fundamental and advanced imaging instruments, opportunities to experience roles and functions at imaging facilities, and participation in imaging-related training courses. i4A is supported by Wellcome Trust (UK) and administered by Global BioImaging. **Time:** 20 minutes (15 minutes presentation, followed by 5 minutes for Q&A) **Moderator:** *Andrés Olivera "Oliver"* - LABI Program Coordinator	
	Deniz Saltukoglu - Project Manager I4All, Global Bioimaging	15 min
	Q&A and discussion	5 min
10:25 - 10:55	***Coffee Break***	**30 min**
	Plenary Lecture in Advancing Biomedical Imaging for Clinical Applications	

11:00 - 11:45	A distinguished expert will deliver a plenary lecture on the role of biomedical imaging in translational medicine, emphasising its impact on clinical applications and healthcare. **Time:** 45 minutes (30 minutes presentation, followed by 15 minutes for Q&A) **Moderator:** *Kildare Miranda* - CENABIO, Universidade Federal do Rio do Janeiro, Brazil	
	Fernanda Tovar Moll, *CEO, D'Or Institute, Brazil* Her team investigates clinical and translational research on the functional and structural circuits of the normal and pathological brain, in developmental, neurological, and neurodegenerative disorders. Using advanced in vivo imaging techniques to map biomarkers of brain connectivity and plasticity and, counting on a multidisciplinary team, they aim to establish the relationship among these biomarkers and clinical, biochemical, and microstructural factors. Currently, she serves as the CEO of IDOR, the institute responsible for research, education, and innovation activities at Rede D'Or Hospitals Network.	30 min
	Q&A and discussion	15 min
11:45 - 11:50	**ZEISS Tech Bite (5 min)**	
11:55 - 13:25	***Lunch***	**90 min**
	Moderated Session 2 Data Management for Scientific Advancement	
13:30 - 14:15	This session will focus on the importance of effective data management in driving scientific progress. Global initiatives will be showcased, highlighting best practices and challenges in data management and storage to facilitate bioimaging-enabled discovery. Regional and local initiatives with potential to be impactful to the Latin American Bioimaging community. **Time:** 75 minutes (15 minutes per speaker, followed by 15 minutes for Q&A) **Moderator:** *Adán Guerrero - Laboratorio Nacional de Microscopía Avanzada (LNMA), UNAM, México*	
	Speaker(s):	
	Steffen Hartel - Sistema de Almacenamiento y Servicios Informáticos Biomédicos Avanzados (SASIBA), Chile	15 min
	Nikki Bialy - Bioimaging North America (BINA)	15 min
	Jesica Formoso - The Catalyst project	15 min
	Rocco D'Antuono - Global BioImage Analysts' Society (GloBIAS)	15 min
	Q&A and discussion	15 min
	Moderated Session 3	

	Core Facility and Industry Cooperation	
14:15 - 15:00	This session will feature representatives from core facilities who will showcase their ways of interacting with companies. Opportunities and strategies to strengthen ties between academia and industry as a driver towards a sustainable bioimaging research ecosystem. **Time:** 45 minutes (15 minutes per speaker, followed by 15 minutes for Q&A) **Moderator:** *Andrés Kamaid* - Advance Bioimaging Unit, Udelar/IPMontevideo, Uruguay	
	Greggory Kitten - Center of Microscopy, UFMG, Brazil	15 min
	Jens Rierdorf **-** Center for Technological Development in Health, Fiocruz, Brazil	15 min
	Q&A and discussion	15 min
15:00 - 15:05	**TissueGnostics Tech Bite (5 min)**	
15:10 - 15:45	***Coffee Break***	**30 min**
	Networking session (Only in person) LABI Working Groups & Emerging Topics	
15:50 - 17:20	Participants will have the opportunity to engage in LABI Working Groups dedicated to specific topics within the bioimaging field. These working groups will facilitate focused discussions, networking, and collaborations among participants, fostering an environment of knowledge sharing and advancement in the field. Each working group will deliver a concise report summarizing the key discussions, insights, and outcomes from their focused sessions.	90 min
	A - **Training & Education** (*Andrés Rossi, Marcela Díaz & Victoria Repetto*)	
	B - **Outreach & Integration** (*Mariana De Niz & Hernán Grecco*)	
	C - **Data Science for Bioimaging** (*Adán Guerrero & Federico Lecumberry*)	
	D - **Industry Partners** (*Gregory Kitten & TBD*)	
17:20 - 18:30	**Poster session**	

