

7TH INTERNATIONAL IBERIAN BIOPHYSICS CONGRESS

14 - 16
JUNE 2021

Coimbra | Portugal

Organized by the Portuguese
and Spanish Biophysical Societies

iibc2020.organideia.pt

14 June 2021, Room 1

Please note that time refers to the time zone of Continental Portugal (GMT 0)

11:30 **Welcome**

12:00 Plenary lecture I: **Miguel Castanho** (IMM/FMUL, Lisboa, PT)

Pursuing innovative peptide drugs with biophysical approaches: why, what, what for?

13:00 Lunch

14:15 Symposium 1 – **New and Notable**

Chairs: José Mancheno (CSIC, Madrid, ES) and Manuel Prieto (IST, Lisboa, PT)

14:20 **IC: Bruno Correia** (EPFL, Lausanne, CH)

Expanding the landscape of functional proteins by computational design

14:45 **IC: Iban Ubarretxena** (Univ. del Pais Vasco, ES)

A tale of two DNA polymerases

15:10 **IC: Mariana Pinho** (ITQB Nova-Oeiras, PT)

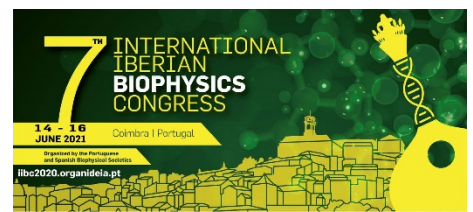
The geometry of cell division of the bacterial pathogen Staphylococcus

15:35 **IC: Pau Gorostiza** (IBEC, Barcelona, ES)

Electrochemically gated charge transport in redox proteins and photosynthetic complexes

16:00 Coffee break

14 June 2021, Room 1



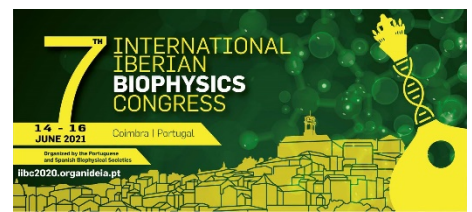
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Symposium 2 – **Biophysics in Health**

Chairs: Jesús Pérez-Gil (UCM, Madrid, ES) and Nuno Santos (IMM/FMUL, Lisboa, PT)

- 16:15 **IC: João Nuno Moreira** (CNC/FFUC, Coimbra, PT)
Peptide-targeted pegylated pH-sensitive liposomes for in vivo tumor drug delivery
- 16:40 **SC: Lorena Redondo-Morata** (INSERM/Institut Pasteur de Lille, FR)
Nano- and microscale characterization of patient-derived xenograft models of lung cancer
- 16:55 **SC: Diogo A. Pereira** (UC - Coimbra, PT)
Controlled release of macromolecules with photoacoustic waves
- 17:10 **IC: Asia Carvajal** (IDiBE/UMH, Elche, ES)
Modulation of TRPV1 channels: from bench to bedside
- 17:35 **SC: Ines Martinez-Martin** (CNIC - Madrid, ES)
Crystallographic structures of titin immunoglobulin-like I21 domains involved in dilated cardiomyopathy
- 17:50 **SC: Diogo A. Mendonça** (IMM/FMUL - Lisboa, PT)
Novel peptide-porphyrin conjugates efficiently translocate a cellular model of the blood-brain barrier and inactivate ZIKV in vitro
- 18:05 **2 min poster presentations** (Groups **S2A** and **S2B**)

15 June 2021 – Morning, Room 1



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Symposium 3 – **Protein Structure, Dynamics and Function**

Chairs: Eurico Cabrita (REQUIMTE, Lisboa, PT) and Milagros Medina (U Zaragoza, ES)

- 9:00 **IC: Pedro Matias** (ITQB Nova, Oeiras, PT)
Improving the O₂ resistance of a [NiFeSe] hydrogenase
- 9:25 **SC: Alejandra Guerra-Castellano** (icCartuja-CSIC/US - Seville, ES)
The biointeractome of phosphorylated cytochrome c in cell life and death
- 9:40 **SC: Alejandro Valbuena** (UA - Madrid, ES)
Visualization of single molecules building a viral capsid protein lattice through stochastic pathways
- 9:55 **IC: Anthony Watts** (Univ. Oxford, UK) – **Sponsored by EBSA**
The importance of water in membrane receptor function
- 10:20 Coffee break
- 10:35 **IC: Xavier Salvatella** (ICREA/IRB, Barcelona, ES)
Glutamine side chain to main chain hydrogen bonds in peptide design
- 11:00 **SC: Leonor Cruzeiro** (CCMAR/UAlg - Faro, PT)
Evidence for a generic pathway for protein folding in vivo
- 11:15 **2 min poster presentations** (Groups **S3A**, **S3B** and **S7A**)
- 12:00 Plenary lecture II: **Oscar Llorca** (CNIO, Madrid, ES)
Cryo-EM of the RUVBL1-RUVBL2 AAA-ATPase, a Multipurpose Chaperone complex
- 13:00 Lunch

