

Curriculum vitae

Professor Dr. István Baczkó
Department Head
Department of Pharmacology and Pharmacotherapy,
Albert Szent-Györgyi Medical School, University of Szeged, Hungary



Name

Dr. István Róbert Baczkó

Born

Szeged, Hungary; August 15, 1969.

Citizenship

Hungarian

Permanent address

Rózsa u. 23, I. em. 1.; 6723 Szeged, Hungary

University degree

Medical doctor (MD): 1993

Current affiliation

Department Head, full professor, Department of Pharmacology and Pharmacotherapy, Albert Szent-Györgyi Medical School, University of Szeged; 6720 Szeged, Dóm tér 12.
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Education, scientific degrees

- **Medical doctor (MD)**, 1987-1993.
Albert Szent-Györgyi Medical University, Szeged
- **English-Hungarian medical specialist translator**, 1987-1992.
Albert Szent-Györgyi Medical University, Szeged
- **Clinical pharmacology specialty exam**: 1998.
Semmelweis Medical University, Budapest, Hungary
- **Ph.D.**, 1998., Summa cum laude
medicine; Department of Pharmacology and Pharmacotherapy, Albert Szent-Györgyi Medical University, Szeged. Title of thesis: "ATP-Sensitive Potassium Channel Modulators and Ischaemia-Reperfusion Induced Arrhythmias"; Supervisor: Prof. Dr. István Leprán.

- 2001. Introduction to Clinical Drug Research, Vienna School of Clinical Research, Vienna, Austria
- **Habilitation:** In Multidisciplinary Medical Sciences, University of Szeged, Hungary, 2011.

Study visits abroad

1995 – 1996.

Department of Pharmacology, King's College, London, UK

Supervisor: Dr Michael J. Curtis

2001 – 2005.

Joint projects of the Department of Pharmacology, University of Alberta, Edmonton, Canada and the Department of Physiology and Biophysics, University of Calgary, Calgary, Canada

Supervisors: Dr. Peter E. Light (Edmonton) and Dr. Wayne R. Giles (Calgary)

Main scientific interests:

- Identification of molecular mechanisms involved in electrical and structural myocardial remodeling that accompanies atrial fibrillation, and their roles in the persistence and development of arrhythmia using experimental animal models and collaborative clinical studies
- To investigate the role of ventricular myocardial repolarization reserve impairment in different pathological conditions and to clarify the role of this impairment in increased arrhythmia susceptibility in different pathological conditions. Identification and modulation of potential novel drug targets
- Establishment and characterisation of preclinical animal models for more reliable prediction of severe ventricular arrhythmias, and investigation of the usefulness of different ECG parameters for the prediction of arrhythmias
- Exploring the electrophysiological mechanisms of sudden cardiac death in elite athletes using experimental animal models and collaborative clinical studies. Development of non-invasive electrophysiological methods to screen individuals with increased susceptibility to arrhythmias, identification of novel biomarkers
- The role of electrical and structural remodeling in the development of increased susceptibility to arrhythmias associated with heart failure. Identification of new therapeutic targets
- The role of myocardial K_{ATP} channels in cardioprotection, in the development and prevention of cardiac arrhythmias

Language skills

English middle level state exam, 1986.

English advanced level state exam, 1992.

Russian basic level exam, 1998.

Awards and honours

- Irbesartan Research Award (Bristol Myers Squibb and Sanofi), 1998.
- Young Investigator Award, Hungarian Society for Experimental and Clinical Pharmacology, 2000.
- János Bolyai Research Scholarship Certificate of Recognition for outstanding research work, Hungarian Academy of Sciences, 2003.
- Francis X. Witkowski Publication Award, University of Alberta, Edmonton, Canada, 2004.
- János Bolyai Research Scholarship Certificate of Recognition for outstanding research work, Hungarian Academy of Sciences, 2013.
- György Ivánovics Commemorative Medal for outstanding teaching and research activities. School of Medicine, University of Szeged, Szeged, 2013.
- Outstanding Scientific Student Teacher of the Medical Faculty, 2014. School of Medicine, University of Szeged, Szeged
- Distinguished Service Award in Cardiovascular Science, Medicine and Surgery; by the International Academy of Cardiovascular Sciences, Winnipeg, Canada; 2016.
- International Academy of Cardiovascular Sciences Fellowship Award, Winnipeg, Canada; 2020.
- Norman Alpert Award for Established Investigators in Cardiovascular Sciences; by the International Academy of Cardiovascular Sciences, Banja Luka, Bosnia and Herzegovina; 2021.
- Lifetime Achievement Award in Cardiovascular Science, Medicine and Surgery, by the International Academy of Cardiovascular Sciences, Szeged, Hungary; 2022.
- Dennis B. McNamara Award for Excellence in Cardiovascular Sciences, by the International Academy of Cardiovascular Sciences, Tampa, FL, USA; 2023.