Tuesday, August 20th

Venue: Fundação Coppetec

	Networking session	

	Exploring Governance and Sustainability	
9:00 - 10:30	This interactive workshop is part of the project "Strengthening Community Governance in Latin American Bioimaging Network" funded by Invest in Open Infrastructure, in which we aim to create a more participatory and collaborative governance environment. Participants will discuss the governance and sustainability of LABI, exploring strategies to ensure the long-term sustainability of LABI **Time:** 90 minutes Session moderated in collaboration with MetaDocencia	90 min
	Paz Miguez **-** MetaDocencia ***Jessica Formoso*** **-** MetaDocencia ***Andrés Kamaid*** **-** LABI Outgoing Chair ***Lía Pietrasanta*** **-** LABI Chair ***Andrés Olivera "Oliver"*** - LABI Coordinator	
10:30 - 10:55	***Coffee Break***	**25 min**
	Plenary Lecture in Open Infrastructure	
11:00 - 11:45	A renowned expert will deliver a plenary lecture on the importance of Open Infrastructure for the Bioimaging community, highlighting its relevance and impact on scientific advancement. **Time:** 45 minutes (30 minutes presentation, followed by 15 minutes for Q&A) **Moderator:** *Lía Pietrasanta* (LABI Chair) - Universidad de Buenos Aires, Argentina	
	Speaker:	
	Maria Augusta Arruda*, Brazilian Biosciences National Laboratory, CNPEM, Brazil* *She has been director of LNBio since July 2023. She was a Researcher at Fiocruz, Professor at the State University of Rio de Janeiro (UERJ), and led the Brazil-University of Nottingham (UK) Partnership for New Drug Discovery. Later, she was responsible for the University of Nottingham's strategic relationship with UK Research and Innovation and, more recently, Associate Director of Researcher Development and Chair of the Racial Equity Network at the same institution. She brings her almost 30 years of experience in research environments to support the scientific community to reach its potential through transdisciplinarity, with collaborations at national and international level.*	30 min
	Q&A and discussion	15 min
11:45 - 11:50	**Thermo Fisher Tech Bite (5 min)**	
11:55 - 13:25	***Lunch***	**90 min**
	Moderated Session 4 Exploring Open Science in Bioimaging	

13:30 - 14:45	A session to explore different types and levels of Open Infrastructure that can provide inputs to the discussion of how to build a sustainable ecosystem to foster innovation and enhance the region's contribution to global scientific advancements **Time:** 75 minutes (15 minutes per speaker, followed by 15 minutes for Q&A) **Moderator:** *Leonel Malacrida* - Unidad de Bioimagenología Avanzada, IPMon/Udelar, Uruguay	
	Speaker(s):	
	Open Hardware: ***Tobias Wenzel*** - Latin American Hub for Bioimaging Through Open Hardware *(*LIBRE Hub), Chile	15 min
	Open software: ***Stephan Preibisch*** - Open Science Software Initiative (OSSI), USA ****Virtual***	15 min
	Open facility: ***Rodrigo Portugal*** - Brazilian Nanotechnology National Laboratory LNNano, CNPEM, Brazil	15 min
	Open Hub: ***Michael Reiche*** - Africa Microscopy Initiative (AMI), South Africa	15 min
	Q&A and discussion	15 min
	Open Infrastructure for Open Science	
14:45 - 15:10	Open science infrastructures are critical in ensuring access to knowledge and fostering innovation. Earlier this year, IOI released the first State of Open Infrastructure report to shed light on the trends, patterns, issues, and gaps in the investment and adoption of open infrastructure for research, with the aim of identifying areas for potential change or intervention. This talk will dig deeper into the findings, and explore collective paths forward. **Time:** 25 minutes (20 minutes presentation, followed by 5 minutes for Q&A) **Moderator:** *Andrés Olivera "Oliver"* - LABI Program Coordinator	
	Kaitlin Thaney - Executive Director, Invest in Open Infrastructure (IOI) ****Virtual***	20 min
	Q&A and discussion	5 min
15:10 - 15:45	***Coffee Break***	**30 min**
	Networking (Only in person) Strategic roadmap to drive access to bioimaging technology in the global south	
15:45 - 17:00	This session will emphasize the importance of networks in enhancing scientific development, fostering community engagement, and promoting innovation from a global south perspective. Representatives from strategic partner networks, will discuss collaborative opportunities and initiatives with LABI. The public will be divided into groups, each group will work in parallel with an agenda for continuity after the event.	75 min

	Time: 75 min	
	Small Groups session:	
	Green - Cooperation across the americas: LABI & BINA	
	Moderator LABI: ***Christopher Wood*** - LABI & BINA Steering Committee	
	Moderator BINA: ***Nikki Bialy*** - Program Coordinator, Bioimaging North America (BINA)	
	Blue - South-South Cooperation: LABI & ABIC	
	Moderator LABI: ***Leonel Malacrida*** - LABI Steering Committee	
	Moderator ABIC: ***Precious Kgomo*** - African Bioimaging Consortium (ABIC)	
	Red - Regional Cooperation: LABI & CEBEM	
	Moderator LABI: ***Lía Pietrasanta*** - LABI Chair	
	Moderator CEBEM: ***Karina Alleva*** - Centro de Biología Estructural del Mercosur (CEBEM)	
17:00 - 17:15	***Small Break to Conference Room*** Group Photo📸	**15 min**
17:15 - 17:25	**Announcements/Ceremony**	
	Round Table Shaping the Future of Bioimaging in Latin America	
17:30 - 18:30	**Where are we going in the next years?** A panel of experts from diverse backgrounds will discuss the future of bioimaging in Latin America, opportunities and strategies to address as a region this mission of enabling discovery through bioimaging on a global level. **Time:** 60 minutes **Moderator:** Christopher Wood - Laboratorio Nacional de Microscopía Avanzada, México	60 min
	Speaker(s):	
	Vladimir Ghukasyan - Senior Program Manager, Imaging, Chan Zuckerberg Initiative	
	Kaitlin Thaney - Executive Director, Invest in Open Infrastructure ****Virtual***	
	Elysio Neto - Carl Zeiss, Brazil	
	Kildare Miranda - Centro Nacional de Biologia Estrutural e Bioimagem, UFRJ, Brazil	
	Leonel Malacrida - Unidad de Bioimagenología Avanzada, IPMon/Udelar, Uruguay	
	Q&A and discussion	

18:30 - 18:45	**Meeting Closure**	
	Closing Dinner at Fogo de Chão This dinner has a cost of U$S 10 which includes food and drinks (non-alcoholic).	

