

Curriculum Vitae

Saarma Mart

Orcid: <https://orcid.org/0000-0001-5543-7160>

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Degrees

Tartu University, Estonia, MSc, biochemistry and molecular biology; 1972

Tartu University, Estonia, PhD, biochemistry and molecular biology; 1975

Estonian Academy of Science, Dr. Habil.; 1986

Current employment

Research Director, head of the Laboratory of Molecular Neuroscience, Institute of Biotechnology, HiLIFE, University of Helsinki, Finland; 2018-present

Previous work experience

- Research assistant & junior researcher, Department of Biochemistry, Medical Faculty, Tartu University 1971-1977
- Head of the Laboratory of Molecular Genetics, Institute of Physics, Estonian Academy of Sciences, Tartu 1977-1980
- Head of the Department of Molecular Genetics, Institute of Chemical Physics and Biophysics, Estonian Academy of Science, Tartu, Tallinn 1980-1990
- Professor, Tallinn Technical University (part-time) 1986-2016
- Director, Professor, Institute of Biotechnology, University of Helsinki, 1990-2008
- Director, Biocenter Finland 2008-2009
- Director, Centre of Excellence, Molecular and Integrated Neuroscience Research 2008-2013
- Academy Professor, Institute of Biotechnology, University of Helsinki 2009-2013
- Professor of Biotechnology, Institute of Biotechnology 2014-2018
- Research Director, Institute of Biotechnology, HiLIFE 2018-present

Research funding and grants

- ✓ Sigrid Jusélius Medical Research Foundation grant, “Novel neurotrophic factor receptors”, **360,000 € for years 2024-2026.**
- ✓ Academy of Finland grant “Characterization of the novel pathway for neuronal survival and regeneration”, **599,000 € for years 2025-2029.**
- ✓ Collaborative Research Agreement with GeneCode and ArgoBio “GDNF mimetics for the Parkinson’s disease, for Retinitis pigmentosa and IBD”. **850, 000 € for years 2023-2025**
- ✓ Distinguished investigator award from Novo Nordisk Foundation, “Regulation of novel cell protective pathways in neurons and pancreatic beta cells by unique activators”, **820,000 € for years 2024-2027.**
- ✓ Cure Parkinson Trust Grant, UK” Novel ER stress regulators for Parkinson’s disease”, **250,000 £ for years 2025-2026.**

Research output

Altogether 325 published papers. Google Scholar citations 37700, H-index 88; Web of Science 27650, h-index 75. Last/corresponding author papers: 140; First author papers:41.

1. *We discovered that BDNF regulates inner ear vestibular innervation and NT-3 cochlear sensory innervation. We described BDNF promoters, and how BDNF is regulated by neuronal activity and found that antidepressants regulate BDNF receptor TrkB activity.*
2. *Discovery of RET as the GDNF receptor, neurturin receptor GFRa2, that NRTN-GFRa2 signaling regulates the development of the parasympathetic nervous system, and that GDNF regulates spermatogenesis.*
3. *Demonstration that the K⁺/Cl⁻ co-transporter KCC2 renders GABA hyperpolarizing during neuronal maturation and finding the crosstalk between BDNF and KCC2.*
4. *Discovery of the new growth factor CDNF and the new family of growth factors. Elucidation of their 3D structure, biology and therapeutic potential.*
5. *Discovery of a new GDNF receptor, elucidating the 3D structure GDNF-GFRa1 complex. Revealing the role of GDNF in the midbrain and developing GDNF mimetics.*

Research supervision and leadership experience

M. Saarma has supervised 44 PhD students and 22 of his PhD students or postdocs have received professorships

Teaching merits

M. Saarma has supervised 26 M.Sc. theses at the Tartu University, Tallinn Technical University, and the University of Helsinki. Since 1990, he has given the following undergraduate courses:

Department of Genetics, Tartu University 1990-1996

-lectures courses in molecular biology and protein synthesis, 36 hr, annual

Gene Technology Center, Tallinn Technical University 1997-2025

-lecture courses in biotechnology, 36 hr, annual

-lecture courses in transgenic technologies, 36 hr, annual

University of Helsinki 1990-2025

-Course “Biotech ABC”, 20 hr, annual 2023

-lectures in Cellular Neurobiology, 20 hr per year 1990-2025

-lecture course “Molecular Neuroscience”, 6 hr per year 1996-2025

-lecture course “Molecular Pharmacology”, 4 hr per year 2005-2025

-lecture course “Growth Factors and Receptors”, 30 hr biannually 2005-2016

Awards and honours

Honors

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| • Academician, Estonian Academy of Sciences | 1990 |
| • First order decoration of the Finnish White Rose Knighthood | 1999 |
| • Foreign Member of the Finnish Academy of Science | 2000 |
| • Second order decoration of the Estonian White Star | 2001 |

- Member of the Finnish Technical Academy of Sciences 2003
- European Molecular Biology organization (EMBO) member 2005
- Guest Professor of the Wuhan University, China 2011-2013
- Member of the Academia Europea 2015
- Commander of the Order of the Lion of Finland 2015
- DANA Alliance for Brain Initiatives, member 2015
- Foreign member of the Royal Swedish Academy of Science 2021
- Doctor Honoris Causa, University of Tartu 2021
- *President*, Estonian Academy of Science 2024-

Awards

- Finnish Innovation Prize 2000
- Finnish Cultural Foundation Science Prize 2000
- Väino Tanner Prize 2001
- Runeberg Medical Science Prize 2003
- Karl Schlossmann Science Prize 2004
- Nordic Science Prize, Lundbeck Foundation 2009
- Alfred Kordelin Foundation Science Prize 2013
- Biomedicum Helsinki medal and Lecture 2017
- Finnish Innovation Prize 2018
- Lifetime Achievement Award, Human Genetics Society of Estonia 2020
- Estonian Academy of Science, medal 2021
- Medix Prize, Finland 2022
- Galapagos Medical Chemistry Prize, member of the team, France 2024

Other key academic merits

- Scientific Advisory Board, Heidelberg Neuroscience Center, chairman 2002-2015
- Journal Experimental Neurol.-member of the editorial board, member 2003-
- EMBO Council, member of the council 2011-2016
- European Research Council (ERC) Sci. Council member, vice-president 2011-2016
- DANDRITE, Danish node of the Nordic-EMBL partnership, SAB chair 2013-2020
- Journal of Biological Chemistry, member of the editorial board 2014-
- Lundbeck Foundation, chairman of the Talent Panel 2015-2021
- European Union Human Brain Project, member of SAB 2017-2021
- Member of the HFSPO Council of Scientists 2021-

Scientific and societal impact

- ✓ Research agreements with companies: Amgen Inc. USA, Cephalon Inc. USA, R&D Systems Inc. USA, CNS Therapeutics Inc. USA, Kemira Ltd., Orion Pharma Ltd., Leiras Ltd., BTd Ltd., Gene Code Ltd, Icosagen Ltd.
- ✓ Licence agreements: Kemira Ltd., Amgen Inc. USA, Cephalon Inc. USA, Leiras Ltd., R&D Systems Ltd. USA, Licentia Ltd., CNS Therapeutics Inc. USA, Herantis Pharma Plc.
- ✓ Founder of the companies: Mobidiag OY (2021 sold to Hologic Inc., USA), Hermo Pharma Ltd. (Herantis Pharma Plc., IPO in 2014); Nanoform Finland (IPO 2020)-