"Mechanobiology of Physiological Systems"

FINAL PROGRAM

Day 1 20/05/2022

9:00-9:15 OPENING Félix Viana

09:15 – 10:15 ***** EMBO LECTURE ***** **Gary Lewin**
Max Delbrück Center, Berlin (Germany)
Ion channels and tethers for touch

MECHANOSENSORY CHANNELS (Chair Félix Viana)

10:15 – 10:45 TALK **Francisco Taberner**
Instituto de Neurociencias UMH-CSIC, Alicante (Spain)
The Role of the Distal Blade in Piezo Channel Function

10:45 – 11:00 SHORT TALK **Jorge Fernández-Trillo**
Instituto de Neurociencias UMH-CSIC, Alicante (Spain)
Defining the Role of Piezo2 in MRGPRD Nociceptors and Mechanical Pain

11:00 – 12:00 COFFEE BREAK & POSTER SESSION

12:00 – 12:45 TALK **Rachel Miller**
Rush University Medical Center, Chicago, (USA)
Targeting Piezo2 for Joint Pain

12:45 – 13:00 SHORT TALK **Francesco Gianoli**
The Rockefeller University, New York, (USA)
Controlling proximity to criticality in an active mechanosensor: a role for lipid-bilayer forces on mechanosensitive channels

13:00 – 14:30 LUNCH BREAK

MECHANOSENSORY CIRCUITS (Chair Stefan Lechner)

14:30 – 15:00 TALK **Emmanuel Bourinet**
Institute of Functional Genomics, Montpellier (France)
Mechanosensitivity of human DRG neurons

15:00 – 15:30 TALK **Augusto Escalante**
Instituto de Neurociencias UMH-CSIC, Alicante (Spain)
Spinal circuits for mechanical itch in mice and humans

15:30 – 16:00 TALK **Guillaume Sandoz**
Université Cote d'Azur, Nice (France)
Switching Pain On and Off with Light via Optical Control of Endogenous K2P Channels

16:00 – 17:00 COFFEE BREAK & Poster Session

17:00 – 17:15 SHORT TALK **Rebecca Dinnendahl**
University Hospital Cologne, Cologne (Germany)
Lipedema as neglected mechanosensitive pain disorder

17:15 – 17:30 SHORT TALK **Athanasios Balomenos**
Max Delbrück Center for Molecular Medicine, Berlin (Germany)
Anterior olfactory nucleus: an intrinsically mechanosensitive relay for olfaction

17:30 – 18:30 **KEYNOTE TALK** **Pere Roca-Cusachs**
University of Barcelona, Barcelona (Spain)
Understanding and controlling mechanotransduction from integrins to the nucleus

20:00 **WELCOME COCKTAIL (at hotel)**

Day 2 21/05/2026

9:00-10:00 **KEYNOTE TALK** **Yanlan Mao**
University College, London (United Kingdom)
Coping with mechanical stress: tissue dynamics during development, homeostasis and repair

ADVANCES IN MECHANOBIOLOGY TECHNIQUES (Chair Francisco Taberner)

10:00 – 10:30 TALK **Stefan Lechner**
Universitätsklinikum Hamburg-Eppendorf, Hamburg (Germany)
Mechanotransduction at the nanoscale: Insights from 3D-MINFLUX nanoscopy

10:30 – 11:00 COFFEE BREAK

11:00 – 11:30 (ONLINE TALK) **Jody Rosenblatt**
King's College, London (United Kingdom)
When cells lose their spark: a tale of two extrusions

11:30 – 12:00 TALK **Vera Moiseenkova-Bell**
University of Pennsylvania, Philadelphia (USA)
Visualization of lysosomal membrane proteins by cryo electron tomography

12:00-12:15 SHORT TALK **Maria Giustina Rotordam**
Nanion Technologies GmbH, Munich (Germany)
Scaling mechanotransduction: a high-throughput patch clamp approach to study Piezo1 pharmacology

12:15-12:30 SHORT TALK **Sergio Sarrió-Ferrandez**
Instituto de Neurociencias UMH-CSIC, Alicante (Spain)
Tools for Piezo Characterization: From Whole-Cell Poking to Single-Channel Membrane Stretch

