

## CURRICULUM VITAE

### Vsevolod Veniaminovich GUREVICH, Ph.D.

Department of Pharmacology  
Vanderbilt University Medical Center  
2200 Pierce Avenue  
Preston Research Building, Rm. 418  
Nashville, TN 37232  
(615) 322-7070  
(615) 343-6532 FAX  
e-mail: Vsevolod.Gurevich@vanderbilt.edu  
Lab web site: <https://medschool.vanderbilt.edu/gurevich-lab/>

Home address: 8104 Westhaven Dr.  
Nashville, TN 37221

**Place of birth:** Lvov, Ukraine (former USSR)  
**Nationality:** US citizen (naturalized)  
**Marital status:** Married, has a daughter

#### EDUCATION:

Moscow State University Moscow, Russia	B.S., M.S.	1980	Biology/Biochemistry
Masters Thesis Advisor: Prof. Dr. V. L. Voeikov. Shemyakin Institute of Bioorganic Chemistry Moscow, Russia	Ph.D.	1990	Bioorganic Chemistry
Ph. D. Thesis Advisor: Prof. Dr. V. M. Lipkin.			

#### PROFESSIONAL EXPERIENCE:

11/17 – present	Cornelius Vanderbilt Endowed Chair, Vanderbilt University, Nashville, TN
7/17 – present	Professor of Ophthalmology and Visual Sciences, Vanderbilt University, Nashville, TN
12/07 – present	Professor of Pharmacology, Vanderbilt University, Nashville, TN
10/02 – present	Member of Vanderbilt Institute of Chemical Biology
10/01 – 12/07	Associate Professor of Pharmacology, Vanderbilt University, Nashville, TN
1/98 - 9/01	Head and Principal Scientist, Ralph and Muriel Roberts Laboratory for Vision Science, Sun Health Research Institute, Sun City, AZ
9/95 - 12/97	Staff Scientist, Sun Health Research Institute, Sun City, AZ
4/94 - 8/95	Research Associate, Department of Pharmacology, Thomas Jefferson University, Philadelphia, PA
6/91 - 3/94	Postdoctoral Fellow, Department of Pharmacology, Thomas Jefferson University, Philadelphia, PA (supervisor – Dr. Jeffrey L. Benovic)
12/83 - 5/91	Research Scientist, Division of Shemyakin Institute of Bioorganic Chemistry, Pushchino, Moscow Region, Russia
9/80 - 11/83	Graduate Research, Shemyakin Institute of Bioorganic Chemistry, Moscow, Russia
9/78 – 8/80	Undergraduate research, Moscow State University, Moscow, Russia

#### OTHER PROFESSIONAL ACTIVITIES:

NIH Special Emphasis Panel 2023/10 ZTR1 RD-1 (01) 1 (July 19, 2023)  
Swiss National Science Foundation grant reviewer (June 2023)  
Swiss National Science Foundation grant reviewer (May 2023)  
Agence Nationale de la Recherche (ANR, France) AAPG 2023 grant reviewer (April 2023; May 2023)  
European commission grant reviewer (April 2023)  
NIH Special Emphasis Panel 2023/05 ZTR1 RD-7 (01) 1 (March 7-8, 2023)

ABRC grant - Arizona Department of Health Services reviewer (July 2022)  
 Swiss National Science Foundation (SNSF) PRIMA proposal reviewer (April 2022)  
 NIH Special Emphasis Panel ZRG1 CB-M (55) to review R35 applications (March 14-15, 2022)  
 Agence Nationale de la Recherche (ANR, France) grant reviewer (May 2021)  
 NIH Special Emphasis Panel ZRG1 CB-J70 to review R03 applications (March 10-11, 2020).  
 Fonds National Suisse (Swiss National Science Foundation) grant reviewer (November 2019).  
 NIH fellowship panel ZRG1 F05U (June 2019).  
 ARVO 2019 session moderator, Session 231, Molecular mechanisms of retinal function in health and disease, April 29, 2019, ARVO annual meeting, Vancouver, Canada, April 28 - May 2, 2019.  
 National science center ((Narodowe Centrum Nauki - NCN), Poland – SONATA grant reviewer (March 2019).  
 Fonds National Suisse (Swiss National Science Foundation) (SNF) grant reviewer (November 2018).  
 Session organizer and moderator, XXIII Biennial Meeting of the International Society for Eye Research, Belfast, Northern Ireland, UK (September 9-13, 2018).  
 Session moderator, ARVO annual meeting 2018, Honolulu, Hawaii, April 29-May 4 (2018).  
 Fonds National Suisse (Swiss National Science Foundation) (SNF) grant reviewer (May 2018)  
 Austrian Science Fund (FWF) grant reviewer (April 2018)  
 NIH Special Emphasis Panel/Scientific Review Group NIH Transformative Research Awards 05 ZRG1 BCMB-A (51) R (April 2018)  
 NIH ZRG1 CB-P (55) (MIRA grants review) (November 2017)  
 NIH ZRG1 CB-W (55) (MIRA grants review) (November 2017)  
 NIH MIST study section (June 2017).  
 Member of the organizing committee, International Conference on Toxicology and Clinical Pharmacology, December 14-16, 2017 (Rome, Italy)  
 Netherlands Organization for Scientific Research (NWO) Chemical Sciences. Veni application reviewer (March 2017)  
 Wellcome Trust/DBT India Alliance grant reviewer (January 2017)  
 Marsden Fund (New Zealand) proposal reviewer (July 2016)  
 Indiana Diabetes Research Center (IDRC) Pilot & Feasibility grant reviewer (May 2016)  
 Agence Nationale de la Recherche (ANR, France) pre-proposal reviewer (November-December, 2015)  
 Member of the organizing committee, International Conference on Synthetic Biology, Houston, TX (September 28-29, 2015)  
 Marsden Fund (New Zealand) proposal reviewer (September 2015)  
 NIH BVS study section (June 2015)  
 Session Moderator, 2<sup>nd</sup> GPCR Targeted Screening, Berlin, Germany, May 7-8, 2015.  
 French National Research Agency (ANR) – MEMOARE project reviewer (May 2015)  
 NIH 2015/05 ZRG1 CBR 02M Special emphasis panel (March 2015; Chair)  
 NIH 2015/05 TAG Therapeutic Approaches to Genetic Diseases Study Section (March 2015)  
 NIH, 2015/05 ZRG1 GGG-Q (50) R PAR Panel: Innovative Therapies and Tools for Screenable Disorders in Newborns (March 2015)  
 Netherlands Organization for Scientific Research (NWO) Chemical Sciences. Veni application reviewer (March 2015)  
 Scientific Advisory Board member and Session Chair for 2<sup>nd</sup> GPCR screening meeting, May 7-8, 2015, Berlin, Germany (December 2014 – May 2015).  
 NIH, 2015/01 ZRG1 TAG-Q (01) Q Therapeutic Approaches to Genetic Diseases (October 2014)  
 NIH, 2015/01 ZGM1 TWD-6 (SC) Peer Review of Support of Competitive Research (SCORE) Grant Applications (November 2014)  
 Research Foundation Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO), Pegasus – Short application reviewer (2014).  
 Scientific Advisory Board member and Session Chair for GPCR screening meeting, May 22-23, 2014, Boston (December 2013 – May 2014).