15 June 2021 – Morning, Room 2



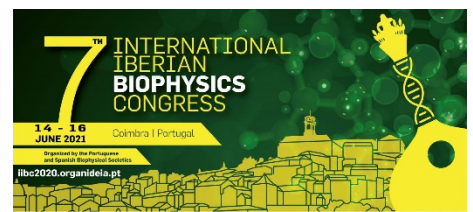
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Symposium 4 – **Nucleic Acids and Supramolecular Complexes**

Chairs: Manuela Pereira (FCUL, Lisboa, PT) and Óscar Millet (CIC bioGUNE, Bizkaia, ES)

- 9:00 **IC: José Maria Valpuesta** (CNB, Madrid, ES)
The structure of human tyrosine hydroxylase reveals the mechanism for feedback
- 9:25 **SC: Julene Madariaga-Marcos** (Universität Leipzig, DE)
Dissecting the target recognition by CRISPR/Cas effector complexes with a novel single-molecule technique
- 9:40 **SC: Álvaro de la Gándara** (CIB/CSIC - Madrid, ES)
Structural and Molecular Insights into IS21 transposition
- 9:55 **SC: Israel Serrano-Chacón** (IQFR/CSIC - Madrid, ES)
The structure of i-motif/duplex at neutral pH
- 10:10 **SC: Radek Sachl** (J. Heyrovský Institute of Physical Chemistry - Prague, CZ)
Relating in-membrane oligomerization numbers of proteins to their function
- 10:25 Coffee break
- 10:35 **IC: Francisco Enguita** (IMM/FMUL, Lisboa, PT)
Host genome dynamics during SARS-CoV-2 infection: role of long non-coding RNAs
- 11:00 **SC: Johnny Lisboa** (i3S/UP - Porto, PT)
AIP56, a single chain AB toxin with a unique structural organization
- 11:15 **2 min poster presentations** (Groups **S4A** and **S4B**)
- 12:00 Plenary lecture II: **Oscar Llorca** (CNIO, Madrid, ES)
Cryo-EM of the RUVBL1-RUVBL2 AAA-ATPase, a Multipurpose Chaperone complex
- 13:00 Lunch

15 June 2021 – Afternoon, Room 1



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Symposium 5 – Channels, Receptors and Transporters

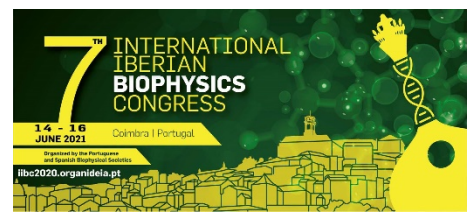
Chairs: João Cabral (IBMC, Porto, PT) and Beatriz Herguedas (BiFi, Zaragoza, ES)

- 14:30 **IC: Manuel Prieto** (iBB-IST/UL - Lisboa, PT)
Structural plasticity of the K⁺ channel KcsA pore helix and its link to the selectivity filter conformation revealed by homo-FRET methodologies
- 14:55 **SC: Igor Tascón** (Instituto Biofisika-UPV/EHU - Bilbao, ES)
Structural basis of proton-coupled potassium transport in the KUP family
- 15:10 **SC: Carmen Domene** (University of Bath, UK)
Conduction strategies in potassium channels is a family business
- 15:25 **SC: Clara Díaz-García** (iBB-IST/UL - Lisboa, PT)
Homo-FRET based monitoring of the bidirectional crosstalk during the gating of the potassium channel KcsA
- 15:40 Coffee break
- 16:15 **IC: Beatriz Herguedas** (BiFi, Zaragoza, ES)
Structural insights into the gating transitions of AMPA receptor complex
- 16:40 **SC: María Lourdes Renart** (IDiBE/UMH – Elche, ES)
Ion-binding features of the selectivity filter play a critical role on K⁺ and NaK channels selectivity and inactivation processes
- 16:55 **2 min poster presentations** (Groups **S5**, **S3C** and **S3D**)
- 18:00 Plenary lecture III: **José Feijó** (University of Maryland, USA) – **Sponsored by EBSA**
Ion selectivity and channel gating frame the molecular evolution of plant glutamate receptors

Poster Discussion (one ZOOM session for each Group)

- 19:00 Symposium 2 (Group **S2A**); Symposium 3 (Group **S3A**);
Symposium 4 (Group **S4A**); Symposium 5 (Group **S5**);
Symposium 6 (Group **S6**)
- 19:30 Symposium 2 (Group **S2B**); Symposium 3 (Group **S3B**);
Symposium 4 (Group **S4B**); Symposium 7 (Group **S7A**)

