

TALKS

Table of Contents

PLENARY LECTURES

Saturday 8 July

- 3 FEBS Sir Hans Krebs Lecture – Opening Plenary Lecture
- 3 FEBS Datta Lecture

Sunday 9 July

- 3 FEBS/EMBO Women in Science Award Lecture
- 4 Molecular Oncology Lecture

Monday 10 July

- 4 EMBO Lecture
- 4 The FEBS Journal Richard Perham Prize Lecture
- 5 FEBS Letters Award Lecture

Tuesday 11 July

- 5 FEBS Special Lecture
- 5 FEBS Theodor Bücher Lecture

Wednesday 12 July

- 6 FEBS Open Bio Lecture
- 6 IUBMB Lecture – Closing Plenary Lecture

SYMPOSIA

Sunday 9 July

- 6 Cancer and Aging
- 8 Protein Life Cycle I: Localization, Dynamics, Functioning
- 9 Climate Change: Biochemical CO₂ Fixation
- 11 Supramolecular Assemblies I: Signal Transduction
- 12 Biotech Solutions to Current Problems
- 14 Autophagy

Monday 10 July

- 15 Gene Expression/Epigenetics
- 17 Immunometabolism in Cancer Development and Therapy
- 18 Chemical Biology
- 20 Cell Death, and Inflammation
- 21 Supramolecular Assemblies II: RNA–Protein Complexes, Molecular Machines
- 22 Protein Life Cycle II: Degradation

Tuesday 11 July

- 24 Protein Life Cycle III: Ribosomes, Folding, Chaperones
- 25 Innate Immune Pathogen Sensing
- 26 The Exposome and Cancer
- 28 Emerging Technologies for the Future
- 29 Cell Metabolism and Stress
- 31 Host–Microbial Interactions

Wednesday 12 July

- 32 Mitochondria in Health and Disease
- 34 RNA Biology
- 36 Supramolecular Assemblies III: Metabolons, Multienzyme Complexes

SPEED TALKS

Sunday 9 July

- 37 Cancer and Aging
- 40 Autophagy
- 40 Protein Life Cycle I: Localization, Dynamics, Functioning
- 42 Molecular Basis of Disease (Excluding Cancer)
- 43 Biotech Solutions to Current Problems
- 45 Food and Nutrition in Biochemistry

Monday 10 July

- 46 Gene Expression/Epigenetics
- 47 Cell Death, and Inflammation
- 48 Supramolecular assemblies II: RNA–protein complexes, molecular machines
- 49 Protein Life Cycle II: Degradation
- 49 RNA Biology
- 50 Immunometabolism in Cancer Development and Therapy
- 51 Chemical Biology
- 51 Medicinal Biochemistry
- 52 Undergraduate Teaching/Learning
- 53 Postgraduate Teaching/Learning

Tuesday 11 July

- 53 Emerging Technologies for the Future
- 54 Neurobiochemistry (Including Neurodegenerative Diseases)
- 56 Cell Metabolism and Stress
- 56 Protein Life Cycle III: Ribosomes, Folding, Chaperones
- 57 Mitochondria in Health and Disease
- 57 Cardiovascular Diseases
- 58 Host–Microbial Interactions
- 59 Supramolecular Assemblies III: Metabolons, Multienzyme Complexes

Abstracts submitted to the 47th FEBS Congress from 8th to 12th July 2023 and accepted by the Congress Management Board are published in this Supplement of *FEBS Open Bio*. Late-breaking abstracts are not included in this supplement. The abstracts are available as two PDF files: Talks (Plenary Lectures, Symposia and Speed Talks) and Posters.

About these abstracts

Abstracts submitted to the Congress are not peer-reviewed. In addition, abstracts are published as submitted and are not copyedited prior to publication. We are unable to make corrections of any kind to the abstracts once they are published.

Indexing

Abstracts published in *FEBS Open Bio* Supplement for 47th FEBS Congress will be included individually in the Conference Proceedings Citation Index published by Web of Science.

How to cite these abstracts

AuthorOne, A., AuthorTwo, B. (2023). Abstract title. *FEBS Open Bio*, 13: Abstract number*. doi:10.1002/2211-5463.13645

* The Abstract number begins with the letters PL, SS, S or ShT and can be found atop each abstract's title in the PDF file.

of genes related to chondrogenesis and the synthesis of ECM components were carried out. In summary, this study provides an in-depth description of dECM production and bioink formulation to be used in tissue engineering for meniscus implant 3D bioprinting. This work was supported by the National Center for Research and Development TECHMATSTRATEGIII/0027/2019-00 grant.