12:45 Group photo

13:00 – 14:30 LUNCH BREAK

MECHANOBIOLOGY IN NEURAL DEVELOPMENT (Chair Medha Pathak)

14:30 – 15:00 TALK **Laurent Nguyen**
University of Liege, Liege (Belgium)
Mechanical signaling in cortical interneuron migration in the forebrain

15:00 – 15:30 TALK **Kristian Franze**
Friedrich-Alexander University, Erlangen (Germany)
The chemo-mechanical regulation of brain development

15:30 – 16:00 TALK **Victor Borrell**
Instituto de Neurociencias UMH-CSIC, Alicante (Spain)
Mechanics and neural stem cells in cerebral cortex folding

16:00 – 16:30 TALK **Katherine Long**
King's College, London (United Kingdom)
How the extracellular matrix shapes the developing human brain

16:30 - 17:30 COFFEE BREAK & Poster Session

17:30 – 18:30 **KEYNOTE TALK** **Marcos Sotomayor**
University of Chicago, Chicago (USA)
Mechanosensitive cadherins, ion channels, and lipid scramblases in sound perception, brain wiring, and gut morphogenesis

Day 3 22/05/2026

09:00 – 10:00 **KEYNOTE TALK** **Medha Pathak**
University of California, Irvine (USA)
Molecular Choreography of Piezo1 in Development and Repair

MORPHOGENESIS AND WOUND HEALING (Chair Adele Faucherre)

10:00 – 10:30 TALK **Marisa Karow**
Friedrich-Alexander University, Erlangen (Germany)
Mechanical impact on neural stem cell lineage decisions in human brain organoids

10:30 – 11:30 **COFFEE BREAK & Poster Session**

11:30-12:00 TALK **José C. Pastor-Pareja**
Institute of Neurosciences CSIC-UMH, Alicante, Spain
Typical and atypical basement membranes: secretion, assembly and mechanical roles

12:00 – 12:15 SHORT TALK **Pablo Vicente-Munuera**
University College London, London (UK)
Theoretical exploration of purse string efficiency during wound healing in 3D

12:15 – 12:30 SHORT TALK **Carlos Pardo Pastor**
Universitat Pompeu Fabra, Barcelona (Spain)
Piezo1 balances focal and reticular adhesions to ensure clathrin mediated endocytosis

13:00 – 14:30 LUNCH BREAK

MECHANOBIOLOGY IN THE CARDIOVASCULAR AND REPRODUCTIVE SYSTEM (Chair Ana Gomis)

14:30 – 15:00 TALK **Adèle Faucherre**
Institute of Functional Genomics, Montpellier (France)
Piezo1 and mechanotransduction in cardiac development and disease

15:00 – 15:30 TALK **María Teresa Pérez García**
University of Valladolid, Valladolid (Spain)
Integrating Ion Channel Regulation into the Mechanobiology of Vascular Stiffness: the Role of Kv1.3

15:30 – 16:00 TALK **Mireia Pampols-Perez**
Max Delbrück Center, Berlin (Germany)
Mechanosensitive PIEZO2 channels shape coronary artery development

16:00 – 16:15 SHORT TALK **Victor Bernard**
Institute of Functional Genomics, Montpellier (France)
Crip2, a new mechanotransducer involved in cardiac development

16:15 – 16:45 TALK **Stephanie Möllmert**
Max Planck Institute for the Science of Light, Division Cell Physics, Erlangen (Germany)
Segment- and Cycle-Resolved Mechanics of the Murine Oviduct Define a Dynamic Transport Microenvironment

16:30-17:30 COFFEE BREAK

17:30 – 18:30 **KEYNOTE TALK** **Ellen Lumpkin**
University of California Berkeley, Berkeley (USA)
Voltage-gated sodium channels in touch and mechanical pain

18:30 – 19:00 GENERAL DISCUSSION

20:00 **Closure Dinner (at hotel)**

MECHANO BIOLOGY CONFERENCE-2026
ALICANTE (SPAIN) MAY 20-22

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