ISTVÁN GELLÉRT MAGYARY



YEAR OF BIRTH

2000

FORMER SZENT-GYÖRGYI PUPIL

yes

RESEARCH UNIT

HUN-REN Biological Research Centre

SZENT-GYÖRGYI MENTOR

Balázs Papp

JUNIOR MENTOR

Balázs Szappanos

SPECIALIZATION

systems biology, metabolomics, bioinformatics

SECONDARY SCHOOL

Táncsics Mihály Secondary School, Kaposvár

NAME OF TEACHER

Róbert Kertész

LANGUAGES

English/advanced

National Academy of Scientist Education, 4th year

Pázmány Péter Catholic University, Bioinformatics, MsC 1st year

IMPORTANCE, AIMS AND POSSIBLE OUTCOME OF RESEARCH

Recent advances in technology made metabolomics an integral part of systems biology research. Despite the surge in popularity in metabolomics, the processes governing the evolution of metabolite levels are still largely unknown. One of our lab's focuses has been the emerging field of evolutionary metabolomics, i.e. the evolution of metabolite concentrations. These previous analyses have focused on the between-species differences of metabolite concentrations with the help of data from multiple mammalian and yeast species. Among the findings were the discovery of simple molecular traits that govern the extent of evolutionary conservation. One such principle is that metabolites involved in human diseases have highly conserved concentrations between species, indicating that evolution permits less changes in metabolites that have a high health impact. Building on these findings, I will study the principles driving metabolome variation within human populations. Specifically, I will test whether the same factors govern the evolution of metabolite concentrations across species as within human populations. For my research I use a dataset of hundreds of serum metabolites from a healthy human population. Ultimately, the results will give new insights into why some metabolites are more variable between individuals than others and may inform the discovery of new biomarkers.

AMBITIONS AND CAREER GOALS

My career goal is to conduct research in the research field of personalised omics as a bioinformatician, a subfield of systems biology where the long-term goal is to help improve people's quality of life with the help of new discoveries and contribute to the early diagnoses of pathological processes. Throughout my studies I also plan on acquiring knowledge in statistics and data science and participating in relevant networking events.

HONORS AND PRIZES

2018 "Ifjú természettudós" Dr. Keszthelyi Lajos' prize

PUBLICATIONS