SpT-03.1-2 Development of immuno-PCR for sensitive quantification of SARS-CoV-2 nucleocapsid protein

M. Radomirović¹, M. Bićanin¹, B. Udovički², M. Krstić Ristivojević¹, T. Đukić³, T. Vasović¹, V. Jovanović¹, D. Stanić-Vučinić¹, A. Rajković^{2,4,5}, T. Čirković Veličković^{1,4,5,6}

¹Center of Excellence for Molecular Food Sciences and Department of Biochemistry, University of Belgrade – Faculty of Chemistry, Belgrade, Serbia, ²University of Belgrade-Faculty of Agriculture, Belgrade, Serbia, ³University of Belgrade-Faculty of Medicine, Belgrade, Serbia, ⁴Ghent University Global Campus, Yeonsu-gu, Incheon, South Korea, ⁵Faculty of Bioscience Engineering, Ghent University, Ghent, Belgium, ⁶Serbian Academy of Sciences and Arts, Belgrade, Serbia

Accurately diagnosing people with suspected SARS-CoV-2 infection is essential to help manage COVID-19. Currently available SARS-CoV-2 diagnostics detect either RNA of the virus by RT-PCR or the presence of viral antigens in biological fluids by ELISA or similar techniques. Low sensitivity of antigen tests could lead to the risk of false negative results. Therefore, this study aimed to develop a highly sensitive immuno-PCR method for quantifying SARS-CoV-2 nucleocapsid (N) protein that combines the specificity of sandwich ELISA with the sensitivity of PCR. Recombinant N protein fragment was produced in *E. coli* as an expression system and purified using immobilized metal ion affinity chromatography. The antibodies against the N protein were raised in rabbits and mice. High-affinity polyclonal mice and rabbit N protein-specific antisera were purified using ammonium sulfate precipitation and used to develop sandwich ELISA for the quantification of N protein. Mice polyclonal serum was used as a capture for N protein. N protein bound to mice antibodies was detected with rabbit polyclonal sera. A double-stranded amino-DNA molecule of 77 base pairs was PCR-synthesized, covalently conjugated to a secondary goat anti-rabbit antibody and subsequently amplified and quantified by real-time PCR. The results were compared to analogous sandwich ELISA consisting of alkaline phosphatase-labeled goat anti-rabbit antibody. The sensitivity of immuno-PCR for quantification of N protein was increased by up to 7-fold compared to analogous ELISA, having a limit of detection of 92 pg/mL and a limit of quantification of 840 pg/mL. The developed immuno-PCR method thus has the potential to be used as a new antigen test for COVID-19 and beyond.

SpT-03.1-3 Bioactive natural peptides: from fighting antimicrobial resistance to anticancer opportunities

E. Imperlini¹, F. Massaro¹, F. Porcelli¹, S. Borocci¹, F. Bugli², R. Papa³, F. Buonocore¹

¹Department for Innovation in Biological, Agro-Food and Forest Systems, University of Tuscia, Viterbo, Italy, ²Dipartimento di Scienze Biotecnologiche di Base, Cliniche Intensivologiche e Perioperatorie, Università Cattolica del Sacro Cuore, Dipartimento di Scienze di Laboratorio e Infettivologiche, Fondazione Policlinico Universitario A. Gemelli IRCCS, Rome, Italy, ³Department of Public Health and Infectious Diseases, Sapienza University, Rome, Italy

Marine organisms, normally exposed to pathogens, are a promising source for bioactive peptides of biotechnological interest, whose composition, sequence and structures are different from those found in terrestrial species. Among them, antimicrobial peptides (AMPs) from fishes are highly studied due to their key role in the innate immune system of these vertebrates and their action against bacteria, viruses, yeasts and protozoa. As they show a broad spectrum of activity against multidrug resistant bacteria, AMPs could replace conventional antibiotics and slow antimicrobial resistance, that represents a global health crisis. Beyond this application, there is also a great interest towards their use as anticancer agents. Hence, we focused on a new natural AMP (chionodracine) from an Antarctic fish (*Chionodracon hamatus*) that has adapted to live in an extreme environment. Based on its scaffold, we successfully designed peptide mutants effective against ESKAPE/fungal pathogens. Previously published in: Olivieri C et al. (2018) RSC Adv 8, 41,331–41,346; Bugli F et al. (2022) Int J Mol Sci 23, 2164. As for the best active peptide mutant, we investigated its effect on bacterial virulence factors and then, the anti-biofilm activity against bacterial clinical isolates, which are the leading cause of nosocomial infections. Previously published in: Artini M et al. (2022) Int J Mol Sci 23, 13,494. Our results highlight the effect of this AMP on protease secretion. We also demonstrated that the peptide impaired biofilm development in the tested clinical strains. Moreover, a cytotoxic effect of the mutant was observed, only at the highest tested peptide concentrations, on human lung adenocarcinoma cells. The identification of AMPs that are active against human pathogens or that induce cancer cell death, but spare normal cells, may be beneficial for developing strategies to increase peptide selectivity toward specific cell targets and for understanding their mode of action.

SpT-03.1-4 Genomic and functional analysis of *Bacillus velezensis* P3.3S – a putative biocontrol agent of plant pathogens

L. Mantea¹, A. El-Sabeh¹, T. Daboudet², M. Mihasan¹, F. Krier², M. Stefan¹

¹BioActive Research Group, Faculty of Biology, Alexandru Ioan Cuza University of Iasi, 700506, Iasi, Romania, ²UMR-T 1158, BioEcoAgro, University of Lille, 59650, Lille, France

Plant diseases cause considerable losses in fruit and vegetable production during cultivation, handling, transport and storage. Therefore, increased interest was shown in recent years for the