

Alexander A. Bachmanov, V.V., Ph.D.

Expert in life sciences and comparative medicine with experience in basic and applied research, drug discovery, drug development, and entrepreneurship. My leadership experience puts me in a strong position to function as the critical interface between genetic discovery, functional biology, and experimental medicine.

EMPLOYMENT

2023-present GSK, Collegeville, PA, USA

Genetically Altered Animal Sciences

Science and Strategy Lead/Associate Director

Deliver an integrated enterprise-wide strategy for development and application of genetically modified animal technology. Lead the strategy, conception, design, development, and evaluation of genetically modified animal models. Monitor genetically modified animal model generation. Lead teams responsible for delivering genetically modified animal models. Initiate and manage external collaborations and third party interface. Engage with regulatory bodies and forums for animal genetics guidance. Collaborate with 3Rs strategy.

2017-2023 GSK, Collegeville, PA, USA

Comparative and Translational Sciences

Scientific Leader/Associate Director

Improve translational value of animal models to reduce drug attrition in clinical studies. Work with animal models supporting stages spanning from target identification to drug safety and formulation, and therapy areas including neurological, cardiovascular, metabolic, immuno-inflammatory, infectious, and oncological diseases. Oversee platforms; lead matrix teams; design and conduct internal and external studies; conduct due diligence and site audits of animal model vendors; serve on advisory bodies.

1994-2017 Monell Chemical Senses Center, Philadelphia, PA, USA

Director of the Behavioral and Physiological Phenotyping Core, 2011-2017

Member: 2008-2017

Associate Member: 2001-2008

Assistant Member: 1998-2001

Research Associate: 1997-1998

Postdoctoral Fellow: 1994-1997

Developed an externally funded research program in physiological and behavioral genetics. Generated several rodent models for studies in the areas of neuroscience, metabolism, and obesity, including consomic, congenic, selectively bred, and genetically engineered mice, many of which are now available from public depositories. Led multidisciplinary teams to discover novel taste receptors, including target identification (genome-wide association and transcriptomic studies) and validation (loss-of-function in vitro assays), and high-throughput screening of compound libraries. Directed a phenotyping core providing access to shared instrumentation and training in using behavioral, metabolic, electrophysiological, bioimaging and surgical approaches. Technology transfer of intellectual property, including licensing and organization of a startup company. Hired and supervised research technicians, postdoctoral

fellows and research associates. Mentored research interns, visiting scientists and junior faculty. Served as a Chair of the Grants Review and Discovery Committee, a member of the IACUC, and a backup veterinarian; organized scientific meetings; prepared institutional grant applications.

Consultant engagements and collaborative projects with: Abbott, AFB International, Ajinomoto, AnalytiCon, Chromocell, Coca Cola, Corn Products Company, Firmenich, FrieslandCampina, General Mills, Givaudan, Glaxo, HJ Heinz, Ingredion, International Flavors & Fragrances, Irish Dairy Board, Kao Corporation, Kellogg's, Kerry Ingredients and Flavors, Kewpie Corporation, Kirin, Knorr, Kraft Foods, Mars, McCormick, Mead Johnson, Monsanto, Nestle Purina, Nestle, Novartis, Opertech Bio, Parke-Davis, Pepsico, Pfizer, Procter & Gamble, Redpoint Bio, Roquette Nutrition Sciences, Sara Lee, Schering-Plough, Senomyx, SPF Diana, Stevia First, Suntory, Tate & Lyle, Unilever, Wm Wrigley Jr. Company.

1993 **Cambridge University, Cambridge, UK**
Physiological Laboratory

Royal Society Postdoctoral Fellow. Studied the role of the renin-angiotensin system in enhanced sodium appetite in rats with inherited arterial hypertension.