	Wednesday, August 21st	
	Core Facility Visit	
9:00 - 11:30	CENABIO is a multiuser facility of the Federal University of Rio de Janeiro (UFRJ) where studies and experimental approaches are carried out to obtain images of organs, cells and biomolecules. CENABIO is one of the rock-star research centers in Latin America with state-of-the-art equipment. **Transportation covered by organizers** We will depart at 8:00 from Hotel Windsor Florida to visit the National Center for Structural Biology and Bioimaging (CENABIO). **Location** Centro de Ciências da Saúde (CCS - Av. Carlos Chagas Filho, 373 - Cidade Universitária, Rio de Janeiro - RJ, 21941-902, Brazil cenabio.ufrj.br See on Google Maps	
12:00 - 13:30	***Lunch***	**90 min**
	Outreach Activity at Botanical Garden	
14:00 - 17:00	The tropical green and lush park of the Botanical Garden welcomes us for a lunch surrounded by nature. After lunch there will be Outreach activities on Wednesday afternoon, the 21st. These activities are organized by LABI's Outreach and Integration Working Group (coordinated by Mariana De Niz) together with EducaCiencia (coordinated by Haydee Hernandez and Janaina Garcia). **Transportation coverd by organizers** We will arrive from CENABIO (core facility visit before the activity).	

	After the activity, transportation will be provided to Windsor Florida Hotel. **Lunch covered by organizers** **Location** R. Jardim Botânico, 1008 - Jardim Botânico, Rio de Janeiro - RJ, 22460-030, Brazil +55 21 3874-1808 www.gov.br Ver en Google Maps	

Thursday, August 22nd

Venue: Fundação Coppetec

Morning
Session 1 - Super-resolution microscopy in Latin America

This opening session will delve into Fluorescence Super-resolution Microscopy in Bioimaging in the Latin American context, aiming to enlighten the community on the state of the art in this field within the region. It is designed to display the foundational work in super-resolution microscopy spanning research, education, and bridging the technological and educational gap among imaging scientists. Discussions will transition from introductory concepts to the advancements and potential of fluorescence nanoscopy in bioimaging within Latin America. Moreover, the session will feature the recent educational endeavors at promoting knowledge exchange, skill development, and fostering collaborations in Latin America, thereby significantly propelling super-resolution microscopy advancement in the region.

8:00 - 9:00	**Registration**	60 min
9:00 - 9:10	**Welcome and Announcements** *Kildare Miranda, Mariano Buffone, Adán Guerrero*	10 min
9:10 - 9:20	**Expanding Global Access to Biomaging in LatAm - The Fluorescence Nanoscopy in Bioimaging Foundational Project** *Mariano Buffone, IBYME, Argentina*	10 min
9:20 - 09:35	**10 Years of History in Super Resolution Microscopy** *Adán Guerrero, UNAM, Mexico*	15 min
09:35 - 09:40	**Q&A**	5 min
9:40 - 10:10	**Plenary Talk 1. Evaluating Actin Organization with STED Nanoscopy in SMN-Deficient Neurons: Implications for Spinal Muscle Atrophy (SMA) Pathogenesis** *Alfredo Cáceres, CIMETSA-IUCBC, Argentina*	30 min
10:10 - 10:20	**Q&A**	10 min

10:20 - 10:35	**Spotlight**	15 min
10:35 - 10:50	**Educational Endeavors Fostering Super Resolution Microscopy in LatAm** *Leonel Malacrida, Institut Pasteur, Uruguay*	15 min
10:50 - 10:55	**Q&A**	5 min
10:55 - 11:00	**Industrial Talk.** ThermoFisher	5 min
11:00 - 11:15	**Group Photo**	15 min
11:15 - 11:45	**Morning Break**	30 min
11:45 - 12:15	**Plenary Talk 2. Mapping the Nicotinic Acetylcholine Receptor Nanocluster Topography** *Francisco Barrantes, BIOMed UCA-CONICET, Argentina*	30 min
12:15 - 12:25	**Q&A**	10 min
12:25 - 12:55	**Superres Winners Talks (Mexico)** *3 speakers 10 min each*	
	Super Resolution in Food-Based Biomaterials: from Household Waste to Agroindustry Wastes *Josué Hernández, IPN, Mexico*	10 min
	Monitoring the Reactive Sites for Photocatalysis on Anatase TiO2 Surface through Super Resolution Advanced Microscopic Techniques *Susana Gallegos, IPN, Mexico*	10 min
	Transitioning from Low- and High-Resolution to Super Resolution in the Visualization of Microtubules *Valeria Piazza, CIO, Mexico*	10 min
12:55 - 13:05	**Q&A**	10 min
13:05 - 14:30	**Lunch Break and Meeting with the Instructors**	85 min