Summary of publication activities

Published, peer-reviewed full papers: 105

Cumulative impact factor of published papers: 587.996

Scimago ranking of papers: 35 D1 (top 10%), further 42 Q1 (top 25%), 10 Q2.

Total citations /independent citations according to Hungarian MTMT database: 3052 / 2240

Hirsch (H) index: 32

G index: 50

In addition, published conference abstracts: 197; book chapters: 9. Author of 18 medical textbook chapters, notes, teaching aid materials

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MTMT database link on publications:

<https://m2.mtmt.hu/gui2/?type=authors&mode=browse&sel=authors10001718&paging=1;1000>

Selected papers

1. Varró A, Tomek J, Nagy N, Virág L, Passini E, Rodriguez B, **Baczkó I**. Cardiac transmembrane ion channels and action potentials: cellular physiology and arrhythmogenic behavior. *Physiological Reviews*, 2021, 101(3): 1083-1176. PMID: 33118864
IF (2021) = 46.5; D1/Q1 (Physiology - 1/189)
2. Ferdinandy P, **Baczkó I**, Bencsik P, Giricz Z, Görbe A, Pacher P, Varga ZV, Varró A, Schulz R. Definition of hidden drug cardiotoxicity: paradigm change in cardiac safety testing and its clinical implications. *European Heart Journal* 2019, 40: 1771-1777; PMID: 29982507
IF (2019) = 22.673; D1/Q1 (Cardiology and Cardiovascular Medicine - 3/358)
3. Major P*, **Baczkó I***, Hiripi L, Odening KE, Juhász V, Kohajda Zs, Horváth A, Prorok J, Seprényi Gy, Kovács M, Ördög B, Doleschall Z, Nattel S, Varró A, Bösze Zs. A novel transgenic rabbit model with reduced repolarization reserve: long QT syndrome caused by a dominant-negative mutation of KCNE1 gene. *British Journal of Pharmacology* 2016, 173(12): 2046-2061.; PMID: 27076034
IF (2016) = 5.491; D1/Q1 (Pharmacology - 14/326)
4. Schmidt C, Wiedmann F, Voigt N, Zhou XB, Kallenberger S, Ruhparwar A, Karck M, Biliczki P, Ehrlich J, **Baczkó I**, Donner BC, Schweizer PA, Katus HA, Dobrev D, Thomas D. Upregulation of K_{2P3.1} (TASK-1) K⁺ current causes action potential shortening in patients with chronic atrial fibrillation. *Circulation* 2015, 132(2): 82-92.; PMID: 25951834
IF (2015) = 17.047; D1/Q1 (Cardiology and Cardiovascular Medicine - 2/344)
5. **Baczkó I**, Liknes D, Yang W, Hamming KC, Searle G, Jaeger K, Husti Z, Juhász V, Klausz G, Pap R, Sággy L, Varró A, Dolinsky V, Wang S, Rauniyar V, Hall D, Dyck JR, Light PE. Characterization of a novel multi-functional resveratrol derivative for the treatment of atrial fibrillation. *British Journal of Pharmacology* 2014, 171(1): 92-106; PMID: 2410218
IF (2014) = 4.842; D1/Q1 (Pharmacology - 23/340)
6. Varró A, **Baczkó I**. Cardiac ventricular repolarization reserve: a principle for understanding drug-related proarrhythmic risk. *British Journal of Pharmacology* 2011, 164(1): 14-36.; PMID: 21545574
IF (2011) = 4.409; D1/Q1 (Pharmacology - 31/360)
7. Lengyel Cs, Varró A, Tábori K, Papp JGy, **Baczkó I**. Combined pharmacological block of I_{Kr} and I_{Ks} increases short-term QT interval variability and provokes torsades de pointes *British Journal of Pharmacology* 2007, 151: 941-951.; PMID: 17533421

IF (2007) = 3.767; Q1 (Pharmacology - 33/312)

8. **Baczkó I**, Jones L, McGuigan CF, Manning Fox JE, Gandhi M, Giles WR, Clanachan AS, Light PE.

