National Heart, Lung, and Blood Institute

كلية العلوم التطبيقية
FACULTE DES SCIENCES APPLIQUEES

MILLER SCHOOL of MEDICINE
MIAMI

Faculty of Applied Sciences Ait Melloul organizes: The first edition of the

18 April

—INTERNATIONAL CONFERENCE ON—

Biomaterials, Biomedical and Bioinformatic

2026

Eminent Speakers

Pr. Rachid LATIF

Laboratoire Ingénierie Systèmes & Technologies de l'Information – LISTI
Expert auprès du CNRST – Maroc

Dr. Warif Abdelhamid El-yakoubi

Cell and Developmental Biology Center, National Heart Lung and Blood Institute, National Institutes of Health, Bethesda, MD, United States.

Pr. Omar El Hiba

Faculty of Sciences, Chouaib Dokkali University
Miller School of Medecine, University of Miami, USA

Coordinators

Essediq Youssef EL-YAKOUBI | Said ALAHIANE | Azzedine DLIOU

Abdelaziz EL AAMRANI | Moulay Abdelmonaim EL HIDAN

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Faculty of Applied Sciences Ait Melloul (Conference Room Bloc F)

Overview and key goals

The International Conference on Biomaterials, Medical Sciences and Informatics (***ICB2MI 2026***) will be held on **18/04/2026** at the **Faculty of Applied Sciences of Aït Melloul, Morocco**. The conference aims to provide an international platform for scientific exchange and interdisciplinary collaboration in the fields of **Biomaterials**, **Biomedical** sciences, and **Bioinformatics**.

ICB2MI 2026 will bring together researchers, academics, healthcare professionals, engineers, and industry experts from Morocco and abroad to present and discuss recent advances, emerging technologies, and current challenges in biomedical materials, medical applications, and computational approaches in life and health sciences.

The scientific program will highlight multidisciplinary and data-driven approaches addressing key biomedical challenges, including innovative biomaterials, medical technologies, and bioinformatics tools for healthcare and precision medicine. Through keynote lectures, oral and poster presentations, the conference seeks to foster international collaboration and strengthen research partnerships.

The international scientific community is cordially invited to participate in ***ICB2MI 2026*** and contribute to advancing research and innovation in Biomaterials, Biomedical sciences, and Bioinformatics.

Tracks

Biomaterials and Tissue Engineering	Artificial Intelligence in Healthcare
Medical Technologies and Biomedical Devices	Precision and Personalized Medicine
Nanomaterials for Biomedical Applications	Biomedical Imaging and Diagnostics
Bioinformatics and Computational Biology	Drug Delivery Systems and Therapeutic Materials

Scientific Committee

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Ali KHALAL (FSJES – Agadir)	Mustapha AGNAOU (FSA-Ait Melloul)
Azzedine DLIOU (FSA-Ait Melloul)	Mustapha ALAHIANE (FSA – Agadir)
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Mohammed KHENFOUCH (FSA – Ait Melloul)	Warif Abdelhamid EL-YAKOUBI (NIH-Bethesda)
Moulay Abdeljalil Ait BAAMRANE (FSA – Ait Melloul)	Yahya TOUBI (ESEF – Ait Melloul)

Organizing Committee

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Program

Saturday April 18th 2026	**Registration**	**08h30→ 09h00**
	Opening ceremony **(President's message, Dean's message, Organizating committee)**	**09h00 → 09h30**
	Plenary session **1st conference : An innovative e-health system incorporating an on-board camera module, designed for the smart, contactless, real-time monitoring of patients' vital signs in a clinical setting.** **Pr. Rachid LATIF**	**09h30 → 10h15**
	Poster session / Coffee Break	**10h15 → 10h45**
	the next Plenary session **2nd conference : Neuroinflammation and associated cognitive dysfunctions in hepatic encephalopathy: Clinical and experimental evidences.** **Pr. Omar EL HIBA**	**10h45 → 11h30**
	3rd conference : Centromere stretching in oocytes is a reproductive isolating barrier in mice **Dr. Warif Abdelhamid EL-YAKOUBI**	**11h30 → 12h15**
	Poster session / Lunch	**12h30 → 14h30**
	Session I : BioMaterials	**14h30 → 17h30**
	Session II : BioMedical	
	Session III : BioInformatique	
	Awards ceremony and closing	**17h30 → 18h00**

1st Conference

An innovative e-health system incorporating an on-board camera module, designed for the smart, contactless, real-time monitoring of patients' vital signs in a clinical setting.