15 June 2021 – Afternoon, Room 2



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Symposium 6 – Cell Biophysics

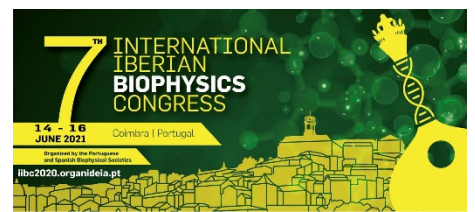
Chairs: Carlo Manzo (Univ VIC, ES) and Graça Soveral (FFUL-Lisboa, PT)

- 14:30 **IC: Jorge Alegre-Cebollada** (CNIC - Madrid, ES)
Protein nanomechanics in health and disease
- 14:55 **SC: María del Carmen Aboy Pardal** (CNIC - Madrid, ES)
Development of image analysis methods for the study of caveolae mechanoadaptation at the adipocyte plasma membrane
- 15:10 **SC: Cândida Dias** (CNC/UC – Coimbra, PT)
The role of lactate as a neuronal oxidative substrate in hippocampal slices
- 15:25 **IC: Valerie Booth** (Univ. Newfoundland, CA) – **Sponsored by EBSA**
Unravelling antimicrobial peptide mechanisms via NMR of intact bacteria
- 15:50 Coffee break
- 16:15 **IC: Eurico Morais de Sá** (i3S/UP - Porto, PT)
What we learned from fly optogenetics on the challenge of cell division to epithelial architecture
- 16:40 **SC: Adai Colom** (Biofisika Inst./Geneva Univ. – Geneva, CH)
Lipid membrane gradient tension: From static to dynamic cells
- 16:55 **2 min poster presentations** (Groups **S6**, **S2C** and **S2D**)
- 18:00 Plenary lecture III: **José Feijó** (University of Maryland, USA) – **Sponsored by EBSA**
Ion selectivity and channel gating frame the molecular evolution of plant glutamate receptors

Poster Discussion (one ZOOM session for each Group)

- 19:00 Symposium 2 (Group **S2A**); Symposium 3 (Group **S3A**);
Symposium 4 (Group **S4A**); Symposium 5 (Group **S5**);
Symposium 6 (Group **S6**)
- 19:30 Symposium 2 (Group **S2B**); Symposium 3 (Group **S3B**);
Symposium 4 (Group **S4B**); Symposium 7 (Group **S7A**)

16 June 2021 – Morning, Room 1



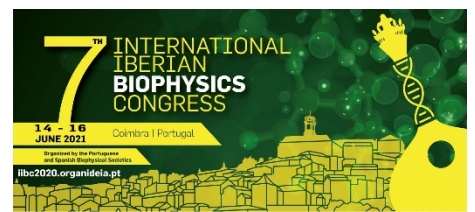
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Symposium 7 – Membrane Structure and Function

Chairs: Ismael Mingarro (Univ Valencia, ES) and Paula Gameiro (REQUIMTE, Porto, PT)

- 9:00 **IC: Cláudia Nunes** (UCIBIO, Porto, PT)
Membrane related mechanisms of action – fresh news from old drugs
- 9:25 **SC: Pablo Carravilla** (Leibniz IPHT - Jena, DE)
Real-time quantification of membrane biophysical properties using exchangeable polarity-sensitive dyes and STED super-resolution microscopy
- 9:40 **SC: Victor Lorenz-Fonfria** (UV - Valencia, ES)
A photoswitchable helical peptide with light-controllable interface/transmembrane topology in lipidic membranes
- 9:55 **IC: Ismael Mingarro** (Univ Valencia, ES)
Effect of intra-helical salt bridge formation to the insertion of transmembrane helices
- 10:20 **2 min poster presentations** (Groups **S7B** and **S7C**)
- 10:50 Coffee break
- 11:00 **Plenary lecture IV: Stefanie Krämer** (ETH-Zurich, CH)
Kinetics of in vivo and in vitro barrier permeation
- 12:00 Lunch

16 June 2021 – Morning, Room 2



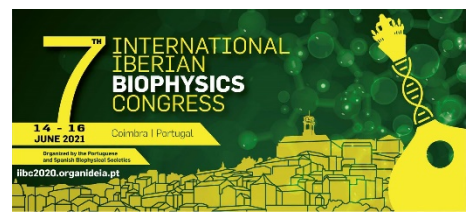
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Symposium 8 – Computational and System Biophysics

Chairs: Cláudio Soares (ITQB Nova, Oeiras, PT) and Pablo Chacón (IQFR, Madrid, ES)