Plasma-membrane K_{ATP} channel-mediated cardioprotection involves post-hypoxic reductions in calcium overload and contractile dysfunction: mechanistic insights into cardioplegia. *FASEB Journal* 2005, 19: 980-982.; PMID: 15774423

IF (2005) = 7.064; D1/Q1 (Medicine [miscellaneous] - 30/2877)

9. **Baczkó I**, Giles WR, Light PE.

Pharmacological activation of plasma-membrane K_{ATP} channels reduces reoxygenation-induced Ca^{2+} overload in cardiac myocytes via modulation of the diastolic membrane potential.

British Journal of Pharmacology 2004, 141: 1059-1067.; PMID: 14993099

IF (2004) = 3.325; Q1 (Pharmacology - 35/302)

10. **Baczkó I**, Giles WR, Light PE.

Resting membrane potential regulates Na^+/Ca^{2+} exchange-mediated Ca^{2+} overload during hypoxia/reoxygenation in rat ventricular myocytes.

Journal of Physiology (London), 2003, 550: 889-898.; PMID: 12807988

IF (2003) = 4.352; D1/Q1 (Physiology - 11/168)

University public activities

- Student Credit Transfer Committee member, Albert Szent-Györgyi Medical School, University of Szeged, 2010-2014; 2018–2020.
- Educational Committee member, Albert Szent-Györgyi Medical School, University of Szeged; 2014-2018; 2018 – currently
- Workplace Animal Welfare Committee member, Albert Szent-Györgyi Medical School, University of Szeged; 2016. - currently
- International Relations Committee member, Albert Szent-Györgyi Medical School, University of Szeged; 2018 – currently
- Workplace Animal Welfare Committee member, Albert Szent-Györgyi Medical School, University of Szeged; 2016. - currently
- Theoretical Departments Committee member, Albert Szent-Györgyi Medical School, University of Szeged; 2019. - currently

National scientific society memberships, positions

Hungarian Society of Cardiology, member of Presidium; 2022 - currently

Hungarian Society of Cardiology Translational Cardiovascular Research Working Group leader; 2022 – 2025.

Hungarian Society of Cardiology Translational Cardiovascular Research Working Group Presidium member; 2022-2025

Hungarian Society of Cardiology Translational Cardiovascular Research Working Group deputy

leader; 2019-2022.

Hungarian Society of Cardiology Experimental Section Working Group member of Presidium; 2013-2016; 2016-2019.

Hungarian Society for Experimental and Clinical Pharmacology member of executive board; 2014 - currently

Hungarian Society for Experimental and Clinical Pharmacology, Experimental Section secretary; 2018 - currently

Hungarian Society for Experimental and Clinical Pharmacology member; 1994 - currently

Hungarian Physiological Society member; 1994 - currently

Hungarian Society of Cardiology member; 1994 - currently

International scientific society memberships, positions

MyoNaK Society, Executive Board member; 2012-2017.

European Society for Cardiology - European Working Group on Cardiac Cellular Electrophysiology (EWGCCE) member; 2015 - currently

International Society for Heart Research (ISHR) member; 1994 - currently

International Union of Basic and Clinical Pharmacology (IUPHAR) member; 2012 - currently

International Academy of Cardiovascular Sciences (IACS) member; 2013 - currently

International Academy of Cardiovascular Sciences European Section (IACS-ES) secretary general; 2014 - currently

Organizer of 12 national or international meetings.

More than 30 invited talks at international conferences; on more than 25 occasions invited scientific session chair at international meetings.

Principal investigator, consortium member leader in 11 significant national or international scientific projects, including EU Horizon 2020, FP7 and FP6 programs and senior participant in 14 such grants.