NIH, ZDA1 SXC-E 10 S, CEBRA: Cutting-Edge Basic Research Awards (R21) Study Section (December 2013).

NSF, CAREER program, Neural System Cluster proposal reviewer (November 2013).

NIH, Therapeutic Approaches to Genetic Diseases TAG/ ZRG1 GGG Q 50 Study Section (November 2013).

Research Foundation Flanders (Fonds Wetenschappelijk Onderzoek - Vlaanderen, FWO) Project Award Reviewer (2013)

Session moderator, annual meeting of the Association for Research in Vision and Ophthalmology, Seattle, WA (Symposium Architecture of the Eye: Structural Biology and Vision, May 5, 2013).

NIH, BVS study section (February 11-12, 2013)

NIH, HLBP 1, program project reviewer (February 5, 2013)

Science Foundation Ireland (Fonduireacht Eolaíochta Eireann) Project Award Reviewer (2012)

FNP (Fundacja na rzecz Nauki Polskiej), Poland, TEAM project reviewer (2012)

Session Chair, 15<sup>th</sup> International Conference on Retinal Proteins, Monte Verita, Ascona, Switzerland, September 29 - October 5, 2012.

Session moderator, annual meeting of the Association for Research in Vision and Ophthalmology, Ft Lauderdale, FL (2000, 2003, 2009, 2012).

French National Research Agency (l'Agence Nationale de la Recherche (ANR)) proposal reviewer (2010)

Session Chair, Track 1 - Basic Research in Neuroscience, Neurotalk-2010, Singapore, June 25, 2010.

NIH, ZRG1 CB-N58 Challenge grants reviewer (2009)

NIH, ZRG1 CB-G96 reviewer (2009)

NSF ad hoc proposal reviewer (2003, 2004, 2005, 2006, 2008, 2009)

Arizona Disease Control Research Commission, National Peer Review Panel Member (2005, 2006, 2008, 2009; 2014)

NIH, BDPE study section ad hoc reviewer (2008).

NIH, ZRG1 CB-G90 Retinopathy Studies panel reviewer (2007, 2008, 2009, 2010)

NIH, ZDA1 MXS-M (31) - National Institute on Drug Abuse Special Emphasis Panel reviewer (2007)

NIH, ZRG1 F05 study section reviewer (NRSA Fellowships in Cell Biology and Development) (2005, 2007, 2008)

Austrian Science Fund (FWF - Fonds zur Förderung der Wissenschaftlichen Forschung *Biologie & Medizin*) proposal reviewer (2006)

NIH, BDPE study section reviewer (2005).

Science Foundation Ireland (Fonduireacht Eolaíochta Eireann), SFI Fellow Award Reviewer (2005)

NSF Signal Transduction panel member (2004)

NIH, SSS-U (03) Special Emphasis Panel reviewer (2004)

NIH, NCI ZCA1 Special Emphasis Panel reviewer (2003)

NIH, Visual C study section reviewer (2001, 2002, 2003).

NIH, NHLBI program project reviewer (2001)

Reviewer:

*Cell*

*Nature*

*Nature Structural & Molecular Biology*

*Nature Chemical Biology*

*Nature Communications*

*Developmental Cell*

*Molecular Cell*

*Trends in Biochemical Sciences*

*Trends in Neurosciences*

*Trends in Pharmacological Sciences*

*Proceedings of the National Academy of Sciences USA*  
*EMBO Journal*  
*Nature nanotechnology*  
*Cell Chemical Biology*  
*Developmental Biology*  
*FASEB Journal*  
*Structure*  
*BioEssays*  
*Trends in Molecular Medicine*  
*Molecular Biology of the Cell*  
*Journal of Neuroscience*  
*EMBO Reports*  
*eLife*  
*Progress in Retinal and Eye Research*  
*Communications Biology*  
*Science Signaling*  
*Journal of Cell Biology*  
*Scientific Reports*  
*Cellular Signaling*  
*Angewandte Chemie*  
*Oncogene*  
*Neuropsychopharmacology*  
*Journal of Biological Chemistry*  
*The Journal of Pharmacology and Experimental Therapeutics*  
*Computational and Structural Biotechnology Journal*  
*Annals of the New York Academy of Sciences*  
*Acta Pharmaceutica Sinica B*  
*Immunology and Cell Biology*  
*Cell reports*  
*Current Opinion in Structural Biology*  
*Cell Proliferation*  
*PLoS One*  
*Journal of Thermal Biology*  
*British Journal of Pharmacology*  
*British Journal of Psychology*  
*Cancers*  
*Experimental and Molecular Pathology*  
*Pharmacology Reviews*  
*Molecular Pharmacology*  
*Biochemistry*  
*Biochemical Journal*  
*Journal of Neurochemistry*  
*Frontiers in Molecular Biosciences*  
*Frontiers in Pharmacology*  
*Frontiers in Endocrinology*  
*Frontiers in Cell and Developmental Biology*  
*Frontiers in Immunology*  
*Molecular Endocrinology*  
*FASEB Journal*  
*FEBS Journal*  
*Current Research in Pharmacology and Drug Discovery*