- 9:00 **IC: Javier Luque** (UB - Barcelona, ES)
Decoding mechanisms of allosteric regulation: AMPK as energy sensor in the cell
- 9:25 **SC: Alexandre Oliveira** (CQC/UC - Coimbra, PT)
Modelling Gd-DOTA for molecular dynamics simulations in water and in presence of lipid bilayers
- 9:40 **SC: Irene Ruiz** (DIPC - San Sebastián, ES)
Coupled folding and binding of TAZ's partners HIF1- α and CITED2 in the hypoxic response
- 9:55 **IC: Isabel Rocha** (ITQB Nova, Oeiras, PT)
Computer-based Synthetic Biology strategies for novel Cell Factories
- 10:20 **2 min poster presentations** (Groups **S8A**, and **S8B**)
- 10:50 Coffee break
- 11:00 Plenary lecture IV: **Stefanie Krämer** (ETH-Zurich, CH)
Kinetics of in vivo and in vitro barrier permeation
- 12:00 Lunch

16 June 2021 – Afternoon, Room 1



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Poster Discussion (one ZOOM session for each Group)

13:30 Symposium 2 (Group **S2C**); Symposium 3 (Group **S3C**);
Symposium 7 (Group **S7B**); Symposium 8 (Group **S8A**);

14:00 Symposium 2 (Group **S2D**); Symposium 3 (Group **S3D**);
Symposium 7 (Group **S7C**); Symposium 8 (Group **S8B**);

14:30 Coffee break

Symposium 9 – Awards

14:50 **SPBf Jovem Biofísico**

Chairs: Nuno Santos (IMM/FMUL, Lisboa, PT) and Jesús Pérez-Gil (UCM, Madrid, ES)

IC: Ana Rita Araújo (I3Bs/Uminho – Barco, PT)

Vescalagin and castalagin reduce the Toxicity of amyloid-beta42 oligomers through the remodeling of its secondary structure

IC: Barbara Gomes (IMM/FMUL, Lisboa, PT)

Characterization of enveloped virus inhibition by 25-hydroxycholesterol at the membrane level

15:55 **The “Manuel Rico” - Bruker Prize of the SBE**

Chair: Jesús Pérez-Gil (UCM, Madrid, ES)

Plenary lecture V: **Salvador Ventura** (IB&B/UAB, Bellaterra, ES)

Fighting and exploiting amyloids

17:00 **Closing & Prizes** (Best Poster/Presentation by Young Scientists)

Posters

Symposium 2 - Biophysics in Health



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Group S2A – Diffusion and Permeation

Videos presented on 14 June 18:05, Posters discussed on 15 June 19:00

- P-S2A-1 **Alejandro Colchero** (Universidad de Barcelona, ES)
Translocation of Mesoporous silica Nanoparticles through Nanochannels
- P-S2A-2 **Artur Valente** (University of Coimbra, PT)
Effect of Hofmeister ions on transport properties of aqueous solutions of sodium hyaluronate
- P-S2A-3 **Constança Pais do Amaral** (IMM, Lisbon, PT)
Short bioactive peptides from European amphibian skin secretions
- P-S2A-4 **Deborah Aurora Perini** (Universitat Jaume I, ES)
Polystyrene nanoparticles induce permeabilization of model phospholipid membranes
- P-S2A-5 **Sónia Fangaia** (FMUC, Coimbra, PT)
Cobalt-chromium Dental Alloys: Concern about the Toxic Impact of Ions released in the Oral Cavity analyzed by Diffusion Measurements

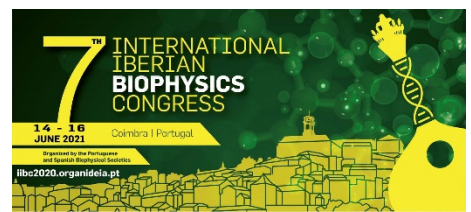
Group S2B – Drug Design I

Videos presented on 14 June 18:05, Posters discussed on 15 June 19:30

- P-S2B-1 **Carlos F.G.C. Geraldes** (Life Sciences Dept, CCC-UC, Coimbra, PT)
An Yb³⁺- DO3P tris(phosphonate) complex as a pH-responsive paraCEST agent for MRI
- P-S2B-2 **Ítala Silva** (IMM, Lisbon, PT)
Improving the anticancer activity of PaMAP1.9-conjugated star-shaped nanoparticles
- P-S2B-3 **Rui João Loureiro** (Chemistry Dept, CCC-UC, Coimbra, PT)
Non-structural protein 1 (NS1) interaction with PI3K as a target for influenza antiviral therapy
- P-S2B-4 **Susana Almeida Dias** (IMM, Lisbon, PT)
A novel viral-derived peptide with potent activity against Staphylococcus aureus in the planktonic and biofilm forms
- P-S2B-5 **Zaida L Almeida** (Chemistry Dept, CCC-UC, Coimbra, PT)
The importance of fluorine in drug design: Binding of fluorinated ligands to Transthyretin as a test case
- P-S2B-6 **Beatriz Apellaniz** (University of the Basque Country, ES)
Cholesterol-mediated conformational plasticity restrains immunogenicity and promotes membrane fusion by an HIV sequence juxtaposed to the lipid envelope

