# CURRICULUM VITAE

## *PERSONAL DATA*

Nationality: Hungarian

Place and date of birth: Kalocsa, 11/01/1987

Email address: koncz.balazs7@gmail.com

## *WORK EXPERIENCE*

**Research fellow**

ELKH Biological Research Centre [2022 – ] Szeged , Hungary

**Labor assistant**

Radnóti Miklós High School [2012 – 2016] Szeged , Hungary

**Editor**

Maxim Könyvkiadó [2011 – 2012] Szeged, Hungary

**Biology teacher**

Radnóti Miklós High School [2010 – 2011] Szeged, Hungary

## *STUDIES*

**PhD in Medical Sciences**

Doctoral School of Clinical Medicine, Department of Dermatology and Allergology, Faculty of Medicine, University of Szeged, Hungary [2017 – 2021]

Doctoral School of Theoretical Medicine, First Dept. of Medicine, Faculty of Medicine, University of Szeged, Hungary [2016 – 2017]

**Biology and Math Teacher**

Faculty of Science and Informatics, University of Szeged, Hungary [2005 – 2010]

**Graduation**

Benedictine High School of Pannonhalma, Hungary [2001 – 2005]

## *LANGUAGE SKILLS*

Mother tongue(s): Hungarian.

English: LISTENING B1 READING B1 WRITING B1

Spanish: LISTENING A1 READING A1 WRITING A1

## *SCHOLARSHIPS & AWARDS*

ÚNKP-20-4 - New National Excellence Program Of The Ministry For Innovation And Technology From The Source Of The National Research, Development And Innovation Fund

Publication Award of the Stephen W. Kuffler Research Foundation 2022.

## *SCIENTIFIC TALKS*

A HLA molekulák magas epitópkötõ promiszkuitása növeli a tumor immunterápia hatékonyságát. I. PhD szimpózium. 2018.06.22., Szeged

A HLA molekulák magas epitópkötõ promiszkuitása növeli a tumor immunterápia hatékonyságát. Magyar Élettani Társaság Vándorgyûlése. 2018.06.28., Szeged

A humán peptidek által közvetített T sejt pozitív szelekció akadályozza a nem saját peptidek felismerését. MIT 2020 - A Magyar Immunológiai Társaság 49. konferenciája. 2020. október 7-8., ONLINE

Blindspot in immune recognition - a consequence of T cell positive selection? DOSZ – Science and Innovation Conference. 29th-30th January, 2021

A T sejtek pozitív szelekciója vakfoltot eredményez az adaptív immunfelismerésben. Bioinformatika 2021 - A Magyar Tudományos Akadémia Bioinformatikai Osztályközi Tudományos Bizottsága és a Magyar Bioinformatikai Társaság tudományos konferenciája. 2021.11.12. ONLINE

A T sejtek pozitív szelekciója vakfoltot eredményez az adaptív immunfelismerésben. MIT 2021 - A Magyar Immunológiai Társaság 50. konferenciája. 2021.10.21., Kecskemét

## *POSTER PRESENTATIONS*

HLA promiscuity and peptide presentation of cancer cells. 47th Annual Meeting of the Hungarian Society for Immunology. 2018.10.17-19.

Abnormal Type VII collagen protein expression in non-lesional psoriatic skin. 47th Annual Meeting of the Hungarian Society for Immunology. 2018.10.17-19.

LIFEStyle, Prevention and Risk of Acute PaNcreatitis (LIFESPAN): Protocol of a Prospective, Multicentre and Multinational Observational CaseControl Study. 51st Annual Meeting of the European Pancreatic Club. Bergen. 2019.06.26-29.

Neoantigen sequence similarity to pathogens and commensals determines immune phenotype of cancer samples and patient survival. American Association for Cancer Research (AACR) Tumor Immunology and Immunotherapy Conference. Boston. 2019.11.17-2019.11.20.

Epitope-binding promiscuity of HLA class I molecules shapes the efficacy of checkpoint blockade immunotherapy. American Association for Cancer Research (AACR) Tumor Immunology and Immunotherapy Conference. Boston. 2019.11.17-2019.11.20.

Self-Mediated Positive Selection of T Cells Sets an Obstacle to the Recognition of Nonself. Koncz B., Balogh GM., Papp BT., Asztalos L., Kemény L., Manczinger M. 4th Annual Symposium on Physical Concepts and Computational Models in Immunology. Online meeting | Collaborative Research Center Predictability in Evolution , University of Cologne. October 14 - 19, 2020

## *PUBLICATIONS*

Eszter Tóth, Tamás Lantos, Dóra Illés, Szilárd Gódi, Ákos Szűcs, Roland Hagendorn, Balázs Cs. Németh, Katalin Márta, Alexandra Mikó, Dóra Mosztbacher, Dániel Pécsi, Anikó N. Szabó, Péter Varjú, Balázs Koncz, Erika Darvasi, Andrea Szentesi, Ferenc Izbéki, Adrienn Halász, József Czimmer, Judit Bajor, Aron Vincze, Patricia Sarlós, József Hamvas, Judit Gervain, Márta Varga, János Novák, Imola Török, Hunor Farkas, Péter Hegyi and Andrea Párniczky. Misinterpretation of C reactive protein level and white blood cell count are behind the overuse of antibiotics in acute pancreatitis. July 2017 Pancreatology 17(3):S109. DOI: 10.1016/j.pan.2017.05.343