*Pharmacological Research*  
*Investigative Ophthalmology and Visual Science*  
*Journal of Genetic Medicine and Gene Therapy*  
*Computational and Structural Biotechnology Journal*  
*Vision Research*  
*Gene*  
*Expert Opinion on Therapeutic Targets*  
*Biotechnology Advances*  
*Molecular Pharmaceutics*  
*Expert Opinion on Drug Discovery*  
*World Journal of Stem Cells*  
*Ageing Research Reviews*  
*Cell Biology International*  
*Microvascular Research*  
*Advances in Pharmacology*  
*British Journal of Cancer*  
*Neurochemistry International*  
*Molecular Immunology*  
*European Journal of Medicinal Chemistry*  
*European Neuropsychopharmacology*  
*Cells*  
*Life*  
*Molecular Dynamics*  
*Frontiers in Molecular Neuroscience*  
*Biotechnology Progress*  
*Journal of Receptors and Signal Transduction*  
*Frontiers in Experimental Pharmacology and Drug Discovery*  
*Frontiers in Molecular and Structural Endocrinology*  
*Frontiers in Cell and Developmental Biology*  
*International Journal of Cancer*  
*Technology in Cancer Research and Treatment*  
*Journal of Proteomics & Bioinformatics*  
*Molecular Cancer*  
*Developmental Biology*  
*ACS Pharmacology & Translational Science*  
*ACS Medicinal Chemistry Letters*  
*ACS Chemical Neuroscience*  
*BMC Evolutionary Biology*  
*Molecular Cancer Research*  
*Experimental Cell Research*  
*Current Molecular Pharmacology*  
*Molecules*  
*Receptors*  
*Pharmaceuticals*  
*Acta Pharmaceutica Sinica B*  
*Pesticide Biochemistry and Physiology*  
*Ophthalmic Research*  
*Journal of Biotechnology Advances*  
*Journal of Basic and Clinical Physiology and Pharmacology*  
*Photochemistry and Photobiology*  
*Archives of Biochemistry and Biophysics*

*Experimental Eye Research*  
*Cell Biochemistry and Biophysics*  
*Cell Communication and Signaling*  
*Cell Systems*  
*Archives of Pharmacal Research*  
*Molecular Vision*  
*Communications Biology*  
*Immunological Investigations*  
*Computational and Structural Biotechnology Journal*  
*World Journal of Cardiology*  
*World Journal of Gastroenterology*  
*International Journal of Molecular Sciences*  
*Current Biotechnology*  
*BMC Research Notes*  
*BMC Cell Biology*  
*Biomolecules*  
*Biomedicines*  
*Journal of Molecular Medicine*  
*Therapeutic advances in Advances in Biological Chemistry*  
*Regulatory Peptides*  
*Marine Drugs*  
*Traffic*  
*International Journal of Neuropsychopharmacology*  
*BBA Biomembranes*  
*BBA Molecular Cell Research*  
*E Chronicon Pharmacology and Toxicology*  
*European Neuropsychopharmacology*  
*Expert Opinion on Drug Discovery*  
*Expert Opinion on Therapeutic Targets*  
*Therapeutic Advances in Medical Oncology*  
*Archives in Pharmacal research*  
*Research on Diabetes*  
*Journal of Computer-Aided Molecular Design*  
*Receptor*  
*Sensors*

## **EDITORIAL BOARDS**

Journal of Biological Chemistry (Assistant Editor, 2006 – 2011; 2015-2017)  
 World Journal of Biological Chemistry (Editorial Board member, 2009 - present; Editor-in-Chief, 2018 - present)  
 Frontiers in Experimental Pharmacology and Drug Discovery (Associate Editor, 2010 - present)  
 Science Open (Editorial Board member, 2013 - present)  
 Genes and Diseases (Editorial Board member, 2013 - present)  
 Frontiers in Neuroscience (Editorial Board member, 2016 - present)  
 International Journal of Molecular Sciences (Editorial Board member, 2016 – present)  
 Frontiers in Molecular Neuroscience (Associate Editor, March 2018 – present)

## **HONORS AND AWARDS:**

1980 - Graduated *summa cum laude*

2004, 2005, 2011 – Teacher of the Year Award (student-awarded, “With special recognition for excellence in lecturing and willing assistance in the design and execution of experiments”), Department of Pharmacology, Vanderbilt University

2017 - Cornelius Vanderbilt Endowed Chair in the Basic Sciences of the School of Medicine

### **PROFESSIONAL AFFILIATIONS**

Association for Research in Vision and Ophthalmology

American Society for Biochemistry and Molecular Biology

American Chemical Society

### **TEACHING ACTIVITIES**

DIRECTOR OF GRADUATE STUDIES, Department of Pharmacology, 2011-2014.

ASSOCIATE DIRECTOR OF GRADUATE STUDIES, Department of Pharmacology, 2005-2011.

### **GRADUATE COURSES**

Membrane proteins structure and function (2016, 2017, 2018, 2019, 2020, 2021, 2022)

Arrestin structure-function lecture in GPCR signaling course (May 2021, Oregon Health Sciences University)

Receptor theory (Pharmacology) (2020, 2021)

IGP Receptor theory and signal transduction (2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021)

Enzyme kinetics and receptor theory (IGP minimester) (2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021)

Bioregulation (cell signaling) (2018)

Receptor theory and GPCR signaling (October 8-12, 2012; Leipzig University, Germany)

Quantitative Reasoning (2005)

Psychotropic drugs (2003)

### **MEDICAL SCHOOL COURSES**

Key concepts in Pharmacology and Receptor theory for physicians. In: Human Blueprint and Architecture (August 2013)

Introduction to Concepts in Pharmacology: Receptor Thinking for Physicians. In: Diseases, Drugs, and Targets (March 2013)

### **COMMITTEES**

Neuroscience Qualifying Examination Committee (June 12, 2023; Jaybree Lopez)

Biochemistry Qualifying Examination Committee (May 11, 2023; Jordan Stacy)

Pharmacology Qualifying Examination Committee (May 8, 2023; Lauren Schnitkey)

Biochemistry Qualifying Examination Committee (May 27, 2020; Ivette Perez)

Chemical and Physical Biology Qualifying Examination Committee for Shannon Smith (September 9, 2019)

Interdepartmental Graduate Program Admissions Committee (2005-2011)

Pharmacology Qualifying Examination Committee (2005-2006, Chair; 2010-2011, Chair)

Molecular Neuroscience Qualifying Exam Committee (2004)

