# CURRICULUM VITAE OF BALÁZS ISTVÁN TÓTH

- *Name:* **Balázs István Tóth**

- *Date of birth:* 30/12/1978
- *Place of birth:* Debrecen, Hungary
- *Familial status:* married, 3 children

- *Contact:*


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- *Present Appointment:*

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| 2015– | Assistant Professor, Department of Physiology, Faculty of Medicine, University of Debrecen, Hungary |

- *Previous Appointments:*

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| 2015 | Research Associate, Laboratory of Ion Channel Research, Department of Cellular and Molecular Medicine, KU Leuven, Belgium |
| 2011-2015 | Postdoctoral Fellow, Laboratory of Ion Channel Research, Department of Cellular and Molecular Medicine, KU Leuven, Belgium |
| 2011 | Asistant Lecturer, Department of Physiology, University of Debrecen Medical and Health Science Center, Hungary |
| 2008-2011 | Junior Research Associate, Department of Physiology, University of Debrecen Medical and Health Science Center, Hungary |
| 2005-2008 | Junior Research Associate, Cellular Physiology Workgroup of the Hungarian Academy of Sciences, University of Debrecen, Hungary |

- *Education:*

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| 2003-2008 | PhD Student in Physiology–Neurobiology Program of the Molecular Medicine Doctoral School, University of Debrecen, Hungary<br>2005-2008 Part time<br>2003-2005 Full time |
| 1999-2003 | Biology/Molecular Biology M.Sc., University of Debrecen, Hungary |
| 1998-2003 | Psychology M.Sc., University of Debrecen, Hungary |
| 1993-1998 | Sándor Petőfi Bilingual (Hungarian-German) Secondary School, Mezőberény, Hungary |

- *Diplomas:*

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| 2010 | Ph.D. in Biomedical Sciences, summa cum laude, University of Debrecen, Hungary<br>Thesis: *Role of Transient Receptor Potential Vanilloid-1 (TRPV1) in the Regulation of Biological Processes of Human Sebocytes and Dendritic Cells* |
| 2003 | Psychology M.Sc, summa cum laude with honors, University of Debrecen, Hungary<br>Thesis: *Neuropsychology of Obsessive-Compulsive Disorder. Investigation of Working Memory using Signal Detection Approach and the Role of Memory Inhibition* |

**Educational activities:**

*In the Department of Physiology, University of Debrecen*

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| 2018-present | Physiology seminars for medical students (in English). Examiner teacher. |
| 2015-present | Lectures and practices for PhD students in the methodological course "Studying signaling mechanisms" |
| 2015-present | Lectures in credit courses "Modern techniques allowing the investigation of physiological phenomena" and "The regulatory role of the cell membrane in physiological and pathological conditions" (in Hungarian and English). |
| 2015-present | Physiology practice for medical students (in Hungarian and English). Examiner teacher. |
| 2015-present | Neurobiology lectures for medical students (in Hungarian and English). |
| 2015-present | Neurobiology seminars and lectures for Pharmacy students (in Hungarian and English) |
| 2015-2018 | Physiology seminars for Pharmacy students (in Hungarian and English). Examiner teacher. |

*In the Department of Cellular and Molecular Medicine, KU Leuven, Belgium*

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| 2012-2015 | Physiology practices for Biology and Pharmacy students |

*In the Department of Physiology, University of Debrecen*

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| 2010-2011 | Human Physiology lectures for Msc students in Molecular biology and Nutritional sciences programs (in Hungarian). Examiner teacher. |
| 2010-2011 | Cellular physiology lectures for Biology Bsc students (in Hungarian). Examiner teacher. |
| 2009-2011 | Physiology lectures, seminars and practices for 'Medical laboratory and diagnostic imaging analyst' Bsc students (in Hungarian). Examinier teacher. |
| 2008-2011 | Physiology seminars for Pharmacy students (in Hungarian). |
| 2008 | Cellular Physiology lectures for 'Medical research assistant' Bsc students (in Hungarian). Examiner teacher. |
| 2006-2011 | Neurobiology seminars for Pharmacy sudents (in English). |

