

The Biochemistry Global Summit

25th IUBMB Congress, 46th FEBS Congress, 15th PABMB Congress

July 9–14, 2022

Lisbon, Portugal

Abstracts submitted to The Biochemistry Global Summit (25th IUBMB Congress, 46th FEBS Congress and 15th PABMB Congress) from 9th to 14th July 2022 and accepted by the Congress Organizing Committee 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 FEBS Special Sessions) 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Abstracts submitted to the Congress are **not peer-reviewed**.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 The Biochemistry Global Summit will be included individually in the Conference Proceedings Citation Index published by Web of Science.

How to cite these abstracts

AuthorOne, A., AuthorTwo, B. (2022). Abstract title. *FEBS Open Bio*, 12: Abstract number*. doi:10.1002/2211-5463.xxxxx**

* The Abstract number can be found atop each abstract's title in the PDF file.

** DOIs are as follows:

Talks:	10.1002/2211-5463.13442
Posters:	10.1002/2211-5463.13440

POSTERS

Table of Contents

POSTERS – RESEARCH

- 69 Cancer and metastasis
- 118 Neurodegeneration and regeneration
- 137 Diabetes and obesity
- 146 Cardiovascular diseases
- 153 Ageing
- 156 Host-pathogen interactions
- 167 Looking for new antibiotics
- 175 Molecular evolution
- 177 Microbial metabolism
- 185 Human microbiome
- 186 Cell division and cell cycle regulation
- 187 Apoptosis
- 191 Molecular immunology
- 201 Cell signalling

- 222 Proteins
- 267 Lipids
- 271 Saccharides
- 272 DNA and RNA
- 287 Metabolism and metabolic regulation
- 302 Food and nutrition in biochemistry
- 309 Sensors and nanotechnology
- 315 Synthetic biology
- 316 Genomics
- 321 Proteomics
- 324 Systems biology
- 326 Atomic and molecular imaging
- 327 Cellular imaging
- 328 Quantitative analysis of bioimages

POSTERS – EDUCATION

- 329 Undergraduate teaching/Learning
- 334 Postgraduate teaching/learning
- 335 Faculty development

Abstracts submitted to the virtual The Biochemistry Global Summit (25th IUBMB Congress, 46th FEBS Congress and 15th PABMB Congress) from 9th to 14th July 2022 and accepted by the Congress Organizing Committee 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 FEBS Special Sessions) 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 The Biochemistry Global Summit will be included individually in the Conference Proceedings Citation Index published by Web of Science.

How to cite these abstracts

AuthorOne, A., AuthorTwo, B. (2022). Abstract title. *FEBS Open Bio*, 12: Abstract number*. doi:10.1002/2211-5463.13440

* Each poster has been given a unique number beginning with the letter P; the next part relates to the session in which the poster will be presented (see p.68 for key).

P-01.1	Cancer and metastasis	P-04.3	Saccharides
P-01.2	Neurodegeneration and regeneration	P-04.4	DNA and RNA
P-01.3	Diabetes and obesity	P-04.5	Metabolism and metabolic regulation
P-01.4	Cardiovascular diseases	P-05.1	Food and nutrition in biochemistry
P-01.5	Ageing	P-05.2	Sensors and nanotechnology
P-02.1	Host-pathogen interactions	P-05.3	Synthetic biology
P-02.2	Looking for new antibiotics	P-06.1	Genomics
P-02.3	Molecular evolution	P-06.2	Proteomics
P-02.4	Microbial metabolism	P-06.3	Systems biology
P-02.5	Human microbiome	P-07.1	Atomic and molecular imaging
P-03.1	Cell division and cell cycle regulation	P-07.2	Cellular imaging
P-03.2	Apoptosis	P-07.3	Quantitative analysis of bioimages
P-03.3	Molecular immunology	P-E-01	Undergraduate teaching/Learning
P-03.4	Cell signalling	P-E-02	Postgraduate teaching/learning
P-04.1	Proteins	P-E-03.01	Faculty development
P-04.2	Lipids		

project mentors. An annual scientific conference is organized for schoolchildren participants. By 2022, more than 2,000 schoolchildren and their mentors have already implemented the educational program, and the program is ready to go to the international level. The study was supported by 2021-1930-FP5-8365-8981 (075-15-2021-1085) *The authors marked with an asterisk equally contributed to the work.