This research project proposes an innovative e-health system designed for the intelligent monitoring of patients in clinical settings, based on the integration of on-board cameras and non-invasive sensors. It falls within the scope of telemedicine, aiming to enable the continuous, remote acquisition of physiological parameters. The solution relies on advanced vision, image processing and signal processing techniques to extract vital signs without direct contact, such as heart rate, respiratory rate, blood oxygen saturation (SpO2), blood pressure and body temperature. These approaches make use of remote photoplethysmography and the analysis of light variations captured by the cameras. The system also incorporates artificial intelligence algorithms to filter out noise, compensate for movement and improve the accuracy of real-time measurements. It provides continuous, automated monitoring, facilitating the early detection of physiological abnormalities and clinical decision-making. The embedded architecture includes a secure communication platform for transmitting data to healthcare professionals at the University Hospital. The proposed system offers significant benefits in terms of patient comfort, reduced risk of infection and optimized care, particularly in critical or infectious care settings.

Pr. Rachid LATIF

2nd Conference

Neuroinflammation and associated cognitive dysfunctions in hepatic encephalopathy: Clinical and experimental evidences

Hepatic encephalopathy (HE) is one of the most disabling metabolic diseases associated with major neuropsychological condition that occurs as a result of impaired liver function. Epidemiological data sustain the presence of HE in up to 80% of patients with liver diseases. Patients with HE episodes display a large spectrum of neurological disturbances, ranging from subclinical manifestations to hepatic coma. Cognitive dysfunctions, particularly memory, are known to occur in HE patients with correlation to the liver disease status. Here we describe the latest evidences of memory impairments in HE and we shed light on the role of inflammation and ammonia based on recent finding from clinical and experimental investigations. We will demonstrate, as well, the importance of animal modeling of HE pathology through two particular animal models of acute and chronic HE.

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Pr. Omar EL HIBA

3rd Conference

Centromere stretching in oocytes is a reproductive isolating barrier in mice

Reproductive isolation occurs when two populations accumulate genetic incompatibilities that prevent their interbreeding, resulting in the production of sterile or inviable hybrids. Molecular mechanisms of hybrid incompatibility are largely unknown especially for hybrid female sterility. Here we provide the first cell biological mechanism underlying fertility issues in hybrid females, using hybrid mice between *Mus musculus domesticus* (*domesticus*) and *Mus spretus* (*spretus*). *domesticus* x *spretus* hybrid females have reduced fertility due to chromosome mis-segregation in meiosis I, producing aneuploid eggs. This mis-segregation was caused by chromosome condensation defects, especially impacting *domesticus* centromeres. Decondensed *domesticus* centromeres were stretched upon microtubule tension and more prone to mis-attachments. Hybrid oocytes had reduced condensin II levels on the chromosome compared to *domesticus* oocytes. The expanded major satellite DNA at *domesticus* centromeres further reduced condensin II levels via Topoisomerase IIa (TOP2a), explaining why condensation defects were most prominent at *domesticus* centromeres. Interestingly, pure *spretus* oocytes showed low condensin II levels on the chromosome like hybrid oocytes. This similarity between hybrid and *spretus* oocytes implies that hybrids inherited this reduced condensin II trait from *spretus*, leading to stretching *domesticus* centromeres in hybrid oocytes. Importantly, even though *spretus* oocytes have lower condensin II levels, their centromeres were not stretched, probably because *spretus* centromeres have few major satellites, which is the chromosome region prone to stretching. In contrast, *domesticus* oocytes enrich higher levels of condensin II to prevent major satellite stretching. As a result, hybrid oocytes inherit the reduced condensin II trait from *spretus* and major satellites from *domesticus*, and we propose that this combination is what causes major satellites to stretch, leading to mis-segregation and reduced fertility. Further analysis on condensin II in other mouse species implies a co-evolution of major satellite copy number and condensin II levels on the chromosome, supporting our model. Altogether, our work reveled that species divergence in centromeres and condensin regulations can establish a reproductive isolating barrier in mice.

Dr. Warif Abdelhamid EL-YAKOUBI

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Oral Presentations

Sessions I : BioMaterials

Moderators :