Posters

Symposium 2 - **Biophysics in Health**



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Group **S2C** – Nutrition

Videos presented on 15 June 16:55, Posters discussed on 16 June 13:30

- P-S2C-1 **Fernanda Machado** (University of Aveiro, PT)
Hypocholesterolemic potential of coffee polysaccharides: dependence on processing parameters
- P-S2C-2 **Inês Silva** (CCC-UC, Coimbra, PT)
Marine polysaccharides structural features and their influence on hypocholesterolemic function
- P-S2C-3 **Mar Collado-González** (Dept Food Science and Nutrition, University of Leeds, UK)
Synthesis and size characterization of complex polysaccharide-based nanocomposites for oral insulin delivery
- P-S2C-4 **María del Mar Collado González** (University of Leeds, UK)
Evaluation of complex polysaccharide-based nanocomposites as potential carriers for oral insulin delivery
- P-S2C-5 **Vanessa Domingues** (CiTechCare, Polytechnic of Leiria, PT)
Structural Features of Gluten and Gliadin: Implications for Celiac Disease

Group **S2D** – Drug Design II

Videos presented on 15 June 16:55, Posters discussed on 16 June 14:00

- P-S2D-1 **Ana Gomes** (LAQV-REQUIMTE, FCUP, Porto, PT)
Peptide-based therapeutics towards the treatment of skin infections: collagen boosting effect, and antibacterial and antibiofilm activity
- P-S2D-2 **Catarina S. Lopes** (IMM, Lisbon, PT)
Relevance of fibrinogen-erythrocyte binding in carotid artery disease
- P-S2D-3 **Cristiana Pires** (Chemistry Dept, CCC-UC, Coimbra, PT)
Re-use of Caco-2 monolayers in permeability assays – validation regarding cell monolayer integrity
- P-S2D-4 **Filipa D. Oliveira** (IMM, Lisbon, PT)
The cell-penetrating peptide vCPP2319 selectively targets breast cancer cells and interacts with breast cancer cells' derived exosomes
- P-S2D-5 **Maria Margarida Castro** (Chemistry Dept, CCC-UC, Coimbra, PT)
The pharmacological properties of VO(dmpp)2 as assessed by in vivo and ex vivo studies and NMR techniques
- P-S2D-6 **Marta C. Marques** (IMM, Lisbon, PT)
The potential role of GAPDH in cancer growth and metastasis

Posters

Symposium 3 - Protein Structure, Dynamics and Function

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Group S3A – Protein Structure

Videos presented on 15 June 11:15, Posters discussed on 15 June 19:00

- P-S3A-1 **Aurora Martín González** (IBBTEC, Cantabria, ES)
Molecular basis of the interaction of Human papillomavirus L2 capsid protein with Sorting nexins
- P-S3A-2 **Borja Mateos** (CIC bioGUNE, ES)
The initial protein oligomeric state dictates the effect of small cosolutes on the oligomerization reactions within the homeostatic timescale
- P-S3A-3 **Douglas Laurents** ("Rocasolano" IQFR, Spanish NRC, ES)
Glycine-rich Segments Form Polyproline II Helical Bundles and Possibly Contribute to Biological Condensates
- P-S3A-4 **Jaime Aspas Cáceres** (Universidad de Barcelona, ES)
Flavodoxin is a slow folding protein that unfolds via short-lived intermediates
- P-S3A-5 **Marina Serna** (Spanish NCR, ES)
Cryo-EM structure of the reconstituted human γ -Tubulin Ring Complex
- P-S3A-6 **Nerea Novo** (University of Zaragoza, Zaragoza, ES)
Exploring the Contribution of Highly Conserved W483 in the NADH-oxidase Activity of human Apoptosis Inducing Factor

Group S3B – Protein/Membrane Interactions

Videos presented on 15 June 11:15, Posters discussed on 15 June 19:30

- P-S3B-1 **Ana Martins** (IMM, Lisbon, PT)
Zika virus capsid protein does not bind host lipid systems
- P-S3B-2 **Manuela M. Pereira** (FCTUL, Lisbon, PT)
Exploring dihydroorotate:quinone oxidoreductase from Staphylococcus aureus
- P-S3B-3 **Miriam Isasi** (Complutense University of Madrid, ES)
Effect of glycosylation on the protein-lipid interactions of Pulmosapoin A
- P-S3B-4 **Mishelle Morán-Lalangui** (Complutense University of Madrid, ES)
Oligomerization state of pulmonary surfactant protein SP-C: Role on membrane fragmentation and alveolar uptake.
- P-S3B-5 **Ramiro Illanes Vicioso** (IBMB-CSIC, Barcelona, ES)
Strategies to stabilize fragments of a membrane protein
- P-S3B-6 **Rita F Belo** (IMM, Lisbon, PT)
Exploring the neuroprotective effect of Kyotorphin and Amidated Kyotorphin in the central nervous system – should it be so different?