Scientific Scholarships

British Council Scholarship; 1995.

János Bolyai Research Scholarship, Hungarian Academy of Sciences; 1999-2001.

János Bolyai Research Scholarship, Hungarian Academy of Sciences; 2009-2012.

New Central Europe Excellent Researcher Scholarship for Hungarian and international researchers in convergence regions; 2014-2015.

Patents

1. Mátyus P, Polonkáné Bálint Á, Krajsovsky G, Balogh B, Czompa A, Deme R, Varró A, Virág L, **Baczkó I**, Jost N, Tálosi L, Orvos P, Bánsághi Sz, Szerémy P, Tóth-Molnár E: Gyógyszerkészítmény pitvarfibrilláció kezelésére (Medication for the treatment of atrial fibrillation)

Number: P1300389

Filing year: 2013

2. Varró A, Mátyus P, **Baczkó I**, Falkay Gy, Jost N, Leprán I, Sztojkov-Ivanov A, Virág L, Buzás N: Desethylamiodarone compositions.

Lajstromszám: WO2013186746 A1

Filing year: 2013.

Number: PCT/IB2013/054871

3. **Baczkó I**, Bősze Zs, Jost N, Major P, Hiripi L, Varró A, Virág L: A KCNE1 gén domináns recesszív mutációja által okozott hosszú QT szindróma transzgenikus nyúl modellje (A transgenic rabbit model of long QT syndrome caused by a dominant recessive mutation in the KCNE1 gene)

Number: P 13 00 705 A1

Filing year: 2013

4. Acsai K, **Baczkó I**, Fülöp F, Jost N, Leprán I, Márton Z, Nagy N, Prorok J, Szakonyi Zs, Tóth A, Varró A, Virág L: Carbocyclic nucleoside analogues as novel selective sodium/calcium exchange inhibitors

Filing year: 2016

Number: P16000342

Regular PhD thesis opponent, PhD thesis defense committee member at the University of Szeged, Semmelweis University Budapest, University of Debrecen, Hungary.

Editorial Board member at the following scientific journals

1. International Journal of Molecular Sciences (Switzerland), thematic editor, 2020-currently
2. Journal of Cardiovascular Pharmacology and Therapeutics (UK), 2007- currently
3. BMC Pharmacology and Toxicology (UK), 2012- currently
4. Molecular and Cellular Biochemistry (USA), 2015- currently
5. Canadian Journal of Physiology and Pharmacology (Canada), Q2, guest associate editor, December 2014; February 2017

Invited reviewer regularly at the following scientific journals

1. British Journal of Pharmacology (D1)
2. Cardiovascular Research (D1)
3. Journal of Molecular and Cellular Cardiology (Q1)
4. Journal of Applied Physiology (Q1)
5. Life Sciences (Q1)
6. Acta Physiologica (Q1)

7. Antioxidants and Redox Signaling (Q1)
8. Progress in Biophysics and Molecular Biology (Q1)
9. Therapeutic Advances in Drug Safety (Q1)
10. Frontiers in Pharmacology (Q1)
11. Expert Opinion in Drug Safety (Q1)
12. PLoS ONE (Q1)
13. EUROPACE (Q1)
14. European Society for Cardiology Heart Failure (Q1)
15. Current Medicinal Chemistry (Q1)
16. Journal of Trace Elements in Medicine and Biology (Q1)
17. Journal of Cardiovascular Development and Disease (Q1)
18. Basic and Clinical Pharmacology and Toxicology (Q2)
19. Journal of Cardiovascular Pharmacology and Therapeutics (Q2)
20. Experimental Physiology (Q2)
21. BMC Pharmacology and Toxicology (Q2)
22. Canadian Journal of Physiology and Pharmacology (Q2)
23. Molecular and Cellular Biochemistry (Q2)
24. Biochemical Genetics (Q2)
25. Naunyn-Schmiedeberg's Archives of Pharmacology (Q2)
26. International Journal of Cardiology – Heart & Vasculature
27. Expert Reviews in Clinical Pharmacology
28. Naunyn-Schmiedeberg's Archives of Pharmacology (Q2)
29. Scandinavian Cardiovascular Journal (Q3)