Pr. E.Y. EL-YAKOUBI Pr. A. EL AAMRANI Pr. S. ALAHIANE

14h00 ↓ 17h45

- **14h30 → 14h45 : Manal CHANA-YOURAF**
  Design and application of MOFs as catalysts and photocatalysts in organic synthesis.
- **14h45 → 15h00 : Yassine ELKAHOUI**
  Integrated RSM–ANN Modeling for the Comparative Optimization of $SnFe_2O_4$/g-C_3N_4-Based Photo-Fenton Degradation of Brilliant Cresyl Blue.
- **15h00 → 15h15 : Mustapha ALAHIANE**
  Expired Dopamine as an Ecofriendly Corrosion Inhibitor for 316L Stainless Steel in 0.5 M HCl: Experimental and Theoretical Studies.
- **15h15 → 15h30 : Abdelhadi EL JADID**
  Caractérisation de matériaux biocomposites en vue de l'élimination de polluants organiques en milieu aqueux.
- **15h30 → 15h45 : Aboubaker JIAR**
  Molecular Docking-Guided Synthesis of Quinazolinone Derivatives for the Development of EGFR Inhibitors.
- **15h45 → 16h00 : Hamza BAH**
  Design, Synthesis, and Computational Assessment of a New 1,2,3-Triazole-Based Compound for Potential Application in Breast Cancer Treatment.
- **16h00 → 16h15 : Mobarek DIB**
  3D Permalloy-Based Biomaterials for Biomedical Applications Supported by Hilbert Signal Analysis.
- **16h15 → 16h30 : Nadia LECHGUER**
  First-Principles Investigation of Lead-Free Double Perovskite $K_2AgInBr_6$ for Biomedical Transducer Applications.
- **16h30 → 16h45 : Rachid LAMINE**
  Experimental investigation of a sustainable plant extract as a low-cost inhibitor of calcium carbonate scaling in hard water.
- **16h45 → 17h00 : Mossab OUBLAL**
  Exploring Lead-Free Double Perovskites as Safe Optoelectronic Biomaterials for Biomedical Applications: A First-Principles Investigation.
- **17h00 → 17h15 : Soukayna MAITHOUF**
  Comparative study of ANN-GA and ANN-PSO to optimize the adsorption of Reactive Red 198 dye onto CeO2 nanoparticles
- **17h15 → 17h30 : Omar OUZAGUINE**
  Design, synthesis, and photocatalytic evaluation of BV@ZT for organic pollutant degradation
- **17h30 → 17h45 : Mohammed ID ELAMEL**
  Structural Analysis of Y1-xSmxBaSrCu3O6+z and Evolution of Lattice Parameters Under Heat Treatments

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Oral Presentations

Sessions II : BioMedical

Moderators :

Pr. M.A. AIT BAAMRANE **Pr. M. Alouani** **Pr. M.A. EL HIDAN**

14h30 ↓ 17h45

- **14h30 → 14h45 : Khadija KARIM**
  Biochemical Characterization of Glycosaminoglycans in Mucopolysaccharidoses: Semi-Qualitative and Quantitative Approaches
- **14h45→ 15h00 : Zineb OUGHRISS**
  Bioactive Profile and Antioxidant Properties of Actinia equina Aqueous Extract: Perspectives for Preventive Health Applications
- **15h00 → 15h15 : Adil EL HOUSSEINI**
  Scorpion Envenomation and Human Health: Pathophysiological Mechanisms and Clinical Implications
- **15h15 → 15h30 : Youssef EL JOUD**
  Impact of Temperature and Threat Perception on Venom Toxicity: Linking Climate Factors to Scorpion Envenomation Severity
- **15h30 → 15h45: Maryam OUHEDDOU**
  Microplastic Contamination in Moroccan Food Products: Occurrence in Fish and Table Salt and Potential Effects on Human Health.
- **15h45 → 16h00 : Nour.eddine LAARAJ**
  Microplastic Contamination in Central Moroccan Freshwater Reservoirs Case of Abdelmoumen and Youssef Ben Tachfine Dams and Potential Implications for Human Health
- **16h00 → 16h15 : Manar AZZI**
  Valorization of Insect Farming By-Products as a Sustainable Source of Chitin and Chitosan: Linking Purity, Structure and Functional Potential
- **16h15 → 16h30 : El Houssain MAROUANI**
  Knowledge and Preparedness of Healthcare Professionals in Managing Snakebite Envenomation in Ouarzazate, Morocco: Identifying Gaps and Clinical Challenges Through a Cross-Sectional Study
- **16h30 → 16h45 : Hayat BOUIGHAJD**
  Environmental Risk Factors for Gliomas in Marrakech-Safi: An Integrated Epidemiological Approach
- **16h45 → 17h00 : Fatima Ezahra MOUAS**
  Profile of socio-economic and clinical characteristics of breast cancer patients: a cross-sectional and retrospective study in Southern Morocco.
- **17h00 → 17h15 : Ahmed KHADRA**
  Assessment of the Cyto-genotoxic Effects of Selected Medicinal Plants Used in Traditional Pediatric Medicine.
- **17h15 → 17h30 : Hiba ENNOURI**
  Optimization of PCR reaction conditions for targeted amplification of IDS gene exon IX in Hunter Syndrome
- **17h30 → 17h45 Mehdi Ait LAARADIA**
  Evaluation of in vivo anticancer immune response of *Buthus lienhardi* scorpion venom against P815 tumor growth in Dba/2 mouse model

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Oral Presentations

Sessions III : BioInformatic

Moderators :

