

ANNA GEORGINA KOPASZ



National Academy of Scientist Education, 2nd Ph.D. year

University of Szeged,
 Doctoral School of Multidisciplinary Medical Sciences
 Ph.D. 2nd year

YEAR OF BIRTH

1998

FORMER SZENT-GYÖRGYI PUPIL

yes

RESEARCH UNIT

University of Szeged

SZENT-GYÖRGYI MENTOR

Gyula Timinszky

RESEARCH INTERESTS

ADP-ribosylation,
 DNA repair

UNIVERSITY DEGREE

MSc in Biology

AS A SZENT-GYÖRGYI STUDENT

Former Szent-Györgyi
 mentor: Lajos Mátés

SECONDARY SCHOOL

Radnóti Miklós
 Experimental Grammar
 School, Szeged

NAME OF TEACHER

Viktória Gál

LANGUAGES

English/advanced

IMPORTANCE, AIMS AND POSSIBLE OUTCOME OF RESEARCH

Cancer is a leading cause of morbidity and mortality globally. However, most chemotherapeutics interfere with cell division or DNA synthesis killing not only the uncontrollably multiplying cancer cells but also the proliferating healthy cells – the latter accounting for their toxicity and serious side effects. This main disadvantage emphasizes the need for drugs that specifically destroy cancer cells, ideally, without harming the healthy ones.

ADP-ribosylation is a posttranslational modification that appears immediately after DNA damage. PARP1 covalently attaches ADP-ribose units to histones on the site of DNA damage generating poly(ADP-ribose) chains. Poly(ADP-ribosylation) (PARylation) provides a scaffold for other repair proteins and contributes to chromatin remodeling to facilitate access to the damaged DNA.

Over 15 years ago, PARP inhibitors (PARPi) were shown to selectively kill HR-defective cancer cells. Neither the many mutations cause HR-defection nor the PARP inhibitor alone kills the cell, yet, their combination is lethal – a phenomenon called synthetic lethality. Our research group completed a genome-wide CRISPR knockout screen in combination with the PARP inhibitor olaparib to identify factors that sensitize cells to PARP inhibitors when deleted. We believe our research will provide a basis to develop new drugs which enhance the sensitivity of PARP inhibitors.

AMBITIONS AND CAREER GOALS

By earning my PhD degree, I would like to master the molecular background of DNA repair and learn new cell biological and microscopic techniques. I have a broad range of molecular biological techniques and their biological bases. As a postdoctoral researcher, I hope I will have the chance to gain research experience abroad before I can establish my own research group.

HONORS AND PRIZES

2022 'Szent-Györgyi Student of Excellence 2022' award
 2022/23, 2021/20, 2019/20 New National Excellence Program Scholarship
 2022 EPAM Pro Talents Corporate Scholarship
 2022 SZTE Talent Scholarship - gold grade
 2021/22 Scholarship for Educational Achievements given by the City Council of Szeged
 2021/22 National Higher Education Scholarship

PUBLICATIONS

Kopasz, A. G., Pusztai, D. Z., Karkas, R., Hudoba, L., Abdullah, K., Imre, G., Pankotai-Bodó, G., Migh, E., Nagy, A., Kriston, A., Germán, P., Drubi, A. B., Molnár, A., Fekete, I., Dani, V. É., Ocsosvzki, I., Puskás, L. G., Horváth, P., Sükösd, F., Mátés, L. (2022) A versatile transposon-based technology to generate loss- and gain-of-function phenotypes in the mouse liver. **BMC Biology** 20: 74.