FEBS openbio

Volume 12 Supplement 1 July 2022

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Abstracts submitted to the Congress are **not peer-reviewed**.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

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POSTERS

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* 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).

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and overwhelm. Even with the difficulties faced by all the academic community, we observed no major changes regarding the academic success reflected in the final grades, comparing with previous years. In our understanding the core skills proposed for these courses were acquired successfully and the digital tools used with exception for the student's evaluation, are now considered an added value and bring flexibility to the teaching-learning process. *The authors marked with an asterisk equally contributed to the work.

P-E-01-10
The use of tactile models for the teaching of biomolecules

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Tactile models that represent molecular structures have been used in science teaching and, as demonstrated by research in the area, facilitate the learning of topics that demand molecular abstraction. Our scientific education group developed strategies and teaching materials as 3-D models representing structures of biomolecules (nucleic acids, amino acids and proteins) to teach this subject to biology teachers. The course offered in 2019 was attended by 38 high school teachers, among whom a survey was carried out regarding their impressions about the use of tactile models for teaching and learning biomolecules. The models were used within a problematizing didactic sequence, which was also applied by the teachers with their students. At the end, teachers were asked about the use of tactile models in their own learning and in that of their students. Seventeen teachers stated that the use of tactile models for assembling molecules brought benefits in the learning of the contents, attributed to the following beliefs: the activation of the senses (handling and visualization) was a facilitator for the understanding of the structure of biomolecules; the use of models motivates the user to learn. These and other impressions collected in the courses offered by our group over the last 17 years motivated a previous research (Silva and Bossolan, 2019), which evaluated the contribution of these tactile models to the elaboration of mental representations about proteins with undergraduate students, under the Johnson-Laird's mental models theory. This study identified that the use of tactile models promoted the construction of more sophisticated protein models, besides the capacity to predict the functional loss of the protein from changes in its structure. We therefore intend to include in our teacher training courses a discussion about how individual mental models are formed and which didactic strategies collaborate with their formation and/or expansion. *The authors marked with an asterisk equally contributed to the work.

P-E-01-11
Protocol for evaluation of DNA damage – a transfer of knowledge from theoretical subjects into practical elective subject Student research work at the Faculty of Medicine

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The following study was performed by Jinan Fazal, a pregraduate student at the Faculty of Medicine in Hradec Kralove, as a part of the elective study subject, Student research work. The aim was to establish a protocol for the evaluation of DNA damage caused by different anticancer drugs. This protocol will enable a future student of the subject to get familiar with basic laboratory techniques and above that, it puts into practise the theoretical knowledge taught within the subjects Biology, Biochemistry and Pathobiochemistry of the cell. As a model system, the MCF-7 breast cancer cells treated with increasing concentration of doxorubicin (0.1 to 10 μM) for 2 hours, were chosen. As one of the earliest events after DNA damage is phosphorylation of histone H2AX at serine 138, the cells were stained with primary anti-phospho-histone H2A.X (Ser139) and secondary Alexa Fluor 488-AffiniPure Goat Anti-Rabbit antibody. The labelled samples were acquired by the mean of ImageXpress XLS and the percentage of cells expressing phosphorylated H2AX analysed with MetaXpress 6.3 software. Developed protocol gives the students opportunity to gain skills in cell culture cultivation and treatment, immunofluorescence staining, image acquisition and analysis. Besides, it can be routinely employed for assessing DNA damage caused by various stimuli.

P-E-01-12
Teaching of scientific research skills to Medical Doctor Program students during the first two years of study

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Teaching of scientific research skills is one of the main aims of the Medical Doctor program. European University Medical Doctor Program was modified in 2019 according to WFME standards and national medical benchmark and important changes were made in the teaching of scientific skills. Program evaluation is performed annually by all stakeholders. Students' academic performance of the fall semester of 2021-22 academic year was evaluated in the courses „scientific reasoning I" and „scientific reasoning II", which are taught in the II and IV semesters respectively. In total 73 students took „scientific reasoning I" and 82 students took „scientific reasoning II" in this period. Based on the results, 15% of students failed and 28% crossed the minimum threshold in „scientific reasoning I". In „scientific reasoning II" 5% of students failed, 67% crossed the minimum threshold, while none of the students could get the highest mark „A". Same students' academic performance was evaluated in all other subjects, but such low performance was not observed. Special survey was distributed among the Faculty members delivering the subjects „scientific reasoning I and II". In the answers, all lecturers underlined that the main reason of students' low performance is caused by the difficulty of the subject and learning material. Another possible reason indicated by the lecturers can be the early entry of scientific skills teaching in the curriculum (from II semester). Based on all above mentioned, we can suppose that first and second year MD students are more focused on basic subjects of major field, which are time and energy consuming. Accordingly, it is important to reconsider the teaching and assessment methodology of research skills in order to increase students encourage in the study process and to support them to reach learning outcomes. *The authors marked with an asterisk equally contributed to the work.