Neuroscience Qualifying Examination Committee (December 2005; William Walker) (Defended his thesis 3/17/2008)

Neuroscience Qualifying Examination Committee (September 2010; Gloria Naa Atswei Laryea) (Defended her thesis 7/17/2014)

Neuroscience Qualifying Examination Committee (September 2011; Nicholas Ward)

Biochemistry Qualifying Examination Committee (October 2011; Lund, Evan Gordon)

Cell and Developmental Biology Qualifying Exam Committee (November 2011-January 2012; Holmes (Rohweder), Noelle Kristine)

Molecular Physiology and Biophysics Qualifying Exam Committee (March 11, 2014; Capozzi, Megan Elise)

Neuroscience Phase I examination committee (July 28, 2014; Alyssa Dawn Lokits) (Defended her thesis on 5/1/2017)

Biological Sciences Honors Committee (April 21, 2015; Regina Jiweon Lee; recommended for Honors)

Neuroscience Honors Thesis committee (April 23, 2015; King, Elizabeth Ann; recommended for High Honors)

Chemical and Physical Biology qualifying examination committee (June 2019, Haley Stubbs)

### **JUNIOR FACULTY MENTORING COMMITTEES**

- Benjamin W. Spiller, Assistant Professor of Pharmacology (2009-2015). Dr. Spiller was promoted to Associate Professor of Pharmacology with tenure.
- Ana Marin Dias Carneiro, Assistant Professor of Pharmacology (2010-2017). Dr. Carneiro switched to a career in Industry.
- Richard Sando, Assistant Professor of Pharmacology (Chair; 2022-present).

### **UNDERGRADUATE STUDENTS' RESEARCH SUPERVISED**

(\* - research resulted in publication(s) where the student is a co-author)

- \* Paz, Cherlton L. (1998-1999)
- \* Climaco, Gregory C. (1999-2000) MD/PhD from Washington University, St Louis, MO. Currently practicing medicine in Alamogordo, NM
- \* Velez, Maria-Gabriela (1999-2001) Recipient of NIH MARC award (2001-2002). 2001-2002 - an intern at Mayo Clinic, Rochester, MO. MD-PhD student at the University of Colorado, Denver (Defended her thesis in March, 2008).
- Olander, Lisa (2000-2001)
- Liles, Rebecca (2000-2001)
- \* Gurevich, Yulia V. (2000-2001)
- Harris, Jana E. (2001) Subsequently obtained her Ph.D. at Vanderbilt University.
- Amundson, Claire M. (2003)
- Frederick, Elaine Courtney (IMSD Post Baccalaureate student, 2003-2004). Subsequently obtained PhD at Brown University.
- McMillan, David H. (2004)
- Ooms, Laura Sue (2005)
- Cheng, Frances Yun (2006-2007) (subsequently - MD-PhD student at Vanderbilt University)
- Boyd, Hayley Elizabeth (June-August 2008)(summer internship; 2008-present, PhD student at Vanderbilt University)
- Tavalakov, Ruben (June 2009 – 2010)(summer internship; then volunteer)
- \* Nagel, Stefanie (June-August 2010; summer internship as a part of Master's program at Leipzig University, Germany) (married last name: Babilon). Subsequently obtained PhD at Leipzig University.
- \*Tsakem, Elviche L. (Research Assistant in the lab, January 2010 - August 2011)
- Richter, Konstantin (June-August 2011; summer intern from Leipzig University)
- Colon, Jonotan (Research Assistant in the lab, August 2011- May 2013)
- \*Hong, Yuan (October 2011 – April 2012; intern)
- \*Perez, Alejandro (January 2012-2013; EMPHASIS student). Subsequently obtained Md at Vanderbilt
- \*Kristen Rose Findley (August 2012 – May 2013; Biomedical Engineering senior at Vanderbilt; volunteer)



- William Moore Wigle (January - May 2013; Neuroscience junior at Vanderbilt; trainee in NSC 292a)
- Paige Elizabeth Massey (January – December 2013; Neuroscience junior at Vanderbilt; trainee in NSC 292a, NSC 292b)
- \*Regina Jiweon Lee (January 2013-May 2015; Molecular and Cellular Biology major at Vanderbilt; volunteer; for May-August 2013 - Irene & Eric Simon Brain Research Foundation Summer Fellow; defended her honors thesis April 21, 2015; 2015-2017 a post-bac at NIH; currently a student at the University of Indiana School of Medicine)
- \*Jack Vincent Slagis, (February 2013-2014; Biology major at Vanderbilt; volunteer)
- Nebiyat Zewdie (June-August 2013, Biological Sciences major, University of Maryland, Baltimore County; ASPET summer scholar).
- Denis Hüwel (July-October 2013; DAAD RISE worldwide summer scholar from Ludwig-Maximilians-Universität München, Germany).
- \*Henriette Stoy (August-October 2013; DAAD RISE worldwide summer scholar from Eberhard Karls Universität Tübingen, Germany; September-December 2014, volunteer in the lab).
- Jacqueline E. Harris (June-July 2014, UCRIP student from College of Sciences at Georgia Tech; Biochemistry, Pre-Medicine Major).
- Georg Vucak (July-October, 2014; February-March 2015; Master's student at the University of Graz, Austria)
- Ulrike Kinkel (July-October, 2014; summer internship as a part of Master's program at Leipzig University, Germany)
- \*Andreas Franz (August-October 2014; DAAD RISE worldwide summer scholar from Freie Universität Berlin, Germany)
- Aline Jede (August-October 2014; DAAD RISE worldwide summer scholar from Technische Universität Dresden, Germany)
- Muhammad Suhaib Mahmood (January-May 2015; Pre-Medicine Major at Vanderbilt, volunteer)
- \*Prokop, Susanne Clara (June-August 2015) (Vanderbilt International Summer Short-term Fellow; medical student at Semmelweis University, Budapest, Hungary)
- Samihah Islam (May - October 2015; Neuroscience major at Vanderbilt; volunteer)
- \*Xu, Qiuyi (Pam) (June – October 2015; Molecular and Cellular Biology major at Vanderbilt; volunteer)
- Tobias Hänsch (June-August 2015) Summer student from Leipzig University, Germany, supported by Max Kade Foundation.
- \*Jonas Tholen (July-December 2015; DAAD RISE worldwide summer scholar from University of Applied Sciences Emden-Leer, Emden, Germany)
- Ariana Rauch (August-October 2015) DAAD RISE worldwide summer scholar from Freie Universität Berlin, Germany.
- Jakob Gasse (July-September 2016). Summer exchange Masters student from Leipzig University, Germany, supported by Max Kade Foundation.
- Anastasia Lendel (January-May 2017). Vanderbilt undergrad. Volunteer in the lab.
- Reema Shirole (March-June 2017). Volunteer.
- Bianca Balzasch (July-October 2017). DAAD RISE worldwide summer scholar from Heidelberg Universität, Germany
- Eva-Maria Jülke (July-October 2017). Summer student from Leipzig University, Germany, supported by Max Kade Foundation.