Moderator: Valeria Piazza

Afternoon
Session 2 - Single molecule localization microscopy

Highlighting the transformational impact of Single Molecule Localization Microscopy (SMLM) on unraveling biological intricacies, this session offers a foray into the molecular realm. It navigates the imaging evolution from observing isolated blinking or wandering fluorescent molecules to exploring tissues and organismal levels. The session elucidates SMLM's potential as a springboard for innovative diagnostic tools, forming a nexus between foundational research and clinical application. Prominent methodologies like STORM, PAINT, and SPT, devised to decode cell biology intricacies, will be accentuated, underlining their pivotal role in advancing molecular imaging. A focal point will be the evolutionary trajectory and prospective horizons of SMLM, particularly in spatial transcriptomics and whole brain imaging. Additionally, the session explores the promise of SMLM as a clinical diagnostic tool, foreshadowing a future where molecular details significantly bolster disease diagnosis and comprehension.

14:30 - 15:00	**Plenary Talk 3. Super Resolution Microscopy for Dynamic Structural Cell Biology** *Jonas Ries, Vienna, ETH, Zurich (virtual)*	30 min
15:00 - 15:10	**Q&A**	10 min
15:10 - 15:30	**The Helical Structure of Polymerized Actin in the Mouse Sperm Flagellum Undergoes a Structural Change to Cease Motility at the Time of Sperm-Egg Fusion** *Martina Jabloñski, IBYME, Argentina*	20 min
15:30 - 15:40	**Q&A**	10 min
15:40 - 16:10	**Plenary Talk 4. Dissecting the Mammalian Sperm Capacitation Process with 3D Superresolution Microscopy** *Diego Krapf. Colorado State University, USA*	30 min
16:10 -16:20	**Q&A**	10 min
16:20 - 16:50	**Afternoon Break**	30 min
16:50 - 16:55	**Industrial Talk.** *TissueDiagnostics*	5 min
16:55 - 17:15	**Imaging Retinas: From Organoids to Individual Photoreceptors** *Pablo Loza, ICFO, Spain*	20 min
17:15 - 17:25	**Q&A**	10 min
17:25 - 17:55	**Selected Students Talks** *3 speakers 10 min each*	
	Subcellular Localization of PKA During Sperm Capacitation by Super Resolution Microscopy *Analia Novero, IBR, Argentina*	10 min
	Reorganization of the Mouse Sperm Flagellum Membrane During Acrosomal Exocytosis *Diana Vázquez, UNAM, Mexico*	10 min
	SUPPOSe: A Super-Deconvolution Tool for Microscopy Images *Micaela Toscani, IIBM, Argentina*	10 min
17:55 - 18:05	**Q&A**	10 min
18:05 - 19:30	**Posters (1-30) & Sponsors Session**	85 min
Moderator: Adán Guerrero		

Friday, August 23rd

Venue: Fundação Coppetec

Morning Session 3 - Boosting Optical Fluorescence Microscopy with Structured Light		
The session explores contemporary advancements in structured light microscopy, instrumental for significant scientific discoveries. Initially, confocal microscopy was crucial for enhancing contrast through structured illumination. The focus now transitions towards overcoming the diffraction barrier by channeling more information within the imaging system, refining spatial sampling of signals, or segregating information from its source. The session highlights the principles and potentials of various innovative techniques, demonstrating their invaluable utility for biological discovery, notably in elevating resolution in confocal microscopy and leading the charge in super-resolution multidimensional imaging. Methodologies that are redefining benchmarks in super-resolution microscopy will be unfolded. Attendees will gain insights into their application for probing the nano intricacies of life.		
09:00 - 09:30	**Plenary Talk 5. Fluorescence Nanoscopy and Tracking with True Nanometric Resolution: STED-FRET, MINFLUX and Other Ways** *Fernando Stefani, CIBION, Argentina*	30 min
09:30 - 09:40	**Q&A**	10 min
09:40 - 10:00	**Selected Students Talks** *2 speakers 10 min each*	
	hiPSC-Derived Motor Neuron Axons Show Gaps in the Periodical Spectrin Lattice *Nicolas Unsain, INIMEC-CONICET, Argentina*	10 min
	Super Resolution Microscopy-based Chromatin Dynamics and Transcriptional Regulation at the Proopiomelanocortin Locus in the Pituitary and Hypothalamus of Normal and Mutant Mice *Verónica Pignataro, INGEBI, Argentina*	10 min
10:00 - 10:10	**Q&A**	10 min
10:10 - 10:15	**Industrial Talk.** Zeiss	5 min
10:15 - 10:35	**Solutions in Cancer Research Through Structured Illumination Microscopy** *Alejandro López, ADMIRA-INCAN, Mexico*	20 min
10:35 - 10:45	**Q&A**	10 min
10:45 - 11:15	**Morning Break**	30 min
11:15 - 11:35	**Combining Structured-Illumination and Spectral Unmixing for Ultra-High Plex and Resolution in Imaging-based Spatial Transcriptomics** *Álvaro Crevenna, EMBL, Italy*	20 min
11:35 - 11:45	**Q&A**	10 min
11:45 - 12:40	**Posters (31-50) & Sponsors Session**	55 min
12:40 - 14:00	**Lunch Break and Meeting with the Instructors**	80 min
Moderator: Federico Lecumberry		

Friday, August 23rd Evening
Session 4 - Expanding worldwide access to Super Resolution Microscopy

This session will emphasize widening global access to nanoscale imaging, particularly in resource-limited areas, by utilizing accessible technology like conventional fluorescence microscopes and chemical reagents. It will explore harnessing brightness fluctuations of fluorescent molecules or isotropically expanding samples to generate sharper super-resolved images. The introduction of FAIR imaging protocols and image enhancement tools will be highlighted. These advances aim to unlock high-fidelity multidimensional super-resolution microscopy without hefty costs, benefiting the research community. The session will also venture into integrating machine learning with super-resolution microscopy and merging it with electron microscopy for enhanced imaging, opening avenues for deeper understanding of biological systems at the nanoscale.