Posters

Symposium 3 - Protein Structure, Dynamics and Function

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Group S3C – Protein Activation/Inhibition

Videos presented on 15 June 16:55, Posters discussed on 16 June 13:30

- P-S3C-1 **Ana María Fernández-Escamilla** (IDiBE-UMH, ES)
Zika and Dengue: Identification of new inhibitors combining computational and experimental strategies
- P-S3C-2 **Daniel Polo Megías** (University of Granada, ES)
Design, Production and Characterization of Single-Chain Proteins Mimicking of the S2 Subunit HR1 Region of SARS-CoV-2 Spike Protein as Potential Antiviral Drugs
- P-S3C-3 **Gonzalo Pérez-Mejías** (IIQ, cicCartuja, Univ Sevilla, CSIC, ES)
Exploring Protein Phosphorylation by Combining Computational Approaches and Biochemical Methods
- P-S3C-4 **Marta Martínez-Júlvez** (University of Zaragoza, ES)
Mining the flavoproteome of Brucella ovis, the brucellosis causing agent in Ovis aries
- P-S3C-5 **Martha Minjárez Sáenz** (University of Zaragoza, ES)
A promising antimicrobial target in the flavoproteome of Brucella ovis: MurB, a protein implicated in peptidoglycan synthesis.
- P-S3C-6 **Rafaela Martins** (ITQB-UNL & IMM JLA, Lisbon, PT)
Exploring a CPO-probe as selective inhibitor of Human liver GAPDH

Group S3D – Protein/Nucleic Acid Interactions

Videos presented on 15 June 16:55, Posters discussed on 16 June 14:00

- P-S3D-1 **Andrés López-Perrote** (Spanish National Cancer Research Center (CNIO), ES)
Regulation of RUVBL1-RUVBL2 AAA-ATPases by the nonsense-mediated mRNA decay factor DHX34
- P-S3D-2 **Fernando Valenzuela-Gómez** (Dept Biol Mol, IBBTEC, Univ Cantabria-CSIC, ES)
Single-molecule analysis of a conjugative protein-DNA complex by nanopore sensing reveals a preferential co-translocational unfolding pathway in bacterial conjugation
- P-S3D-3 **Francisco Balaguer Pérez** (Centro Nacional de Biotecnología, ES)
CTP binding and hydrolysis in ParB spreading and DNA condensation
- P-S3D-4 **Karolina Gmurczyk** (Centro Nacional de Biotecnología (CSIC), Madrid, ES)
Single-molecule characterization of CST complex dynamic interactions with ssDNA
- P-S3D-5 **Nelly M. Silva** (IMM, Lisbon, PT)
Studying flavivirus capsid proteins interactions with viral RNA
- P-S3D-6 **Nord Oliver** (instituto de biología molecular de Barcelona (IBMB-CSIC), ES)
Analysis of potential purification steps of a highly flexible DNA binding protein
- P-S3D-7 **Silvia Hormeño** (CNB-CSIC, ES)
Human HELB is a processive motor protein that clears RPA from singlestranded DNA



Posters

Symposium 4 - Nucleic Acids and Supramolecular Complexes

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Group S4A – Nucleic Acids

Videos presented on 15 June 11:15, Posters discussed on 15 June 19:00

- P-S4A-1 **Cristina Cabrero** (Instituto de Química Física Rocasolano (IQFR-CSIC), ES)
Structural studies on fluorine modifications at nucleic acids C2' sugar position
- P-S4A-2 **Eva María Martín Cuevas** (Centro Nacional de Biotecnología (CSIC), ES)
Structural analysis of single-stranded RNA molecules using Atomic Force Microscopy and computational methods
- P-S4A-3 **Mikel Marin-Baquero** (Centro Nacional de Biotecnología (CNB-CSIC), ES)
Characterizing single-stranded RNA molecules in AFM
- P-S4A-4 **Paolo Rissone** (Universitat de Barcelona, ES)
Stem-loop forma-on drives RNA folding in mechanical unzipping experiments