- Luwi Joy Shamambo (August 2017 – June 2018). Vanderbilt undergrad. Volunteer in the lab.
- Mariana Lopes dos Santos (May-June 2018) – observer in the lab. Biomedicine student at the Federal University of Health Sciences of Porto Alegre (UFCSPA) (Brazil).
- \*Elizabeth Kuree Huh (October 2018 – May 2021). Vanderbilt undergrad. Volunteer in the lab.
- \*Preethi Choudary Karnam (January 2019 – May 2021). Vanderbilt undergrad. Volunteer in the lab.
- Aashvi M. Patel (January – June 2019). Vanderbilt undergrad. Volunteer in the lab.
- \*Mira Bella May (June-August 2019). REU summer student from Pomona College (Claremont, CA).
- Liana Danielle Weinstein (June 2019 – May 2021). Vanderbilt undergrad. Volunteer in the lab.
- Rebecca Kang (June - July 2019). Vanderbilt undergrad. Volunteer in the lab.
- Marie Bielenberg (June - July 2019). DAAD RISE worldwide summer scholar from Christian-Albrechts-Universität zu Kiel, Germany
- Paul Allen (September 2019 – March 2020). Vanderbilt undergrad. Volunteer in the lab.
- Abhijeet Grewal (January 2020 – August 2022). Vanderbilt undergrad. Volunteer in the lab.
- Ameera Ilyas (August-November 2020). Vanderbilt undergrad. Volunteer in the lab.
- Evan Curtin (October 2020 – May 2021). Vanderbilt undergrad. Volunteer in the lab.
- Rehan Ghanta (May 2021 – January 2022). Vanderbilt undergrad. Volunteer in the lab.
- \*Samantha Oviedo (June-August 2021). REU summer student from University of Texas at San Antonio (UTSA).
- Qianqin Guo (January 2022 – present). Vanderbilt undergrad. Volunteer in the lab.
- Lohitha Basa (September - October 2022). Vanderbilt undergrad. Volunteer in the lab.

### **GRADUATE STUDENTS SUPERVISED**

Preceptor in the following graduate programs: Pharmacology, Molecular Neuroscience, Chemical and Physical biology, Ophthalmology and Visual Science.

(\* - research resulted in publication(s) where the student is a co-author; \*\* - 5 or more publications: \*\*\* - 10 or more publications)

- Brad Grueter (January-March, 2002) (rotation)
- Choya Yoon (September-October 2002) (rotation)
- \*\*\*Susan Marie Hanson (Ph.D. student in the lab March 2002-August 2005). Defended her thesis 8/30/2005. Currently Assistant Professor in Health and Medicine, Carroll University.
- Todd Andrew Townsend (October-December 2003) (rotation)
- Ipshita Chakraborty (September-October 2004) (rotation)
- Sylvain Le Marchand (September-December 2004) (rotation)
- Blount, Anthony Craig (September – December 2004) (independent study: structure and function of arrestin proteins)
- Xianfei Sun (March-May 2005)(rotation)
- Paige Elizabeth Selvy (March-May 2006)(rotation)
- \*\*Whitney Marie Cleghorn (PhD student in the lab March 2006-June 2012). Defended her thesis June 8, 2012. Post-doc at the University of Washington (Dr. J. Hurley lab), 2012-2017; since 2017 – Assistant Professor, University of Puget Sound, WA.
- Kari Myers (September-October 2006)(rotation)
- \*Sergio Coffa (PhD student in the lab April 2007 – July 2011). Defended his thesis July 27, 2011. Post-doc at Virginia Commonwealth University, August 2011-February 2012. Pharmacology Patent Examiner at the United States Patent and Trademark Office (USPTO), February 2012-present).

- Ketron, Adam Christopher (August-October 2007)(rotation)
- \*Lenou (Tsakem), Elviche Luclece (August 2009 – August 2011) (transferred to UT Southwestern, Dallas, TX, for family reasons)
- Couch, Frank Benjamin (Jami) (September-October 2009) (rotation)
- Zurawski, Zack P (November-December 2009) (rotation)
- Sandra Berndt (February-April 2011) (exchange graduate student from Leipzig University, Germany)
- \*Palazzo, Maria Christine (January-August 2011) (rotation)
- \*\*\*Chen, Qiuyan (2010-2015) (graduate student in the lab; co-mentored with Dr. T. M. Iverson). Defended her thesis October 1, 2015. Started a post-doc at the University of Michigan, Ann Arbor; moved in August 2017 with her PI Dr. Tesmer to Purdue University. Currently Assistant Professor of Biochemistry and Molecular Biology at the Indiana University School of Medicine (Indianapolis).
- \*Lizama, Britney Nola (September-October 2012) (rotation)
- Oliver, Kendra Helen (November-December 2012) (rotation)
- \*Wanka, Lizzy (September-November 2013) (exchange graduate student from Leipzig University, Germany)
- Carrington, Sheridan Jared Seku (January-February 2014 )(rotation)
- \*\*\*Perry, Nicole Anne (Nicki) (January-February 2015) (rotation) (May 2015 – March 2019, graduate student in the lab; co-mentored with Dr. T. M. Iverson) Defended her thesis March 4, 2019.
- \*Marcus, David J (January-February 2015) (rotation)
- Marlow, Brennica (November-December 2015) (rotation)
- Justin T. Marinko (January-February 2016) (rotation)
- \*Indrischek, Henrike (May-August 2016) (exchange graduate student from Leipzig University, Germany)
- Bridget Collins (August 2016) MSTP student (rotation)
- Sebastian, Melaine (September-October 2017) (rotation)
- Stubbs, Haley (January-February 2018) (rotation)
- Yelena Perevalova (March-April, 2020) (rotation)
- Lauren Schnitkey (November 2021) (rotation)
- Emelyne Pacull (exchange graduate student from Leipzig University, Germany) (February – May 2022)

#### **STUDENT MASTERS COMMITTEES**

- Sliwoski, Gregory Richard (Pharmacology)(January-July 2012). Defended July 2012. Then PhD student at Leipzig University (Germany). Defended PhD thesis in 2015.
- Lund, Evan Gordon (Biochemistry)(2011-2013). Defended January 2014.
- Jinnah, Hussain (Pharmacology) (Chair; 2014-2021). Awarded Masters October 2021.