14:00 - 14:30	**Plenary Talk 6. Pioneering Open-Source AI Technologies for Biological Discovery through Microscopy** *Ricardo Henriques, IGC, Portugal (virtual)*	30 min
14:30 - 14:40	**Q&A**	10 min
14:40 - 15:00	**Unfolding Space and Time with Single Frame Super-Resolution Microscopy** *Adán Guerrero, UNAM, Mexico*	20 min
15:00 - 15:10	**Q&A**	10 min
15:10 - 15:30	**Selected Students Talks** *2 speakers 10 min each*	
	Extension of Resolution in Flow Cytometry Images for Nanometric Study in Cellular Populations *Victor Abonza, UNAM, Mexico*	10 min
	Super-Resolution Imaging of the ER in Neurospora Crassa *Juan Martinez, CICESE, Mexico*	10 min
15:30 - 15:40	**Q&A**	10 min
15:40 - 16:00	**Imaging for All (i4A)** *Deniz Saltukoglu, Global Bioimaging, Germany*	20 min
16:00 - 16:10	**Q&A**	10 min
16:10 - 16:40	**Afternoon Break**	30 min
16:40 - 16:55	*Federico Lecumberry, UDELAR, Uruguay*	15 min
16:55 - 17:10	**napari-superres: A Suite of Computational Methods for Super-Resolution Microscopy Based on Fluorescence Fluctuations** *Rocco D'Antuono, Francis Crick Institute, United Kingdom*	15 min
17:10 - 17:20	**Q&A**	10 min
17:20 - 17:50	**Plenary Talk 7. Democracy in Microscopy: from the Brain to the Molecule with an Affordable Fluorescence Microscope** *Ali Shaib, Universitätsmedizin Göttingen, Germany*	30 min
17:50 - 18:00	**Q&A**	10 min

18:00 - 18:15	**Closing Ceremony & Final Remarks**	15 min

Moderator: Mariano Buffone

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LABI Meeting Posters

Name	Surname	Description
Virginia Helena	Albarracin	I wil present the Centro Integral de Microscopia Electrónica strategic plan that we are developing since 2015, including training activities, core facility management and outreach activities.
Jéssica	Amaral Lopes	Presentation of our Multi-User Research Unit - UNIPEX FMB, our UNIPEX Confocal Microscopy laboratory and our LIAI research group.
Paula	Bandeira	
Debora Ferreira	Barreto Vieira	Estudos ultraestruturais em modelos in vitro infectados com o SARS-CoV-2 e MPXV
Nikki	Bialy	MicroscopyDB - facilitating the sharing of global Microscopy Resources
Mariano	Bisbal	I can share the microscopies and servis of our Core Facility (CEMINCO) from Córoba. Last year we incorporate an Abberior STED system and a 980 Zeiss confocal wiht aryscan2 and two-photon modules.
Nicole	Caballero Canchanya	Surgical Action Triplete Recognition. Enabling computer vision systems to understand both surgical scenes and the actions taken within them
Luelc	Costa	Due to the increase in the development and application of nanotechnology it is very likely that NPs will eventually be released into the aquatic environment, where they may encounter macromolecules. CryoEM technique associated an image processing and EFTEM allowed to determine protein corona morphology and thickness together with the visualization of its unstained different fractions. Therefore, this study aims to investigate the eco-corona formed by molecules extracted from algae and evaluate their interaction with silver nanoparticles, focusing on morphology and thickness. Therefore, to visualize the protein corona on PVP-AgNPs, we used the EFTEM and cryoEM with a summation of images that was successful in obtaining a detailed characterization of the full protein corona thickness and morphology while making possible an unequivocal visualization of unstained protein corona.
Diego	Delgado-Álvarez	Using nanoscopic deconvolution to further explore the cell biology of the model organism Neurospora. Devolopment of image analyisis protocols for this model organism.
Luciane Alarcão	Dias-Melicio	EVALUATION OF NETs IN POST-COVID PATIENTS WITH THROMBOEMBOLISM.
Marcela	Díaz	Póster que describe la Unidad de Bioimagenología Avanzada, oportunidades y el trabajo que realizamos
Aldenora	dos Santos Vasconcelos	Outreach Programs- Resultados de projetos de pesquisas que vem sendo aplicados na região através do CMAbio, como é o caso do projeto aprovado pela Fapeam, intitulado como "Instalação de Grupos Temáticos na área da Biologia Celular Parasitária no Centro Multiusuário para Análises de Fenômenos Biomédicos da Universidade do Estado do Amazonas-CMABio/UEA". Esse projeto viabilizou a instalação de um laboratório de cultura celular na universidade, implementação de bolsas de pós-doutorado e oferta de cursos e simpósios na área da microscopia.