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| 2006 | Physiology seminars for 'Public health officer' Bsc students (in Hungarian) |
| 2005-2009 | 'Informatics in Physiological studies' practices and lectures for Msc students in Molecular biology program (in Hungarian). Examiner teacher. |
| 2004-2011 | Neurobiology seminars for Pharmacy students (in Hungarian). |
| 2003-2011 | Medical physiology practices for medical students (in Hungarian and in English). Examiner teacher. |

- *Supervisor of PhD students*

2021-present Márk Racskó
2020-present Arpad Kunka
2018-present Martin Hanyicska
2017-present Anita Vladar
2015-2018 Balazs Kelemen. Thesis: Investigation of the pharmacological properties of the Transient Receptor Potential Melastatin 3 Ion Channel and its role in somatosensory functions. *Defense: May, 2021*

- *Mentoring students in Students` Scientific Associations and their achievements*

2019 Aniko Bodnar, Istvan Filipcsenyi, pharmacy students
2017-2019 Dóra Molnár, Dentistry
- 1st place award at Regional Conferences of Students` Scientific Associations (2019)
- 1st place award at National Conferences of Students` Scientific Associations (2019)

2015-2016 Flóra Kulin, Molecular biology MSc
2006-2007 Hajnalka Sereg, medical student
- 1st place award at Regional Conferences of Students` Scientific Associations (2007)
- 2nd place award at National Conferences of Students` Scientific Associations (2007)
- 1st place award at Young European Scientist Meeting, Porto, Portugal (2007)

2005-2006 Tamas Tornai and Attila Szollosi, medical students
- 1st place award at Regional Conferences of Students` Scientific Associations (2006)
- 1st place award at Young European Scientist Meeting, Porto, Portugal (2006)

2005 Tamas Geczy, medical student
- Special award at National Conferences of Students` Scientific Associations (2005)

- *Supervising diploma theses:*

2021 Márk Racskó, Biotechnology MSc. (Effect of calcineurin inhibitors on the viability of human podocytes)
2019 Dóra Molnár, Dentistry (Effect of inflammation on the expression of thermosensitive TRP ion channels in human dental pulp cells)
2018 Zsófia Puskás, Molecular biology MSc. (Role of TRPV4 in the regulation of biological processes in human dermal fibroblasts)
2017 Eniko Radnoti, Bioengineering Msc. (Investigating the role of thermosensitive TRP ion channels in human dermal fibroblasts)
2017 Flóra Kulin, Molecular biology MSc. (Volatile anesthetics inhibit TRPM3 ion channel)
2009 Hajnalka Sereg, General medicine (Effect of the microenvironment established by human skin derived cells on the functions of human monocyte derived dendritic cells)
2007 Attila Gabor Szollosi, General medicine (Effect of capsaicin on the biological processes of human sebaceous gland derived SZ95 cells)
2006 Tamas Tornai, General medicine (Role of TRPV1 in the differentiation, maturation and activation of human monocyte derived dendritic cells)

**Research activity**

- *Major Research interests:*

Physiology, pharmacology and regulation of TRP ion channels. Role of TRP channels and endocannabinoid system in biological processes of different cell types. Sensory physiology, biology of itch, pain and thermosensation. Immunological and endocrine properties and regulation of skin and skin releated cells. Signaling mechanisms in different cell types.

- *Publications:*

Peer reviewed articles: **59**
Impact Factors: **300.126**
Book chapters: **4**
Citations:
In MTMT (Hungarian Scientific Bibliography): Total: **2,444;** Independent: 1,788
In Google Scholar: **3,482**
h-index: **28** (MTMT); **32** (Google Scholar)
Conference presentations with the authorship of Balázs István Tóth (oral and poster): **159**

- *Membership in scientific associations:*

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| 2016 | International Cannabinoid Reserach Society |
| 2014- | Biophysical Society |
| 2007- | Hungarian Society of Physiology |
| 2000-2003 | István Hatvani College for Advanced Studies |