Párniczky A, Lantos T, Tóth EM, Szakács Z, Gódi S, Hágendorn R, Illés D, Koncz B, Márta K, Mikó A, Mosztbacher D, Németh BC, Pécsi D, Szabó A, Szücs Á, Varjú P, Szentesi A, Darvasi E, Erőss B, Izbéki F, Gajdán L, Halász A, Vincze Á, Szabó I, Pár G, Bajor J, Sarlós P, Czimmer J, Hamvas J, Takács T, Szepes Z, Czakó L, Varga M, Novák J, Bod B, Szepes A, Sümegi J, Papp M, Góg C, Török I, Huang W, Xia Q, Xue P, Li W, Chen W, Shirinskaya NV, Poluektov VL, Shirinskaya AV, Hegyi PJ, Bátovský M, Rodriguez-Oballe JA, Salas IM, Lopez-Diaz J, Dominguez-Munoz JE, Molero X, Pando E, Ruiz-Rebollo ML, Burgueño-Gómez B, Chang YT, Chang MC, Sud A, Moore D, Sutton R, Gougol A, Papachristou GI, Susak YM, Tiuliukin IO, Gomes AP, Oliveira MJ, Aparício DJ, Tantau M, Kurti F, Kovacheva-Slavova M, Stecher SS, Mayerle J, Poropat G, Das K, Marino MV, Capurso G, Małecka-Panas E, Zatorski H, Gasiorowska A, Fabisiak N, Ceranowicz P, Kuśnierz-Cabala B, Carvalho JR,

Fernandes SR, Chang JH, Choi EK, Han J, Bertilsson S, Jumaa H, Sandblom G, Kacar S, Baltatzis M, Varabei AV, Yeshy V, Chooklin S, Kozachenko A, Veligotsky N, Hegyi P; Hungarian Pancreatic Study Group. Antibiotic therapy in acute pancreatitis: From global overuse to evidence based recommendations. Pancreatology. 2019 Jun;19(4):488-499. DOI: 10.1016/j.pan.2019.04.003. Epub 2019 Apr 19.

Erika Darvasi, Balázs Koncz, Dalma Erdösi, Andrea Szentesi, Katalin Márta, Bálint Erőss, Dániel Pécsi, Zoltán Gyöngyi, János Girán, Nelli Farkas, Mária Papp, Eszter Fehér, Zsuzsanna Vitális, Tamás Janka, Áron Vincze, Ferenc Izbéki, Veronika Dunás-Varga, László Gajdán, Péter Hegyi. LIFEStyle, prevention and risk of acute PANcreatitis (LIFESPAN): Protocol of a prospective, multicentre and multinational observational case-control study. Pancreatology, Volume 19, Supplement 1, June 2019, Pages S146-S147. DOI: 10.1016/j.pan.2019.05.397.

Balázs Koncz, Erika Darvasi, Dalma Erdősi, Andrea Szentesi, Katalin Márta, Bálint Erőss, Dániel Pécsi, Zoltán Gyöngyi, János Girán, Nelli Farkas, Maria Papp, Eszter Fehér, Zsuzsanna Vitális, Tamás Janka, Áron Vincze, Ferenc Izbéki, Veronika Dunás-Varga, László Gajdán, Imola Török, Sándor Károly, Judit Antal, Noémi Zádori, Markus M Lerch, John Neoptolemos, Miklós Sahin-Tóth, Ole H Petersen, and Péter Hegyi. LIFEStyle, Prevention and Risk of Acute PaNcreatitis (LIFESPAN): Protocol of a Multicentre and Multinational Observational Case-Control Study. BMJ Open. 2020; 10(1): e029660. DOI: 10.1136/bmjopen-2019-029660.

Máté Manczinger, Balázs Koncz, Gergő Mihály Balogh, Benjamin Tamás Papp, Leó Asztalos, Lajos Kemény, Balázs Papp & Csaba Pál. Negative trade-off between neoantigen repertoire breadth and the specificity of HLA-I molecules shapes antitumor immunity. Nature Cancer (2021). DOI: https://doi.org/10.1038/s43018-021-00226-4

Balázs Koncz, Gergő Mihály Balogh, Benjamin Tamás Papp, Leó Asztalos, Lajos Kemény, and Máté Manczinger. Self-mediated positive selection of T cells sets an obstacle to the recognition of nonself. PNAS September 14, 2021 118 (37) e2100542118. DOI: https://doi.org/10.1073/pnas.2100542118

## *SCIENTIFIC INTEREST*

I work in the Systems Immunology Research Group in Biological Research Center in Szeged with the leading of Máté Manczinger PhD. We focus on the adaptive immune system for instance tumour immunity, immune response to pathogens, and peptide immunogenicity. I use bioinformatical softwares and statistics tools for data analysis. Our data sources are mainly freely available on the web.

During PhD years I started to investigate to the effect of the sequence similarity of peptides to human peptides on the immune recognition. It is a widespread opinion in immunology that the more dissimilar a molecule to human ones, the more likely it is recognized by the immune system. But we found that the immune system is unable to recognize molecules that are overly dissimilar to human ones. The explanation is that we do not have T cells that are specific for these molecules, because only those T cells survived in the thymus that are somewhat specific for our self-molecular motifs. Pathogens carry many such motifs, which potentially help them to hide from the immune system. Our findings could help us to better understand why our immune system is blind to many molecules even if they are highly dissimilar to our self-ones. The proposed theory could also explain the variable immune response to certain vaccines and tumors. We are focusing on these topics nowadays. We carried out a comprehensive analysis of empirical evidence in online databases. Moreover, we supported our hypothesis by examining T cell data of healthy individuals. We published our results in the official journal of the National Academy of Sciences of the United States of America (PNAS).