Rayane	Gonçalves Pereira da Silva	We aim to present the outreach project "Viagem Microscópica," which focuses on creating and sharing short videos on social media in a vertical format, allowing the visualization of various materials through electron microscopy and related techniques.
Jéssica	Marques	Developing a Scientific Community in Bioimaging in Amazonas
Hernan Andres	Morales Navarrete	We explored the application of artificial intelligence to enhance our understanding of embryonic development. Firstly, we introduce EmbryoNet, a deep convolutional neural network crafted for the automated phenotyping of zebrafish signaling mutants. This tool effectively identifies and classifies phenotypic anomalies induced by disruptions in critical signaling pathways. Secondly, we propose a deep learning methodology to examine developmental tempo across different species, generating intricate phenotypic fingerprints that provide valuable insights into developmental timing and evolutionary innovations. These methodologies not only standardize phenotypic classification but also facilitate high-throughput drug screening and comparative embryology across various species.
Mariana	Olivares Urbano	Nanometric localization of the NADPH oxidase 5 and its possible interaction with the proton channel Hv1.
Pierre	Padilla Huamantinco	Access to High-Speed Imaging: Open-Source Appropriate Technology Design of a Strobe-Enhanced Microscopy Stage for Microfluidics
Vanessa	Pires	Presentation of our Multi-User Research Unit - UNIPEX FMB, our UNIPEX Confocal Microscopy laboratory and our LIAI research group.
Rodrigo	Portugal	Overview of lab projects and cryo-EM facility at LNNano/CNPEM
Rodrigo	Portugal	Scientific poster
Oscar Said	Quiroz Zerecero	Imaging by electron microscopy
Victoria	Repetto	Me gustaría presentar una charla bajo el tema Core Facility Management , para mostrar como organizamos nuestra Facility, cuales son los desafíos a los que nos enfrentamos y cómo los abordamos.
Andrea	Rivas	AFM for Detecting Topographic Changes in Biological Systems Atomic force microscopy (AFM) has found a wide range of bio-applications in recent decades due to its ability to measure biological samples in natural environments at a high spatial resolution. The interactions between biomolecules and active pharmaceuticals are complicated, but essential for the development of materials science, nanotechnology, biophysics, biomedicine, and analytical science. AFM is a useful technique for directly measuring and visualizing these interactions based on structural and morphological changes in diverse systems. This study proposes to utilize AFM to investigate the interactions between cellular structures and viral particles, making it suitable for systems at the micro and nanoscale. The main objective of this work is to help researchers understand fundamental molecular interactions and how biological systems respond to various stimuli in order to gain insights into the biological functions of various biological and bio-hybrid materials.
Deniz	Saltukoglu	This poster is intended to introduce Global BioImaging and provide an overview of its ongoing activities.
Paula	Terra Bandeira	I would like to present the advancements in ExM in some samples on my lab and the ultrastructure details of the cells we are able to unveil.
Jorge	Toledo	Analysis of Fluorescence Decay as a New Microscopy Tool for the Study of

		Starches from Reference and Archaeological Collections
Nicolás	Unsain	Description of the nanoscale organization of b2-spectrin in the axons of intact nerves.
Raphael	Verdan	Characterization of a new extra-axonemal structure in the Giardia intestinalis flagella
Brunna	Vianna Braga	Exploring MicroCT and 3D modeling techniques to detail the Trichuris muris attachment process in intestinal tissue of mice Application of FIB-SEM tool to explore structural aspects of Trichuris muris eggs

Superres Meeting Posters

Date	Poster ID	Name	Poster title	Institution
Thursday August 22, 2024 (18:05 - 19:30 h)	**A001**	**Micaela Toscani**	**SUPPOSe: A super-deconvolution tool for microscopy images**	**University of Buenos Aires - Argentina**
	A002	**Josué Rodolfo Villegas Mendoza**	**Subcellular Nanoscopy of INT-Formazan for Quantifying Respiration of Marine Prokaryoplankton**	**Universidad Autónoma de Baja California - Mexico**
	A003	*Valeria Piazza*	*Transitioning from low- and high-resolution to super-resolution in the visualization of microtubules.*	*Centro de Investigaciones en Óptica, A.C. - Mexico*
	A004	**Diana Marisol Vazquez Enciso***	**Reorganization of the mouse sperm flagellum membrane during acrosomal exocytosis**	**Universidad Nacional Autónoma de México - Mexico**
	A005	**Maria Monica Remedi**	**AXONAL DEGENERATION IN CULTURED NEURONS WITH SUPER-RESOLUTION MICROSCOPY**	**Instituto Universitario de Ciencias Biomedicas de Cordoba (IUCBC) - Argentina**
	A006	**Victor Xavier Abonza Amaro***	**Extension of Resolution in Flow Cytometry Images for Nanometric Study in Cellular Populations**	**Instituto de Biotecnología, UNAM - Mexico**
	A007	**David Torres Hernández**	**Nanoscopic visualization of cholesterol enriched nanodomains in the plasma membrane of mouse sperm by detection and localization of the red-shifted dimmer formation of bodipy-cholesterol**	**Institute of Biotechnology, UNAM - Mexico**