- *Awards:*

2021 Lecturer of the year (2nd year, International program in General Medicine, Faculty of Medicine, University of Debrecen)
2010 Youth Award of Hungarian Society of Physiology
2007 Award of Sigma-Aldrich Hungary Ltd. at the Annual Conference of Hungarian Society of Physiology
2003 First place award at the National Conference of Scientific Students' Associations (OTDK) – awarded as undergraduate student
2003 Pro Sciencia Gold Medal of the Council of National Scientific Students' Associations (OTDT) – awarded as undergraduate student (the highest scientific award for students in Hungary)
2003 'Student of the Faculty' Award, Faculty of Arts, University of Debrecen – awarded as undergraduate student
1998 Second place award in Biology at the National Secondary School Academic Competition (OKTV)

- *Fellowships:*

2021-(2022) New National Excellence Program Bolyai+ Postdoctoral Fellowship, Ministry of Innovation and Technology, Hungary
2020-2021 New National Excellence Program Bolyai+ Postdoctoral Fellowship, Ministry of Innovation and Technology, Hungary
2019-2020 New National Excellence Program Bolyai+ Postdoctoral Fellowship, Ministry of Innovation and Technology, Hungary
2019-2022 János Bolyai Research Fellowship, Hungarian Academy of Science
2017-2018 Fellowship of the New National Excellence Program of the Ministry Of Human Capacities (ÚNKP-2017)
2016-2017 Fellowship of the New National Excellence Program of the Ministry Of Human Capacities (ÚNKP-2016)
2015-2017 János Bolyai fellowship of the Hungarian Academy of Science
2013-2015 Marie Curie Intra-European Fellowship of the European Union (FP7/2007-2013), KU Leuven, Belgium
2011-2013 International Mobility Grant of KU Leuven, Belgium
2011 Lajos Szodoray Fellowship of the University of Debrecen MHSC
2002-2003 Fellowship of the Republic of Hungary – awarded as undergraduate student
2001-2002 Pro regione fellowship – awarded as undergraduate student

- *Research grants awarded to Balazs Istvan Toth [with the project title/topic]:*

2020-(2024) **Principal investigator**, leading researcher in NRDIO FK_20 134725 [Physiological and pathophysiological role of transient receptor potential ion channels in the dental pulp] Total support: 40,000,000 HUF
2017-2021 **Junior principal investigator, group leader** in the PEPSYS (GINOP-2.3.2-15-2016-00050) research consortium [PEPSYS – Role and complexity of peptidergic signalling in systemic diseases] Total support of the consortium: 1,300,000,000 HUF, Support of Balázs István Tóth's research group: 60,000,000 HUF

2016-2019 **Principal investigator**, leading researcher in NRDIO K_16 120187 [Pruriceptive role of neural and non-neural TRP ion channels in the skin] Total support: 33,274,000 HUF

2013-2015 **Supported research fellow** in FP-7 Marie Curie actions PIEF-GA-2012-330489 [Cellular regulation of transient receptor potential melastatin 3 (TRPM3) and its role in skin sensation] Total support: 177,000 Euro

2011-2012 **Principal investigator**, leading researcher in DEOEC BMC KOREA-2/2011 [Impact of the endocannabinoid system in the pathogenesis and therapy of acne vulgaris: Role in the regulation of differentiation and immunological functions of human sebocytes and epidermal keratinocytes] Total support: 20,000 USD

- *Additional basic and applied research grants with the participation of Balazs Istvan Toth [with the project title/topic]:*

2016-2021 Senior participant researcher in the I-KOM TEAMING (GINOP-2.3.2-15-2016-00015) research consortium [I-KOM TEAMING: Role of the intercellular communication in inflammatory and immunological diseases of barrier surfaces (skin, intestinal tract)] Total support of the consortium: 1,498,869,591 HUF

2011-2016 Senior participant researcher in LP2011-003/2011 [Role of the endocannabinoid system in the regulation of barrier functions of the skin] Principal Investigator: Tamás Bíró. Total support: 198,906,000 HUF

2010-2011 Senior participant researcher in OTKA NNF 78456 [Role and regulation of the endocannabinoid system in human sebaceous gland] Principal Investigator: Tamás Bíró. Total support: 21,365,000 HUF

2009-2013 Participant researcher in OTKA NK 78398 [Impact of ion channels on the regulation of growth of human skin cells] Principal Investigator: Tamás Bíró. Total support: 86,624,000 HUF