P-E-01-04

Digital technologies (DT): an important tool for training undergraduate students in the development of future competences and skills

B. Soares^{*1}, G. Santos², N. Bossolan^{*2}, L. Beltramini^{*2}

¹*Instituto de Física de São Carlos - Universidade de São Paulo, São Carlos, Brazil*, ²*Instituto de Física de São Carlos, São Carlos, Brazil*

DT has brought significant changes in today's society, being considered one of the competencies foreseen in basic education in the 21st century. Thus, it is important that undergraduates master the ways of using DT, aiming at its use as a tool in their pedagogical practice. The Interactive Science Space (ISS) promotes, every year, a Science Club (SC) where graduates of the Exact Sciences teacher training course (USP-São Carlos) act as tutors and are encouraged to apply science teaching practices investigation with the objective of contributing to the scientific literacy of high school students from public schools. Since 2019, we have been introducing the use of active methodologies combined with DTs in the weekly meetings of the SC with the purpose of investigating whether: 1) in the tutors' conception, these methods contributed to the use of DT in their own teaching practice; 2) Club students act more actively when encouraged to use DTs to solve proposed problems. The tutors made records in a reflective diary, with (1) notes about the expectations and challenges of their pedagogical practices in 3 meetings on the topics "Bicycle Physics", "Scratch" and "Fake News", and with (2) responses to questions about the relationship between teacher training/practice and the use of DT. The results showed: a) the tutors' planning was challenging, as it was necessary to organize investigative sequences with unknown methodologies and DTs; b) identified that there are some disciplines and activities in their curricula aimed at the use of DTs, but most with a theoretical approach; c) SC students were more active when encouraged to use TDs to solve problem situations. Tutors pointed out that it was a very good opportunity to expand their knowledge and teaching practices, but in Brazil the educational institutions are not prepared for these new paradigms. *The authors marked with an asterisk equally contributed to the work.

P-E-01-05

Reaching to aliens: teaching biochemistry in a "Food Science" context

S. Iametti, A. Barbiroli, F. Bonomi

DeFENS, Università degli Studi di Milano, Milan, Italy

Biochemistry is a mandatory topic for MS students in Food Science and in Human Nutrition at UNIMI. Students with a BS in Food Science at UNIMI have already taken basic biochemistry courses, so that new stimuli have to be provided while addressing the complexity inherent to food systems. All of this calls for: i) presenting topics that are seldom considered in courses offered in bio-medical settings; ii) a close integration with

other area disciplines; iii) a complementary array of elective courses. The mandatory MS courses focus on methodological and safety issues (such as intolerances and allergies), discussed in terms of structural features of macromolecules in the raw materials and in changes occurring upon processing. Particular attention is placed on assessing the determinants of intermolecular interactions involving various types of macromolecules (protein/protein; protein/carbohydrates; protein/lipids) and on quantitating or predicting their relevance. Additional focus is placed on the interaction of macromolecules with small food molecules (from inorganic ions to vitamins, from food additives to food-borne xenobiotics). Links to external websites are provided as an integral part of the teaching material, and additional credits may be offered for attending seminars or short courses from visiting scientists. Lab classes are an integral component of each course – covering about one fourth of total credits – and aim at providing fundamental-type information by analyzing common practical situations. For example, temperature-dependent protein unfolding is monitored by measuring the accessibility of cysteine side-chains to inexpensive colorimetric probes. In another lab activity, the role of pH and of redox events in the metabolism of micronutrients is addressed by evaluating - with simple colored chelators - the release of iron from the storage protein ferritin at various pH values and in the presence/absence of reducing agents in food, such as ascorbic acid.

P-E-01-06

How to teach male infertility diagnostic laboratories during a pandemic: a novel approach

P. O. Corda, J. Santiago, M. Fardilha

iBiMED – Institute of Biomedicine, University of Aveiro, AVEIRO, Portugal

In Laboratories in Biomedicine 5, a 3rd year class of the Biomedical Sciences bachelor (University of Aveiro), the cellular, molecular, and biochemical basis of male infertility diagnosis is addressed (Module 3; M3), usually involving 4 practical classes in the laboratory. In October 2020, due to the COVID-19 constraints, the practical classes needed to be restructured to avoid virus spread among students and staff. Thus, our main objective was to design and implement a new teaching strategy applied to M3 and to clarify if this methodology was valuable to students' learning process without compromising their safety. The 75 students attending to M3 were divided into 8 groups to reduce students' number in class. M3 was organized in 2 Wet labs (WL; laboratory training) and 2 Dry labs (DL; theoretical-practical classes). At the end of M3, students completed a satisfaction survey. Results showed that most students were satisfied with topics addressed, time dedicated outside the class, evaluation, and overall organization of WL and DL. Regarding WL, the protocols provided, and general conditions were satisfactory. Only positive classifications were attributed to the learning goals, the relevance of knowledge acquired, and opportunities to ask about evaluation. The qualitative data suggested that the dynamics, innovation, and organization of classes, allied to the knowledge and motivation of the professors, provided the appropriate learning environment. As a limitation of this study, there is a lack of data from previous years. To summarize, the methodology implemented in M3 represents a valid strategy to encourage and motivate students' learning, stimulate teamwork, communication, and autonomy in the laboratory. Preparing dynamic and attractive