PERSONAL INFORMATION

Family name, First name: Bespalov, Maxim
ResearcherID: O-2817-2016
Date of birth: 27.07.1976
Nationality: Russian, Finnish permanent residence permit
Date of CV: 01.03.2023

- **EDUCATION AND DEGREES COMPLETED**

19.01.2010 **PhD**
Department of Genetics, Faculty of Biological and Environmental Sciences, University of Helsinki, Finland. PhD supervisor – Prof. Mart Saarma. Title: GDNF Receptors: Veterans and Novices

1998 **Master of Science**
Department of Soil Biology, Soil Science Department, Moscow State University, Russia

- **CURRENT POSITION**

2022 – Research coordinator, Takashi Namba's "Human brain development, evolution and neurodevelopmental diseases" lab, Neuroscience Center, University of Helsinki, Finland

2019 – 2022 Postdoctoral fellow, Mitochondrial Medicine, Suomalainen-Wartiovaara Lab, Stem Cells and Metabolism Research Program. Mitochondrial diseases modeling using human induced pluripotent stem cells.

2014 – 2019 Postdoctoral fellow, Biomedicum Stem Cell Center, Molecular Neurology, Research Programs Unit, University of Helsinki, Finland. Neuronal maturation in human organoids, CRISPR activators and genome-wide screens

2012 – 2014 Postdoctoral fellow, Stem Cells and Neurogenesis Unit, Department of Neuroscience, San Raffaele Scientific Institute, Italy. Project on direct *in vitro* and *vivo* reprogramming

2009 – 2011 High-throughput screening (HTS) coordinator, Institute of Molecular Medicine Finland FIMM, University of Helsinki, Finland. I re-organized ultra-HTS facility at FIMM, making it fully operational, and also ran a self-service facility (HTS Center) at Biomedicum, University of Helsinki

2001 – 2009 Graduate student, Mart Saarma lab, Institute of Biotechnology, University of Helsinki, Finland

1999 – 2001 Graduate student, A.V. Belyavsky lab, Engelhart Institute for Molecular Biology, Russia

1996 – 1998 Undergraduate student, Vinogradsky Institute for Microbiology, Russia

1995 – 1996 Undergraduate student, Electron Microscopy Unit, Engelhart Institute for Molecular Biology, Russia

1993 – 1995 Lab technician (part-time), Electron Microscopy Unit, Engelhart Institute for Molecular Biology, Russia

- **SKILLS**

Cell reprogramming *in vitro* and *in vivo* (brain), human and mouse iPS cells generation and maintenance, neural stem cells and differentiation, brain organoids, CRISPR-mediated genome editing (knock-in), CRISPR/dCas9 gene induction, Ca^{2+} imaging (brain slices and 2D cultures), cell-based and biochemical assays development, laboratory automation and high-throughput screening, molecular cloning, lentiviruses, work with animals (including intracranial operations on living animals), microscopy (light and electron), immunological methods for molecules detection (IC, IHC, WB), protein expression and purification (*E. coli*, insect, mammalian), protein chemistry, radiological methods of molecules detection (including proteins iodination), gene expression analysis (RNA-seq data analysis, Northern analysis, RT-PCR, whole mount *in situ* hybridization), molecular simulations, docking and modeling, computational chemistry, R-language.

- **PERSONAL RESEARCH FUNDING AND GRANTS**

2012 – 2014 Sigrid Jusélius Postdoctoral Fellowship for research on direct reprogramming of somatic cells into dopaminergic neurons at Dr Broccoli lab, San Raffaeli Scientific Institute, Italy
2002 – 2006 Helsinki Graduate School in Biotechnology and Molecular Biology Fellow for PhD studies at Prof. Mart Saarma's lab, Institute of Biotechnology, University of Helsinki, Finland
2001 – 2002 Center for International Mobility Fellowship for postgraduate work at Institute of Biotechnology, University of Helsinki, Finland
1996 Soros student award