2009-2011 Participant researcher in ETT 329-07 [Role of transient receptor potential vanilloid-3 (TRPV3) in the regulation of biological processes of the human skin`s cells among physiological and pathological circumstances] Principal Investigator: Tamás Bíró. Total support: 4,200,000 HUF

2008-2011 Subcontractor researcher of the Abiol Ltd participating in the "Ig-Rabbit" research consortium [New transgenic technology to enhance antibody production significantly] Support of the Abiol Ltd.: 53,453,347 HUF (Anyos Jedlik Program of the National Office for Research and Technology)

2007-2010 Subcontractor researcher of the Abiol Ltd participating in the "ES2HEART" research consortium [Platform of mouse and human embryonic stem cell-derived cardiomyocyte test systems for drug development**]** Support of the Abiol Ltd.: 90,000,000 HUF (Anyos Jedlik Program of the National Office for Research and Technology)

2006-2010 Participant researcher in OTKA K 63153 [Role of Vanilloid receptor-1 (TRPV1) in the regulation of biological processes of the skin in physiological and pathological states] Principal Investigator: Tamás Bíró. Total support: 18,000,000 HUF

2006-2008 Participant researcher in ETT480/2006 [Role of Vanilloid receptor-1 (TRPV1) in the regulation of human dendritic cells` biological processes among physiological and pathological circumstances (cell responses, signaling, target genes, gene expression)] Principal Investigator: Tamás Bíró. Total support: 2,400,000 HUF

- *National and international collaborations*

Prof. Thomas Voets – Laboratory of Ion Channel Research, KU Leuven, Leuven, Belgium
Prof. Bernd Nilius – Laboratory of Ion Channel Research, KU Leuven, Leuven, Belgium
Prof. Rudi Vennekens – Laboratory of Ion Channel Research, KU Leuven, Leuven, Belgium
Prof. Joris Vriens – Laboratory of Ion Channel Research, KU Leuven, Leuven, Belgium
Prof. Tibor Rohács – Department of Pharmacology, Physiology and Neuroscience, Rutgers - New Jersey Medical School, New Ark, USA
Prof. Ralf Paus – Centre for Dermatology Research, University of Manchester and NIHR Manchester Biomedical Research Centre, Manchester, UK and Dr. Phillip Frost Department of Dermatology and Cutaneous Surgery, University of Miami Miller School of Medicine, Miami, USA
Prof. Johannes Oberwinkler – Institut für Physiologie und Pathophysiologie, Philipps-Universität Marburg, Marburg, Germany
Prof. Catherine M. Verfaillie – Stem Cell Institute, KU Leuven, Leuven, Belgium
Prof. Katalin E. Kövér – Department of Inorganic and Analytical Chemistry, Faculty of Science, University of Debrecen
Prof. Zsuzsanna Helyes – Department of Pharmacology, Faculty of Medicine University of Pécs
Prof. Erika Pintér– Department of Pharmacology, Faculty of Medicine University of Pécs
Dr. Attila Borics – Institute of Biochemistry, Biological Research Centre, Szeged
Dr. Tamás Ivanics – Institute of Clinical Experimental Research, Semmelweis University

- *Editorship:*

Guest editor for International Journal of Molecular Sciencies (IJMS), editing the special issue "TRPM channels" (in progress)
https://www.mdpi.com/journal/ijms/special_issues/TRPM_channels

- *Ad hoc reviewing for scientific journals, publishers, and research founding organizations:*

Biochemical Pharmacology
British Journal of Pharmacology
Cell Calcium
Cells
Critical reviews in food science and nutrition
European journal of Pharmacology
Experimental Dermatology
IJMS - International Journal of Molecular Sciences
Journal of Cellular Physiology
Journal of Investigative Dermatology
Medical Sciences
Molecular Pain
Pflügers Archive – European Journal of Physiology

Pharmacological Reports
PLOS ONE
Scientific Reports

Elsevier

National Research, Development and Innovation Office
BBSRC - Biotechnology and Biological Sciences Research Council, UK.
BioTechMed Graz

Debrecen, 08/11/2021