1984-1993 **Pavlov Institute of Physiology, St. Petersburg, Russia**
Group of Experimental Biological Models
Scientist: 1992-1993

Junior Scientist: 1987-1992

Senior Research Assistant: 1984-1986

Studied physiological and behavioral genetics in animal models. Developed research proposals, conducted experiments, analyzed data, prepared publications and administrative reports, presented results at national and international scientific meetings, supervised work of research technicians. Maintained colonies of inbred, mutant, and outbred strains of rodents. Served as a Deputy for the Head of the Group. Coordinated use of animal models across laboratories of the Pavlov Institute and with collaborating institutions.

1982-1984 **Military Conscription**
Service at a medical unit

Was responsible for administration of healthcare to personnel of more than a thousand people. Duties included drafting orders; maintaining medical documentation; organizing medical examination and follow-up treatment of new conscripts; coordinating sanitary analyses of food, water and quarters. Received several promotions and awards.

1981-1982 **Institute of Genetics and Breeding of Farm Animals, St. Petersburg, Russia**
Laboratory of Behavioral Genetics
Veterinary Specialist: 1982
Research Assistant: 1981

Studied behavior of calves and pigs in a farm setting.

EDUCATION AND DEGREES

- 1977-1982** **St. Petersburg Veterinary Institute, Russia**
Veterinary Medicine
1982 - Veterinarnyi Vrac (V.V., Veterinary Doctor), Hons, degree conferred; GPA 5.0/5.0; the degree is eligible for the AVMA certification
- 1985-1990** **Pavlov Institute of Physiology, St. Petersburg, Russia**
Behavioral and Physiological Genetics
1990 - Candidate of Biological Sciences (Ph.D.) degree conferred

AFFILIATIONS

- 2019 - present** [Monell Chemical Senses Center](#), Philadelphia, PA
Affiliated Scientist
- 2018 - present** [Institute for Translational Medicine and Therapeutics](#)
The University of Pennsylvania, Philadelphia, PA
Affiliate Member
- 2016 - 2017** **Diabetes Research Center (DRC)**
The University of Pennsylvania, Philadelphia, PA
Member
- 2003 - 2014** **Penn Genome Frontiers Institute (PGFI)**
The University of Pennsylvania, Philadelphia, PA
Member

SCIENTIFIC SOCIETIES

- American Association for Laboratory Animal Science (AALAS)
- American Association of Pharmaceutical Scientists (AAPS)
- Association for Chemoreception Sciences (AChemS)
- Genetics Society of America (GSA)
- International Mammalian Genome Society (IMGS)
- Research Society on Alcoholism (RSA)
- Society for the Study of Ingestive Behavior (SSIB)

ADVISORY BODIES

Served as a reviewer, member, or consultant to:

- National Institutes of Health, USA
- National Science Foundation, USA
- Medical Research Council, UK
- Wellcome Trust, UK
- United States - Israel Binational Science Foundation
- Netherlands Organisation for Scientific Research
- Portuguese Foundation for Science and Technology
- Federal Research Centre for Projects Evaluation and Consulting Services, Russia
- Research Grants Council, Hong Kong, China
- Mouse Phenome Project, The Jackson Laboratory, USA
- Institute for Diabetes Obesity and Metabolism, the University of Pennsylvania, USA
- American Association for the Advancement of Science, Research Competitiveness Program
- Innovation & Quality Consortium, Drug Product Pediatric Working Group
- European Paediatric Formulation Initiative

RESEARCH SKILLS

- Genetics
 - Chromosomal mapping, positional cloning, selective breeding, genetic engineering, molecular biology, bioinformatics
- Neuroscience, Physiology, Nutrition, Metabolism
 - Behavior, sensory systems, metabolism, body composition, blood pressure, alcohol intake
 - Experimental and ethological behavioral techniques, high-throughput behavioral and physiological phenotyping, experimental surgery
- Animal models
 - Experience with a wide range of animal species: laboratory, companion, farm, and wild
 - Laboratory animal breeding: inbred, mutant, outbred, selectively bred, consomic, congenic, and genetically engineered strains
- Statistics

