ALEX ALI SAYOUR, MD

PhD student, Cardiology fellow

Semmelweis University - Heart and Vascular Center

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Budapest, Hungary

born: Hungary, 21/07/1994

Training

2021 - Present	Semmelweis University - Department of Cardiology, Heart and Vascular Center: Cardiology fellow (in training)
2019 - Present	Semmelweis University - School of PhD Studies (PhD student): Department of Cardiology, Heart and Vascular Center, Budapest, Hungary
2012 - 2019	Semmelweis University, Budapest, Hungary - Faculty of Medicine: Medical Doctor diploma ('summa cum laude')

Scholarships and prizes

2022	Stephen W. Kuffler PhD Scholarship
2021	Semmelweis Innovation Prize - PhD student category
2021	Young Investigator Award (2nd prize) - Hungarian Society of Cardiology, annual conference
2021	Semmelweis 250+ Excellency PhD Scholarship
2021	Excellency award for PhD students - Scientific advisor for Medical Students
2020	PhD Scientific Days - First Prize
2020	Semmelweis 250 Symposium - Section winner
2020	Young Investigator Award (1st prize) - Hungarian Society of Cardiology, annual conference
2020	Excellency award of Students' Scientific Association - Semmelweis University
2019 - 2022	New National Excellence Program scholarship (PhD student)
2019	Pro Scientia Gold Medal - awarded by the Hungarian Academy of Sciences to one student with highest scientific impact in medicine (every two years)
2018 - 2019	New National Excellence Program scholarship (medical student)
2018 - 2019	National Higher Education Scholarship
2018	Stephen W. Kuffler Research Scholarship
2017 - 2018	Jellinek Harry Research Scholarship: Ruprecht-Karls-Universität Heidelberg, Germany (Laboratory for Experimental Heart Surgery)

Memberships

2020 - Present	European Society of Cardiology - Heart Failure Association
	European Society of Cardiology - Council on Basic Cardiovascular Science
2017 - Present	Hungarian Society of Cardiology - Translational Cardiovascular Research Group
Language skills	English - advanced level; German - conversation level

Scientometrics (as of January 2022)

- cumulative impact factors: 200.788
- h-index: 10
- number of total citations: 280

First-authored publications

Sayour AA, Celeng C, Oláh A, Ruppert M, Merkely B, Radovits T: Sodium-glucose cotransporter 2 inhibitors reduce myocardial infarct size in preclinical animal models of myocardial ischaemia-reperfusion injury: a meta-analysis. *Diabetologia* 2021 Apr;64(4):737-748.

Sayour AA, Oláh A, Ruppert M, Barta BA, Horváth EM, Benke K, Pólos M, Hartyánszky I, Merkely B, Radovits T: Characterization of left ventricular myocardial sodium-glucose cotransporter 1 expression in patients with end-stage heart failure. *Cardiovasc Diabetol* 2020 Sep 30;19(1):159.

Sayour AA, Ruppert M, Oláh A, Benke K, Barta BA, Zsáry E, Merkely B, Radovits T. Effects of SGLT2 Inhibitors beyond Glycemic Control-Focus on Myocardial SGLT1. *Int J Mol Sci* 2021 Sep 12;22(18):9852.

Sayour AA, Ruppert M, Oláh A, Benke K, Barta BA, Zsáry E, Ke H, Horváth EM, Merkely B, Radovits T. Left Ventricular SGLT1 Protein Expression Correlates with the Extent of Myocardial Nitro-Oxidative Stress in Rats with Pressure and Volume Overload-Induced Heart Failure. *Antioxidants (Basel)* 2021 Jul 26;10(8):1190.

Sayour AA, Korkmaz-Icöz S, Loganathan S, Ruppert M, Sayour VN, Oláh A, Benke K, Brune M, Benkő R, Horváth EM *et al*: Acute canagliflozin treatment protects against in vivo myocardial ischemia-reperfusion injury in non-diabetic male rats and enhances endothelium-dependent vasorelaxation. *J Transl Med* 2019 Apr 16;17(1):127.

Benke K*, **Sayour AA***, Mátyás C, Ágg B, Németh BT, Oláh A, Ruppert M, Hartyánszky I, Szabolcs Z, Radovits T *et al*: Heterotopic Abdominal Rat Heart Transplantation as a Model to Investigate Volume Dependency of Myocardial Remodeling. *Transplantation* 2017 Mar;101(3):498-505. *Contributed equally.

Scientific interests:

In our modern society, cardiovascular diseases are leading causes of death. The incidence of type 2 diabetes mellitus is increasing year-by-year, which is one of the most important risk factors for cardiovascular disease, sharing a similar pathophysiological background. Sodium-glucose cotransporter 2 (SGLT2) inhibitors were originally designed as novel antidiabetic agents, however, their salutary cardiovascular effects had been quickly recognized. Mentored by associate professor Tamás Radovits, MD PhD, my aim is to elucidate the cardiovascular protective effects of these agents.

1. Our research group was among the first to document that SGLT2 inhibitors reduce myocardial infarct size in small animal model, independent of diabetes. In a preclinical meta-analysis, we further showed that this is a class effect.

2. SGLT2 inhibitors non-specifically block SGLT1 as well. Using 81 human samples from the transplantation biobank of the Heart and Vascular Center, we showed that increase in myocardial left ventricular SGLT1 expression might constitute a novel marker of heart failure. It is possible that SGLT2 inhibitors exert direct cardioprotective effects by partially inhibiting SGLT1, since SGLT2 is not expressed in the heart.

3. We corroborated that increased myocardial SGLT1 expression in two small animal models of heart failure, and showed that it correlated with pathological processes.