- **LEADERSHIP AND SUPERVISION EXPERIENCE**

2017 – 2019 Conceived and coordinated work on establishing the first human model of caudal brainstem development
2015 – Co-founder, Helppo Diagnostics Ltd., a start-up company aiming to develop diagnostic methods for rare disease, Finland. The company won three ELY-keskus grants
2009 – 2011 Co-established and supervised HTS core-facility, FIMM, UoH
2009 Coordinated screening, discovery and charachterization of small molecule GDNF family ligands mimetics. This discovery was granted a patent that is now used by a company
2009 – 2011 Industrial contract with BTD Ltd., Estonia for searching small molecules receptors agonists that later resulted in a patent. PI – Prof. Mart Saarma. Maxim Bespalov – team leader
2007 – 2010 Contact point for EU FP6 "CancerGRID" project and a team leader of one of its work-packages dealing with screening for inhibitors of receptor tyrosine kinase RET
2005 Organization of an expedition to collect thermophilic organisms of Kamchatka, Russia
2007 – 2019 Supervision of one postdoc, two PhD students, two Master students (Elina Pörsti defended in 2018), four summer students and three lab technicians at the University of Helsinki, Finland

- **TEACHING EXPERIENCE**

2017 – Follow-up group member for Suvi Pöyhönen, MSc, Doctoral Program in Drug Research (DPDR), University of Helsinki
2017 Tutor at "Generating mammalian cerebral cortex" short course by DPDR, University of Helsinki
2007 – 2019 Users and personnel training for a self-service high-throughput laboratory (Biomedicum, University of Helsinki, Finland)

- **EXPERIENCE OF ORGANISING SCIENTIFIC MEETINGS**

2004 – Organized a scientific visit and joint seminar at the Institute of Gene Technology, Tallinn, Estonia

- **PATENTS AND INVENTION DISCLOSURES**

1. Saarma, M., Rauvala, H., Bespalov, M.M., Tumova, S. "Novel receptor for GDNF family ligands" US2008/0057516
2. Runeberg-Roos, P., Bespalov, M.M., Penn, R.D., Saarma, M. (2013) "NRTN molecules" US Patent No. 8,445,432. License sold to CNS Pharmaceuticals Ltd, USA
3. Saarma, M., Karelson, M., Bespalov, M., Pilv, M. (2014) "Methods facilitating neuronal survival using GDNF family ligand (GFL) mimetics or RET signaling pathway activators" US Patent No. 8,901,129. Patent owned by BTD Ltd., Estonia/USA

Invention disclosures unrelated to patents

1. Bespalov M. (2022) "Scientific data analysis and visualisation web application"
2. Bespalov M., Kulesskiy E., Khirug S. (2020). "Modified SARS-CoV2 spike protein/gene for immunization"
3. Bespalov M. Kulesskiy E., Uvarov P. (2018) "Blockchain-based incentivization system for academic publishing"
4. Bespalov, M. and Otonkoski, T. (2016) "Methods for generation neuroectodermal cells and cerebral organoids from pluripotent stem cells". This invention is owned by the University
5. Balboa, D., Weltner, J., Bespalov, M., Otonkoski, T. (2016) "Methods for cell reprogramming using CRISPR/Cas9 activators"
6. Varghese, F.S., Kaukinen, P., Bespalov, M., Ahola, T. (2012) "Antivirals against chikungunya and other alphaviruses"

- **OTHER KEY SCIENTIFIC OR ACADEMIC MERITS**

2022 Developer of data analysis and visualisation tool - ScatterPlot.Bar

2014 Associate Editor at Journal of Proteolysis (ISSN 2331-6977)

2004 – Invited speaker at NTNU, Trondheim, Norway seminar (2019); speaker at developmental biology meetings and conferences (FSDB, Hyytiälä 2018; Joint BSDB/Nordic DevBio, Stockholm 2017); Invited speaker at Bio-Forum 2011 (Shanghai, China), invited seminars at Institute of Gene Technology (Estonia, 2004), Moscow State University (Russia, 2005) and "IBC Generium" (Russia, 2013)

- **MEMBERSHIPS IN SCIENTIFIC SOCIETIES**

2015 – 2019 Member, Finnish Society for Developmental Biology (FSDB), Finland
2015 – 2016 Member, International Society for Stem Cell Research
2002 – 2008 Member, Societas biochemica, biophysica et microbiologica Fenniae, Finland