	A008	*Oscar Jesus Toledo*	*Brain slices with nicotine administration*	*Instituto Politécnico Nacional - Mexico*
	A009	**Celina Terán Ramírez**	**Nanometric study of the relationship between rearrangement of actin cytoskeleton and midpiece contraction in mouse sperm flagellum.**	**Universidad Nacional Autónoma de México - Mexico**
	A010	**Alexis Ricardo Becerril Cuevas**	**Nanoscale Analysis of Adenoviral DNA/RNA Distribution Using Hyperspectral Confocal Microscopy and Phasor Analysis**	**LNMA - Universidad Nacional Autónoma de México - Mexico**
	A011	**Yessica Heras Romero**	**Improved post-stroke spontaneous recovery: Quantitative determination of tissue structure integrity and analysis of brain metabolites**	**Universidad Autonoma Metropolitan - Mexico**
	A012	**Iván Oseguera-López**	**GM1 localization and function in the human sperm**	**Instituto de Biotecnología UNAM - Mexico**
	A013	**Fernando Luna-Maldonado**	**Applications of PALM Microdisection, Expansion Microscopy, and MSSR Image Analysis for the Study of DNA Damage**	**UNAM/INCan/ADMiRA - Mexico**
	A014	**Juan Manuel Martínez Andrade***	**Super-resolution imaging of the ER in Neurospora crassa**	**Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE) - Mexico**
	A015	**Gonzalo Escalante**	**Super-resolution of membrane proteins in Trypanosoma cruzi**	**Centro de Investigaciones en Bionanociencias - Argentina**
	A016	**Mariana Olivares Urbano**	**Nanoscopic localization of NADPH Oxidase 5 in human sperm cells**	**Universidad Nacional Autonoma de Mexico - Mexico**
	A017	**Luis Fernando Marcano García**	**Quantitative Analysis of Protein-Protein Association Constants in Cellular Environments using Single-Molecule Localization Microscopy**	**Centro de Investigaciones en Bionanociencias - Argentina**
	A018	**Alan M. Szalai**	**Dynamic Structural Biology on an Optical Microscope with Vertically Arranged DNA**	**Centro de Investigaciones en Bionanociencias - Argentina**
	A019	**Nicolas Unsain***	**hiPSC-derived motor neuron axons show gaps in the periodical spectrin lattice**	**Instituto de Investigación Médica Mercedes y Martín Ferreyra, Universidad Nacional de Córdoba - Argentina**
	A020	**Santiago Sosa**	**DYNAMIC DETERMINATION OF THE ORIENTATION OF A SINGLE MOLECULE INSIDE A PROTEIN CAVITY**	**Instituto de Investigaciones Bioquímicas de Buenos Aires - Fundación Instituto Leloir - Argentina**

	A021	**Mayra Castañeda Cataña**	**Comparative Analysis of BSA and PLGA Nanoparticles Internalization in Cells for Antiviral Applications**	**Universidad de Buenos Aires - Argentina**
	A022	**Aaron Ezequiel Alvarez De Lauro**	**Immunofluorescence analysis of quercetin's effect on the main receptor of Junin virus**	**Universidad de Buenos Aires - Argentina**
	A023	*Mariana De niz*	*Global access to super-resolution imaging: a tour de force into applications, imaging careers, core facility implementations, and serving resource-limited communities*	*Northwestern University - USA*
	A024	**Andres Cardozo Gizzi**	**The human neuronal nanoscale organization of epigenomic compartments during the differentiation from human induced pluripotent stem cells**	**Centro de Investigación en Medicina Traslacional "Severo Amuchástegui" - Argentina**
	A025	**Ana Julia Curioni Rodrigues**	**Análise tridimensional de alta resolução do tráfego intracelular de nanopartículas de óxido de magnésio em Leishmania amazonensis**	**Instituto Carlos Chagas/Fiocruz/PR - Brasil**
	A026	**Cayetana Arnaiz**	**Using iPALM and ExM to study the nanoscale localization of Tau in i3Neurons**	**IBioBA-MPSP-CONICET - Argentina**
	A027	*Luciane Alarcão Dias-Melicio*	*EVALUATION OF NETs IN POST-COVID PATIENTS WITH THROMBOEMBOLISM*	*São Paulo State University - Brazil*
	A028	**Yael Hernández Guadarrama**	**Characterization of immune cells using high-resolution imaging based flow cytometry**	**Laboratorio Nacional de Microscopía Avanzada - Mexico**
	A029	*Ramiro Quinta*	*Corticospinal axons reconnection promotes the recovery of voluntary locomotion after acute Spinal Cord Injury*	*CONICET - Hospital Aleman - Argentina*
	A030	**Gustavo Antonio Monti**	**Novel nanomaterials based on metallic clusters and polymer matrices as fluorescent markers, applicable in the field of health.**	**IITEMA- Universidad Nacional de Río Cuarto - Argentina**
Friday August 23, 2024 (11:45 - 12:40 h)	**A031**	**Fiorela Ghilini**	**Fluorescence Nanoscopy Analysis of Bacterial Adhesion and Photothermal Killing on Antibacterial Surfaces Modified with Prussian Blue Nanoparticles**	**INIFTA, University of La Plata - Aregenitna**
	A032	**Mariano Bisbal**	**Characterization of Rho GTPase spatio-temporal activation patterns induced by β-amyloid oligomers**	**Instituto Ferreyra (INIMEC-CONICET-UNC) - Argentina**
	A033	**Elizabeth Mavil-Guerrero**	**3D cell scaffolds of carboxylated bacterial nanocellulose**	**Universidad Nacional Autónoma de México - Mexico**