#### **STUDENT Ph.D. COMMITTEES**

- Henage, Lee (Pharmacology) (Chair; 2002-2006). Successfully defended his thesis on 1/11/2006.
- Hanson, Susan Marie (Pharmacology) (Mentor; 2002-2005). Successfully defended her thesis on 8/30/2005.
- Rula, Elizabeth Young (Pharmacology) (2003-2008). Successfully defended her thesis on 8/11/2008.
- Oldham, William Michael (Pharmacology) (Chair; 2004-2006). Successfully defended his thesis on 6/08/2006.

- Manderfield, Lauren June (Pharmacology) (Chair; 2004-2008). Successfully defended her thesis on 9/03/2008.
- Voss, Bryan Martin (Pharmacology) (2004-2007). Successfully defended his thesis on 6/26/2007.
- Townsend, Todd Andrew (Pharmacology) (2005-2008). Successfully defended his thesis on 3/27/08.
- Walker, William (Neuroscience) (Chair; 2005-2008). Successfully defended his thesis 3/17/2008.
- Misra, Sunita N (Pharmacology) (2005-2008). Successfully defended her thesis 6/9/2008.
- Nordstrom, Sarah Melissa (Pharmacology) (Chair; 2005-2007). Successfully defended her thesis on 12/12/2007.
- Gustin, Richard Michael (Pharmacology) (Chair; 2006-2010). Successfully defended his thesis on 6/15/2010.
- Cleghorn, Whitney Marie (Pharmacology) (Mentor; 2006-2012). Successfully defended her thesis June 8, 2012.
- Mazalouskas, Matthew David (Pharmacology) (Chair, 2007-2014). Successfully defended his thesis on 3/7/2014.
- Selvy, Paige Elizabeth (Pharmacology) (2007-2011). Successfully defended her thesis on 10/28/2011.
- Coffa, Sergio (Pharmacology) (Mentor; 2007-2011). Successfully defended his thesis on 7/27/2011.
- Swan, Christina Elizabeth (Pharmacology) (2007-2012). Successfully defended her thesis on 8/16/2012.
- Watkins, Guy Richard (Pharmacology) (2008-2012). Successfully defended his thesis on 7/30/2012.
- Lian, Na (Pharmacology) (Chair; 2008-2010). Successfully defended her thesis on 12/09/2010.
- Pitts, Ronald Jason (Biological Sciences) (2008-2011). Successfully defended his thesis on 4/01/2011.
- Bridges, Thomas Miller (Pharmacology) (Chair; 2008-2010). Successfully defended his thesis on 8/17/2010.
- Downey, Jason Duane (Pharmacology) (Chair; 2008-2012). Successfully defended his thesis on 11/6/2012.
- Thaker, Tarjani Mahesh (Biochemistry) (2009-2013). Successfully defended her thesis on 8/23/2013.
- LeNoue-Newton, Michele Laura (Pharmacology) (2009-2015). Successfully defended her thesis on 8/23/2013
- Anderson, Lyndsey Leigh (Pharmacology) (Chair; 2010-2014). Defended her thesis on 11/12/2015.
- Yin, Shen (Pharmacology) (Chair; 2010-2013). Successfully defended her thesis on 9/23/2013.
- Ho, Karen (Pharmacology) (2012-2014). Successfully defended her thesis on 8/18/2014.
- Chen, Qiuyan (Pharmacology) (Co-mentor with Tina Iverson; 2011-2015). Successfully defended her thesis on 10/1/2015.
- Colin James Stockdale Klaus (Mathematics) (2013-2017). Successfully defended his thesis on 8/23/2017.
- Savage, Sara Renee (Pharmacology) (2013-2015). Successfully defended her thesis on 8/21/2015.
- Dar'ya S. Redka (University of Toronto School of graduate studies, Canada). Member of final oral examination committee for the Degree of Doctor of Philosophy, Toronto, Canada, May 15, 2014. Successfully defended her thesis and passed oral exam on May 15, 2014.
- Mai, Tu Hoang (Pharmacology). Member of the thesis committee for defense and final exam, May 30, 2014. Successfully defended her thesis on 5/30/2014.

- Babilon, Stefanie (Leipzig University, Germany). Second examiner and evaluator of PhD thesis (June-July, 2014). Successfully defended her thesis in 2014.
- Lokits, Alyssa Dawn (Neuroscience) (Chair; 2014-2017). Successfully defended her thesis on 5/1/2017.
- Oliver, Kendra Helen (Pharmacology) (2015-2016). Successfully defended her thesis on 7/28/2016.
- Sliwoski, Gregory Richard (Leipzig University, Germany). External evaluator of PhD thesis (November 2015). Successfully defended his thesis in 2016.
- Bender, Brian (Pharmacology) (Chair; 2015-2018). Successfully defended his thesis November 1, 2018.
- Perry, Nicole Anne (Pharmacology) (Co-Mentor; November 2016 – March 2019). Successfully defended her thesis March 4, 2019. Married last name – Perry-Hauser.
- Saurabh Pandey (Indian Institute of Science Education and Research (IISER) Mohali, Punjab, India). External evaluator of PhD thesis (March-April, 2017).
- Mario Schubert (Leipzig University, Germany). External evaluator of PhD thesis (April 2018). Successfully defended his thesis in June 2018.
- Parker de Waal (Van Andel Institute) Member of final oral examination committee for the Degree of Doctor of Philosophy, Grand Rapids, Michigan, July 25, 2019. Successfully defended his thesis and passed oral exam on July 25, 2019.
- Nicole M. Fisher (Pharmacology) (August 2019 – October 2020). Successfully defended her thesis on October 15, 2020.
- Hofmann, Christopher S. (Pharmacology) (Chair; January 2020 – August 2021). Successfully defended his thesis on August 9, 2021.
- Shannon Talli Smith (Chemical and Physical Biology) (April 2019 – November 2022). Successfully defended her thesis on November 9, 2022.
- Haley Stubbs (Chemical and Physical Biology) (Chair; June 2020 - present).
- Anna R. Eitel (Biochemistry) (July 2020 – present).
- Ivette Perez (Biochemistry) (May 2020 – present). Successfully defended her thesis on May 16, 2023.
- Dawei Song (Karolinska Institute, Sweden). Opponent at PhD thesis defense (February 2022). Successfully defended his thesis on February 25, 2022.
- Juliana Quay (Chemical and Physical Biology) (April 2022 – present).
- Jordan Stacy (Biochemistry) (April 2023 – present)