MAIN SCIENTIFIC ACHIEVEMENTS

- The first successful identification of a behavioral quantitative trait locus through positional cloning
- Discovery of sweet (*Tas1r3*), salt (*Scnn1a*) and fat (*Gpr113*) taste receptor genes
- >100 research publications

PUBLICATIONS

- NCBI My Bibliography: <http://www.ncbi.nlm.nih.gov/myncbi/browse/collection/40935293/?sort=date&direction=descending>
- ORCID: <http://orcid.org/0000-0002-2861-3322>
- Research Gate: https://www.researchgate.net/profile/Alexander_Bachmanov
- Scopus: <https://www.scopus.com/authid/detail.uri?authorId=7004145396>

PATENTS

Taste receptors of the T1R family from domestic cat. Inventors: Li X, Li W, Reed DR, **Bachmanov AA**, Brand JG. Assignee: Monell Chemical Senses Center. Patent No.: US 7,527,944, issues in Australia, pending in Europe. PCT number PCT/US2004/015136. Date of Patent: May 5, 2009. Patent No.: US 8,173,769 Date of Patent: May 8, 2012. Patent No.: US 8,710,186. Date of Patent: Apr 29, 2014

Compositions Containing a Bitter Tastant and at Least One Sophorolipid, and Methods of Reducing Bitter Taste Attributed to a Bitter Tastant in an Edible Composition. Solaiman D, Ashby R, Ozdener M, **Bachmanov A**. USDA ARS and Monell Chemical Senses Center. U.S. Patent No.: US15/388,615. PCT/US16/68506. Application granted 2018-12-18.

RESEARCH FUNDING

- Supported my research program from external sources during 1997-2017
- Conducted projects funded by government (NIH, USDA) and industry (drug, food, beverage, flavor)
- Chair of Monell's Grant Review and Discovery Committee (2007 - 2017), responsible for identification of external sources of funding, administrative support for grant writing, and internal grant review

STRATEGIC PLANNING

- 2005-2007 - Member of the 5-Year Strategic Plan Committee, and Chair of the Science Programs Recommendation Group, Monell Center
- 2012-2013 - Member of two Strategic Plan Subcommittees: Funding & Development, and Academic Directions, Monell Center

DEVELOPMENT OF RESEARCH INFRASTRUCTURE

- 2002 - Participated in constructing a new research facility at Monell. Interacted with architects to design a facility that suits individual and combined needs of scientists. Participated in writing an NIH facility construction grant application, which has been awarded. Interacted with architects and contractors during construction.
- 2009 – Participated in preparation of an NIH C06 grant application, "Monell Center: Energy and Environment Improvements," to renovate main systems of the building. Assembled a team of scientists and administrators who wrote the proposal. Reviewed the application.
- 2012 - Served as a Principal Investigator of an NIH G20 (Developing and improving institutional animal resources) grant application "Upgrades of the Animal Facility at the Monell Chemical Senses Center" requesting \$488,929 to purchase ventilated mouse caging systems and renovate rooms housing these systems. Assembled and coordinated work of a team of administrators and engineers who prepared materials for the application, and wrote the application.

HIRING AND TRAINING

- Hired and trained research technicians, undergraduate and graduate students, postdoctoral fellows, and visiting scientists
- Member of the Monell Faculty Search Committee
- Member of a Search Committee for Director and President of the Monell Center

ENTREPRENEURSHIP AND BUSINESS EXPERIENCE

- Background in economics: took courses in Political Economy, Economics and Management of Agricultural Industry, Management and Economics of Veterinary Services, and Principles of Law at the Veterinary Institute (graduates were prepared for a possible career path as managers of industrial farms)
- 1991 - 1992 - Small business in distribution of veterinary medicines
- 1994 - Set up a US partnership to export veterinary supplies
- 2015 - 2017 - Participated in organization of a startup company

INTERNATIONAL EXPERIENCE

- Worked in Russia, UK, and USA
- Academic collaborations with scientists from Russia, Japan, China, France, and Switzerland

LANGUAGES

- English - full professional proficiency
- Russian - native
- German - limited working proficiency