Pr. A. SADDIK Pr. Z. KHADIRI Pr. A. DLIOU

14h30 ↓ 17h45

- **14h30 → 14h45 : Saad eddine ALBOURINE**
  Efficient deep learning model for robust ECG arrhythmia classification with edge deployment constraints
- **14h45 → 15h00 : Hanane ELFERDAOUSSI**
  An Architectural Perspective on Real-Time ECG Processing for Embedded Systems
- **15h00 → 15h15 : Nisrine ZALIGA**
  The use of a progressive learning residual network for EEG denoising
- **15h15 → 15h30 : Fatima-ezahrae BELKADI**
  Optimal Wavelet Denoising with Adaptive Thresholding for EMG Signals During Physical Activities
- **15h30 → 15h45 : JAMAL ISKNAN**
  Comparative Denoising of Phonocardiogram Signals Using VMD, MVMD, and Dynamic STVMD
- **15h45 → 16h00 : Ilyas AIT ICHOU**
  Automated Detection of Cardiac Abnormalities via Multimodal Deep Learning: A Lightweight Hybrid Architecture for PCG Signal Analysis
- **16h00 → 16h15 : Majdouline AIT ABDELALI**
  Towards Accessible Dermatological AI: Comparative Evaluation of ML and Lightweight CNN Models for Skin Lesion Diagnosis
- **16h15 → 16h30 : Bouthaina ADAALI**
  Artificial Intelligence and Embedded Systems in Healthcare: Opportunities, Challenges and Future Directions
- **16h30 → 16h45 : Mariam IHARDI**
  Real-Time Non-Contact Fatigue and Stress Detection for Human-Centric Smart Manufacturing : A Step Towards Operator 5.0
- **16h45 → 17h00 : Houda EL FISSI**
  Molecular insights into Moroccan patients with MPS I and IIIA: detection of common mutations and novel polymorphisms
- **17h00 → 17h15 : Hanane AMEZIANE**
  Preliminary Molecular Analysis of the GALNS Gene in Moroccan Patients with Suspected Morquio A syndrome
- **17h15→ 17h30 : Ezaddine IRROU**
  Functionalized Aromatic Sulfones Derived from 1,4-benzothiazine-3-one-1,1-dioxide: Synthesis, Structural Characterization and In Silico Investigationagainst SARS-CoV-2 Targets

Liste of Poster

Dr	Title
Manal CHANA-YOURAF	Engineering Metal–Organic Frameworks (MOFs) for Catalysis and Photocatalysis in Organic Synthesis
Rachid LAMINE	Experimental evaluation of a plant-derived green inhibitor for controlling calcium carbonate scaling in hard water.
Mobarek DIB	Enhancing Biomedical Magnetic Diagnostics with Hilbert-Processed Permalloy Sensor Technologies.
Yassine ELKAHOUI	$SnFe_2O_4$ Nanoparticles: Experimental Characterization and DFT Study of Electronic Properties
Mossab OUBLAL	Structural, Electronic, Optical, and Thermoelectric Properties of Biomaterial-Inspired Hybrid Perovskites: A Comprehensive DFT Analysis.
Nadia LECHGUER	DFT Study of Lead-Free Double Perovskite for Biosensor Applications in Biomedicine.
Adil EL HOUSSEINI	Environmental modulation of scorpion venom: Effects of temperature and diet revealed by MALDI-TOF profiling.
Lahoucine AMIRI	Study of the Structural, Optical, and Electrical Characteristics of Kesterite Cu_2ZnSnS_4 Thin Films.
Soukayna MAITHOUF	Advanced AI-Based Classification and ANN Prediction Model for Reactive Red 198 Adsorption.
Mohamed BAHOUCH	Mechanisms and Performance of Eco-Friendly Adsorbents in Heavy Metal Removal from Wastewater
Manal KHANOUCHI	Behavioral alterations in an experimental model of chronic hepatic encephalopathy: contribution of microglial activation and hyperammonemia.
Reda MZOURA	The effect of anti-neuropilin antibodies on tumor progression in preclinical in vivo models.
Imade ARMADI	3D chitosan-based wound dressings: design, characterization and biomedical applications
Maryam BOUSAID	Chitin: A versatile biopolymer from extraction to advanced applications
Zineb BOURICH	ATP7B Gene Variability in Moroccan Patients with Wilson Disease: Implications for Copper Metabolism Disorder Diagnosis
Naima SAMI	Revolutionizing Medical Imaging with Deep Neural Networks
Zaineb OUGHRISS	Integrated Biomarkers of Oxidative and Neurotoxic Stress in Anthropized Coastal Areas: Implications for Environmental Health and Biological Risk
Youssef MOUKHLESS	Design, preparation, and electrochemical analysis of electrodematerial for aqueous lithium-ion batteries.

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