	A034	**Karina Rodríguez-Mora**	**Clay reduction size process control to nanoscale and the interaction with microalgae using microscopic techniques.**	**Universidad de Costa Rica - Costa Rica**
	A035	**Martina Jabloñski**	**The helical structure of polymerized actin in the mouse sperm flagellum undergoes a structural change to cease motility at the time of sperm-egg fusion**	**Instituto de Biología y Medicina Experimental - CONICET - Argentina**
	A036	**Magdalena Millán**	**A microscopy study of differential microenvironmental responses of pre-tumoral and tumoral cell models**	**Facultad de Odontología, Universidad de la República - Uruguay**
	A037	**Verónica Andrea Pignataro***	**Super-resolution microscopy-based chromatin dynamics and transcriptional regulation at the proopiomelanocortin locus in the pituitary and hypothalamus of normal and mutant mice**	**INGEBI-CONICET and Universidad de Buenos Aires - Aregentina**
	A038	*Santiago Martin Pietroroia*	*Insights of the mitochondrial role during sperm mouse capacitation*	*Faculty of Medicine - UdelaR - Uruguay*
	A039	**Lucila Rocío Gómez Olivieri**	**CatSper1-null sperm show reduced capacity to undergo acrosomal exocytosis due to alterations in the plasma membrane potential**	**Institute of Biology and Experimental Medicine - Argentina**
	A040	**Antonella Vila**	**Unveiling the Role of AKT in Nuclear Speckles Through Super-Resolution Fluorescence Microscopy**	**Instituto de Biociencias, Biotecnología y Biología Traslacional (iB3), Universidad de Buenos Aires - Argentina**
	A041	**Juan Andrés Silva Rodriguez***	**MSSR and Neural Network as Single Frame Superresolution Algorithms for Subcellular Analysis in Tubulinopathy Model.**	**Universidad de Guanajuato - Mexico**
	A042	**Daniel Martínez Flores**	**Using super-resolution microscopy to characterize antigen display on self-assembling virus-like nanovaccines**	**Universidad Nacional Autónoma de México - Mexico**
	A043	**Analia Guadalupe Novero***	**Subcellular localization of PKA during sperm capacitation by super-resolution microscopy.**	**Instituto de Biologia Molecular y Celular de Rosario (IBR) - Argentina**
	A044	*María Vanegas Reza*	*FRET and symbiosis: the case of Condylactis gigantea and Symbiodinium sp.*	*Universidad Nacional Autónoma de México - Mexico*
	A045	**Carlos Álvarez Romero**	**Progression of meiotic synaptic adjustment of ZW pair in chicken oocytes analyzed by super-resolution microscopy**	**Instituto de Investigaciones Médicas - Argentina**

	A046	**Joaquín Garat**	**Development of Super-Resolution Microscopy in Uruguay: Establishment of the First Fluorescence Microscope for Single-Molecule Localization**	**Instituto de Investigaciones Biológicas Clemente Estable - Uruguay**
	A047	**Ángel Vega Santos**	**Assessing single molecule localization of immunoglobulin G absorbed on the surface of an immunosensor using conventional fluorophores**	**Universidad Autónoma de la Ciudad de México - Mexico**
	A048	**Gaby Fabiana Martínez**	**Microscopic characterization of the impact of the stiffness of the Extracellular Matrix on axonal βII-spectrin levels and organization.**	**Instituto de Investigaciones Biológicas Clemente Estable - Uruguay**
	A049	**Jorge Toledo**	**Integrated Methods for Comprehensive Mapping of Densely Packed Mast Cell Granules: Expansion Microscopy and Mean-Shift Super Resolution (MSSR)**	**Red de Equipamiento Cientifico Avanzado REDECA, Universidad de Chile - Chile**
	A050	**Florencia Daniela Choque**	**Monitoring molecular motors with high spatiotemporal precision using pulsed MINFLUX**	**Center for Bionanoscience Research (CIBION), University of Buenos Aires (UBA) - Argentina**
	A051	**Claudia Sánchez-Cárdenas**	**Simultaneous High-Resolution Live Imaging of Cytoplasmic and Intracellular Calcium Store Dynamics in Progesterone-Induced Capacitated Mouse Sperm**	**Instituto de Biotecnología (IBT), Universidad Nacional Autónoma de México (UNAM) - Mexico**
	A052	**Blanca Maria Salas López**	**Exploring the immune and DNA repair spatial status of multi-stage glial tumors**	**National Autonomous University of Mexico (UNAM) - Mexico**
	A053	**Diego Delgado**	**Refining Morphogenetic Protein Visualization in Neurospora crassa Using Fluorescence Nanoscopy and Nanoscopic Deconvolution**	**Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE) - Mexico**
	A054	**Hugo Javier Velazquez Castillo**	**Study and Characterization of Quantum Dots for the Theragnosis of Triple-Negative Breast Cancer**	**Centro de Investigación Científica y de Educación Superior de Ensenada (CICESE) - Mexico**

Bold: Accepted and confirmed abstract to present. Italic: unconfirmed abstracts. Asterisk: oral talk.