Group S4B – Supramolecular Complexes

Videos presented on 15 June 11:15, Posters discussed on 15 June 19:30

- P-S4B-1 **Carlos Fernández-Tornero** (CIB Margarita Salas, CSIC, Madrid, ES)
The crystal structure of the XPG endonuclease provides insight into nucleotide excision DNA repair
- P-S4B-2 **Daisy Paiva** (Dynamic Biosensors GmbH, DE)
heliX - a fluorescence-based biosensor for kinetics and conformational changes analysis using switchSENSE® technology
- P-S4B-3 **Cristiana Ramos** (Chemistry Dept, CCC-UC, Coimbra, PT)
Biophysical characterization of the mechanisms of transfection agents for the use of exosomes in gene therapy
- P-S4B-4 **Jaime Aspas Cáceres** (Universidad de Barcelona, ES)
Single-molecule study of RNA-protein binding interaction with force spectroscopy
- P-S4B-5 **F. Javier Medrano & Antonio Romero** (CSIC, Madrid, ES)
Model of human Galectin-3 through crystallography and SAXS



Posters

Symposium 5 - **Channels, Receptors and Transporters**

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Group S5

Videos presented on 15 June 16:55, Posters discussed on 15 June 19:00

- P-S5-1 **Armando Alberola-Die** (Universidad de Alicante, ES)
The alkaloid Peimine inhibits muscle-type nicotinic receptors
- P-S5-2 **Catarina Pimpão** (Faculty of Pharmacy, Universidade de Lisboa, PT)
Biophysical evaluation of polyoxotungstates on aquaporin-3 permeability and melanoma cell migration
- P-S5-3 **Guido Daniel Petrovich** (Universidad de Buenos Aires, AR)
Highly exposed segment of Spf1p (P5A-ATPase/ Endoplasmic reticulum transmembrane helix translocase) detected by limited proteolysis.
- P-S5-4 **Inês da Silva** (FFUL iMed_Ulisboa, PT)
Biophysical and biological characterization of pancreatic AQP7 and AQP12 as water and glycerol channels and its implication in inflammation
- P-S5-5 **Maria Queralt-Martin** (Lab Mol Biophys, Dept Phys, Univ Jaume I, ES)
Effect of electrostatic interactions in the voltage-induced closure of beta-barrel channels
- P-S5-6 **Patrícia Silva** (FMUL, Ulisboa, PT)
Effects of aquaporin-3 and aquaporin-5 silencing on pancreatic cancer cell biomechanics and cell-cell adhesion



Posters

Symposium 6 - Cell Biophysics

Please note that time refers to the time zone of Continental Portugal (GMT 0)

Group S6

Videos presented on 15 June 16:55, Posters discussed on 15 June 19:00

- P-S6-1 **Aritz García-Arribas** (Universidad del País Vasco (UPV/EHU), Leioa, ES)
Cell membrane biophysics in sphingolipid-restricted cultures
- P-S6-2 **Carla Huerta-López** (CNIC, ES)
Cell response to substrate energy dissipation supersedes rigidity sensing
- P-S6-3 **Carlo Manzo** (UVic-UCC, Vic, ES)
An anomalous competition: quantitative assessment of methods to unveil anomalous diffusion
- P-S6-4 **Juan Andres Torreño Piña** (ICFO, Institute of Photonic Sciences, Barcelona, ES)
Phase separation of tunable biomolecular condensates characterized by machine learning and predicted by an interacting particle model
- P-S6-5 **Víctor G. Almendro-Vedia** (Universidad Complutense de Madrid, Madrid, ES)
Lipid bilayers containing rotating ATP synthases behave as a driven liquid



Posters

Symposium 7 - **Membrane Structure and Function**

Please note that time refers to the time zone of Continental Portugal (GMT 0)

Group **S7A** – Membrane/Protein Interactions

Videos presented on 15 June 11:15, Posters discussed on 15 June 19:30

- P-S7A-1 **David Valdivieso González** (Universidad Complutense de Madrid, ES)
Active membrane softening of F1Fo-ATP synthase proteo-GUVs studied by microaspiration.
- P-S7A-2 **Elsa Margarida FC Loureiro** (CCC, Univ Coimbra, PT)
Preparation of Large Unilamellar Vesicles with encapsulated protein – comparison of different methodologies
- P-S7A-3 **Jose Requejo-Isidro** (Centro Nacional de Biotecnología (CNB-CSIC), ES)
Statistical Equilibrium and Partition Coefficient Determination of Reversible Protein-Membrane Association by FCS
- P-S7A-4 **Juan C. Gómez-Fernández** (Universidad de Murcia, ES)
The different binding affinity between PKC ϵ C2 domain and model membranes induces changes in the unfolding sequence and is not dependent on membrane curvature
- P-S7A-5 **Yaiza R Varela** (Instituto Biofisika (UPV/EHU, CSIC), ES)
Interaction of LC3/GABARAP autophagy protein family members with lipid bilayers