#### **POSTDOCTORAL FELLOWS SUPERVISED**

(\* - research resulted in publication(s) where the post-doc is a co-author; \*\* - 5 or more publications; \*\*\* - 10 or more publications)

- \*\*\*Sergey A. Vishnivetskiy (1997-2004). Currently Research Assistant Professor at Vanderbilt University.
- \*Ling Pan (1999-2002). Married name – Ling Pyktel. Currently CEO of Turning Technologies, Shanghai, PRC.
- \*Elena Kolobova (2002-2005)
- \*Dayanidhi Raman (2003-2006). Currently Assistant Professor at the University of Toledo.
- \*\*\*Susan Hanson (2005 – 2006). Currently Assistant Professor at Carroll University.
- \*\*\*Xiufeng Song (2004-2009). (Moved for family reasons to a Postdoctoral fellow position at Massachusetts General Hospital/Harvard Medical School).
- \*\*\*Seunghui Kook (2004-2014). Currently Research Instructor, Vanderbilt.

- \*\*\*Xuanzhi Zhan (2008-2014). Currently Assistant Professor of Chemistry, Tennessee Tech University, Cookeville, TN.
- \*\*\*Luis Eduardo Diaz Gimenez (2008-2014). Currently staff scientist, University of Michigan, Ann Arbor.
- \*Jungwon Seo (2009-2010). Currently Assistant Professor at Wonkwang University, Korea
- \*Maya Breitman (2010-2011) (Moved for family reasons; became Research Instructor at ETSU, Johnson City, TN; currently Instructor, CWRU School of Medicine, Cleveland, OH).
- \*\*Faiza Baameur (2012-2013). Currently post-doc at MD Andersen Center, Houston, TX.
- \*\*\*Sandra Berndt (June 2015-May 2020). Currently Staff Scientist, Leipzig University, Germany.
- \*\*\*Qiuyan Chen (October 2015 – May 2016; mini post-doc in the lab to finish projects started during graduate career; moved to post-doctoral position at the Lab of J. G. Tesmer, University of Michigan, then Purdue University, June 1, 2016; from July 1 2022 – Assistant Professor of Biochemistry, Indiana University School of Medicine).
- \*Chen Zheng (August 2016 – August 2021). Currently Research Instructor at Vanderbilt University.
- Deepak Balasubramanian (July 2017 – July 2018)
- Jeffery Dunning (August 2017 – December 2020). Currently post-doc at Scripps Institute, CA.
- \*Srimal Samaranyake (September 2017 – November 2020)
- \*\*\*Nicole Perry (March 2019 - May 2019) (mini post-doc in the lab to finish projects started during graduate career; moved to post-doctoral position in the lab of Dr. J. Javitch at Columbia University)

#### **LAB GRADUATES – FACULTY OR EQUIVALENT**

- Susan Marie Hanson – Assistant Professor in Health and Medicine, Carroll University, Waukesha, WI (2009 -present)
- Ling Pan (1999-2002). Married name – Ling Pyktel. Currently CEO of Turning Technologies, Shanghai, PRC.
- Dayanidhi Raman - Research Assistant Professor at the Department of Cancer Biology, Vanderbilt University (2007-2015). Assistant Professor, University of Toledo (2015 - present).
- Jungwon Seo - Assistant Professor at Wonkwang University, Korea (February 2011 – present)
- Sergio Coffa - Pharmacology Patent Examiner at the United States Patent and Trademark Office (USPTO)
- Xuanzhi Zhan – Assistant Professor of Chemistry, Tennessee Tech University, Cookeville, TN (August 2014 – present)
- Whitney Marie Cleghorn – Assistant Professor, University of Puget Sound, WA (from October 2017)
- Srimal Samaranyake – Research scientist (ocular) at Spark Therapeutics, Inc
- Qiuyan Chen – Assistant Professor of Biochemistry, Indiana University School of Medicine (from July 1, 2022)

#### **TRAINEE AWARDS:**

Susan Marie Hanson, graduate student

2002 – Pharmacology Retreat Talk, 1<sup>st</sup> place

Whitney Marie Cleghorn, graduate student:

2007 - Pharmacology Retreat Talk, 2<sup>nd</sup> place

2007 – ASBMB travel award

2011 – Richard Newton Lolley travel award from The ARVO Foundation for Eye Research

2011 – FASEB travel award

Xiufeng Song, Post-Doctoral Fellow:

2008 – ASBMB travel award

2008 – Richard Newton Lolley travel award from The ARVO Foundation for Eye Research

Luis Eduardo Gimenez, Post-Doctoral Fellow:

2010 – ASBMB travel award

2011 – Keystone Meeting travel award

Seunghyi Kook, Post-Doctoral Fellow:

2010 – ASBMB travel award

Qiuyan Chen, graduate student:

2011-12 – Vanderbilt International Scholar Program grant award (covers full year of tuition and stipend)

2011 – Travel award for GPCR Workshop Dec 4-8, 2011, Maui, Hawaii

2011 - Pharmacology Retreat Talk, 2<sup>nd</sup> place

2011 - Pharmacology Graduate Training Dissertation Enhancement Grant

2016 - The Anne Karpay Award in Structural Biology.

Xuanzhi Zhan, Post-Doctoral Fellow:

2013 – ASBMB travel award

Regina Jiweon Lee, undergraduate intern

2013 - Irene & Eric Simon Brain Research Foundation Summer Fellow Award

Lizzy Wanka, exchange graduate student from Leipzig University

2013 - Exchange fellowship award from Vanderbilt-Leipzig University collaboration.

