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BOOK OF ABSTRACTS



4th Belgrade Bioinformatics Conference

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FOREWORD

Dear colleagues and friends,

The 4th Belgrade Bioinformatics Conference - BelBi2023, where many high-quality scientific contributions were presented, has just ended. With great thanks to all participants, we now proudly present a book of abstracts that both reflects the scientific abundance and diversity of the conference and serves as a reminder of a memorable event.

Several research institutions, faculties, and scientific societies from Serbia joined forces in organizing this international conference, which covered numerous topics in computational biology, bioinformatics, and biomedical and health informatics. The main goal of BelBi2023 was to foster contact between scientists, both early stage career and senior researchers, allowing them to share experiences and latest advances in their fields. We sincerely hope that BelBi2023 has served as a platform for researchers from around the world to meet, initiate new collaborations, and expand professional contacts, and that all of you would become a part of the growing BelBi community.

We are grateful and proud to have welcomed more than 250 researchers from 21 countries. We have had 28 scientific sessions, consisting of more than 60 lectures (including eight Keynote talks), 47 presented posters, as well as three workshops and one satellite event – COST action. We have also organized seven industry lectures, including the NGS Challenge,

two Meet the Expert Sessions, and one Business Coffee Break where ten start-up companies took part. And finally, the future BIO4 campus was presented and first panel on Serbia's resources for storage and analyses of genetic data was organized.

We would like to thank all the members of the International Advisory Board and the International Program Committee for their efforts and help in making this event a success. We are very grateful to the Ministry of Science, Technological Development and Innovation of the Republic of Serbia, SAIGE project, and UNDP-Serbia for their support. Finally, the Local Organizing Committee is very grateful to all the sponsors of the conference - BGI, Illumina & Elta'90MS, PacBio & East Diagnostics, ThermoFisher Scientific & Vivogen, Huawei, Labena, DSP Chromatography, RNIDS, Telekom Srbija, Alfa Genetics, Kefo and Superlab, hoping that they will stay with us for many years to come.

Looking forward to seeing you again at the 5th Belgrade Bioinformatics Conference.

Belgrade, July 2023

Dr. Valentina Đorđević
& *Dr. Ivana Morić,*
On behalf of BelBi2023
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Oral presentation

Drugst.One - A plug-and-play solution for online systems medicine and network-based drug repurposing

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In recent decades, the development of new drugs has become increasingly expensive and inefficient, and the molecular mechanisms of pharmaceuticals often remain poorly understood. In response, numerous computational systems and network medicine tools have been developed to prioritize drug repurposing candidates. However, such tools often require local installation and configuration or lack follow-up visual network mining capabilities. To address these challenges and simplify network exploration and drug repurposing candidate prediction, we have developed Drugst.One. It is a customizable plug-and-play solution with its own data warehousing system integrating multiple interaction databases to enable interactive modeling and analysis of the associations between proteins, drugs, and diseases. With just three lines of code, it has the capacity to convert any systems medicine software into an interactive web tool for identifying drug repurposing candidates, thus providing a powerful and accessible resource for advancing drug discovery efforts. To demonstrate the utility of Drugst.One's low-code approach, we have integrated it with 20 existing computational systems medicine tools of various types, with the intent to expand the *Drugst.One Initiative* with additional collaboration partners.

Drugst.One is, to our knowledge, the first approach to unify and simplify web-based network-based visualization and drug repurposing, posing a valuable resource for the research community. Learn more about Drugst.One and the *Drugst.One Initiative* at <https://drugst.one>.

Keywords: Drug repurposing, Systems medicine, Interactive network enrichment, Biomedical network exploration, Network integration, Biomedical data analysis, Data visualization

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