Posters

Symposium 7 - **Membrane Structure and Function**

Please note that time refers to the time zone of Continental Portugal (GMT 0)

Group **S7B** – Lipids and Small Molecules

Videos presented on 16 June 10:20, Posters discussed on 16 June 13:30

- P-S7B-1 **Ainhoa Collada Marugán** (Complutense University, ES)
Effect of household aerosols in the structure and activity of pulmonary surfactant films
- P-S7B-2 **Emilio J González Ramírez** (Inst. Biofisika, CSIC, UPV/EHU, Bilbao, ES)
Model membrane systems (lipid bilayers) containing sphingolipids and cholesterol
- P-S7B-3 **Joana Brás** (Chemistry Dept, CCC-UC, Coimbra, PT)
Synthesis of Lipophilic Gd-DOTA derivatives for use as Contrast Agents in MRI – Characterization of their Interaction with POPC Bilayers
- P-S7B-4 **Jorge Martins** (CCMAR & DCBB-FCT, Universidade do Algarve, PT)
Concentration effects of py10-PC in fluid POPC bilayers: combined fluorescence and molecular dynamics studies
- P-S7B-5 **Noemi Jiménez Rojo** (University of Geneva, CH)
Conserved function of ether lipids and sphingolipids in the early secretory pathway
- P-S7B-6 **Olga Cañadas** (Universidad Complutense, ES)
Effect of polyhydroxyalkanoate nanoparticles on pulmonary surfactant lipid films

Group **S7C** – Antibiotics

Videos presented on 16 June 10:20, Posters discussed on 16 June 14:00

- P-S7C-1 **Ana Rita Ferreira** (LAQV-REQUIMTE, FCUP, PT)
The contribution of a single tryptophan residue to the antibacterial activity and peptide-membrane interactions of a cecropin A-melittin peptide
- P-S7C-2 **Barbara Claro** (CIQUP-FCUP, PT)
Getting different biophysical techniques together to characterize Antimicrobial Cyclic Peptides and their membrane interactions
- P-S7C-3 **Margarida Bastos** (CIQUP, Dept Qui & Bioq, FCUP, PT)
Partition and action of antimicrobial D-L- α -Cyclic peptides on bacterial model membranes
- P-S7C-4 **Mariana Ferreira** (LAQV-REQUIMTE, PT)
Fluoroquinolone metalloantibiotics: fighting methicillin-resistant Staphylococcus aureus infections



Posters

Symposium 8 - Computational and System Biophysics

Please note that time refers to the time zone of Continental Portugal (GMT 0)

Group **S8A** – Proteins

Videos presented on 16 June 10:20, Posters discussed on 16 June 13:30

- P-S8A-1 **Carmen Domene** (University of Bath, UK)
Critical assessment of common force fields for molecular dynamics simulations of potassium channels
- P-S8A-2 **Hugo AL Filipe** (Chemistry Dept, CCC-UC, Coimbra, PT)
The interaction of lipases with different oil/water interfaces: using biomolecular simulations to characterize real life applications
- P-S8A-3 **Pablo Chacon** (IQFR-CSIC, ES)
Improving Protein Loop Modelling for Antibody H3-CDR loops
- P-S8A-4 **Pedro Paiva** (LAQV@REQUIMTE – FCUP, PT)
A computational study of the Fatty Acid Synthase: the catalytic mechanism of the Malonyl-Acetyl Transferase domain
- P-S8A-5 **Sergio Boneta** (University of Zaragoza, ES)
A computational approach to the hydride transfer from NADH to the human Apoptosis Inducing Factor (hAIF)
- P-S8A-6 **Zaida L Almeida** (Chemistry Dept, CCC-UC, Coimbra, PT)
FIBREAKERS: Searching for the Rules and Selection Criteria for Drug-Like Compounds that Break Amyloid Fibrils

Group **S8B** – Membranes

Videos presented on 16 June 10:20, Posters discussed on 16 June 14:00

- P-S8B-1 **Luís Borges-Araújo** (iBB-IST, Universidade de Lisboa, PT)
Acyl-chain saturation regulates the order of phosphatidylinositol 4,5-bisphosphate nanodomains
- P-S8B-2 **M.F. Valério** (ITQB-UNL, Oeiras, PT)
MD simulations reveal that at high concentrations the parainfluenza fusion peptide forms pore-like structures
- P-S8B-3 **Margarida Cordeiro** (Chemistry Dept, CCC-UC, Coimbra, PT)
Permeation of weak acids and bases through lipid bilayers – modelling and validation of a pH variation assay
- P-S8B-4 **Rui Santos** (Chemistry Dept, CCC-UC, Coimbra, PT)
Interaction of the antibiotic Rifampicin with lipid membranes: molecular dynamics simulations