Sergey A. Vishnivetskiy, Research Instructor

Session moderator, annual meeting of the Association for Research in Vision and Ophthalmology, Orlando, FL (Symposium Phototransduction, May 6, 2014).

Nicole A. Perry, graduate student

2018-2019 – American Heart Association Individual pre-doctoral fellowship 18PRE34030017.

2015 - Pharmacology Retreat Talk, 2<sup>nd</sup> place

2016-2018 – American Heart Association Individual pre-doctoral fellowship 16PRE30180007.

2017 – Philanthropic Educational Organization (PEO) Women in Science award

2017 – Lee Limbird dissertation enhancement grant (VU Pharmacology)

2017 – 1<sup>st</sup> place, graduate student talk at the Vanderbilt Institute of Chemical Biology retreat

2018 – Lai Sulin Scholarship

2018 – Dean’s Award for Exceptional Achievement

2019 - GRS/GRC award in Molecular Pharmacology

Henrike Indrischek, exchange graduate student from Leipzig University

2016 - Exchange fellowship award from Vanderbilt-Leipzig University collaboration.

Chen Zheng, post-doctoral fellow

2019 – Best post-doctoral poster award, Vanderbilt

Elizabeth Kuree Huh, undergraduate intern

2019 - Vanderbilt Summer Research program (VUSRP) fellowship

2019 - Irene & Eric Simon Brain Research Foundation Summer Fellow Award

2020 – undergraduate student travel award (to attend annual ARVO meeting)

Samantha Oviedo, 2021 REU student

2022 – Goldwater scholarship

2023 – NSF Graduate Research Fellowship Program award

#### **UNIVERSITY SERVICE:**

Structural Biology Search Committee (Dept. of Pharmacology, 2004)

Earl W. Sutherland, Jr. Lecture Planning Committee for 2005

Admissions Committee, Interdisciplinary Graduate Program in the Biological Sciences (2005-2011)  
 Vanderbilt University Medical Center Basic Science Planning Committee (2007-2008)  
 Inter-Departmental Graduate Program Internal Review Committee (2009)  
 Cell Signaling Search Committee (Dept. of Pharmacology, 2009-11)  
 Pharmacology Graduate Program Training Advisory Group (2010-2014)  
 Steering Committee, Interdisciplinary Graduate Program (2011-2014)  
 Vanderbilt University School of Medicine Faculty Appointments and Promotions Committee (2011-2013)  
 Vanderbilt University Graduate Faculty Council (2011- 2016)  
 Vanderbilt School of Medicine internal grant review committee (2011, 2012)  
 Vanderbilt School of Medicine bridge funding review committees for faculty members (2011, 2012, 2013)  
 Quarterly Basic Science Education Group (2011- 2014).  
 The Potocsnak Family Discovery Grant in Regenerative Visual Neuroscience at the Vanderbilt Eye Institute reviewer (2013).  
 Poster judge for the 2014 VUMC Postdoctoral Research and Shared Resources Symposium (April 2014).  
 Poster judge for the 2015 VUMC Postdoctoral Research and Shared Resources Symposium (April 28, 2015).  
 Poster judge for the 2016 VUMC Postdoctoral Research and Shared Resources Symposium (April 29, 2016).  
 Poster judge for the 2017 Vanderbilt Postdoctoral Research and Shared Resources Symposium (April 19, 2017).  
 Poster judge for the 2018 Vanderbilt Postdoctoral Research and Shared Resources Symposium (April 12, 2018).  
 VEI internal grant reviewer – April 2017.  
 VICTR studio grant review (basic science) – September 2017.  
 WVBS Committee (2017 – 2019)  
 Review committee for awards for Excellence in Teaching in the School of Medicine (VUMC) – January 2020.  
 Committee on the Status of Women in Vanderbilt Basic Sciences (2018-2019)  
 Vanderbilt University Task Force on Administrial Effectiveness (April 2020 – present).  
 Poster judge for the 2020 Vanderbilt Postdoctoral Research and Shared Resources Symposium (October 2020).  
 Vanderbilt School of Medicine Faculty Awards for Outstanding Contributions to Research Committee (2020, 2021, 2022).  
 VICTR studio grant review (basic science) – February 2021.  
 Department of Pharmacology faculty search committee (September 2021 – present).  
 Reviewer of Pilot and Feasibility Project for Diabetes Research and Training Center (December 2021)

### **Diversity training**

Course on cultural awareness (December 1-4, 2020)  
 Best Practices in Unbiased Faculty Recruiting (September 16, 2021)

### **FINANCIAL RESOURCES (GRANTS AND CONTRACTS)**

#### **CURRENT GRANTS**

#### **NIH Research Grant RO1 EY011500**

Project Title: Structure-function studies of visual arrestin

PI: V.V. Gurevich

Direct costs from 04/01/1997 through 3/31/2001: \$484,483.

Direct costs from 04/01/01 through 3/31/05: \$175,000 per annum.



Direct costs for the period 4/1/2005-7/31/2009: \$335,584; \$345,652; \$356,021; \$366,702.  
 Direct costs for the period 8/1/2009-7/31/2014: \$355,213; \$365,869; \$376,845; \$388,151; \$399,795.  
 Direct costs for the period 4/1/2015-3/31/2019: \$331,603 annually  
 Direct costs for the period 6/1/2020-5/31/2024: \$378,479 annually

Supplement **3R01EY011500-23A1S1** 2020 Funds to purchase ERG system - \$49,265

NIH Research grant (MIRA award) **R35 GM122491**

(This grant merges GM077561 and GM109955)

Project Title: Targeted Engineering of Designer Arrestins to Regulate Cell Signaling

PI: V.V. Gurevich

Direct costs from 5/1/2017 to 4/30/2022: \$360,000 annually.

NIH Supplement 3 R35 GM122491-02S1 Funds to purchase stereotaxis. \$32,490.

NSF DMS1812601(PI: DiBenedetto) 08/01/2018-07/31-2021

Project Title: Bridging Across Scales to Model Cone Phototransduction

Total budget - \$300,294.00 per annum

7% effort

Cornelius Vanderbilt Endowed Chair (Vanderbilt University)

\$100,000 annually from 2017

COMPLETED

1R21 DA043680-01 (co-PI with Iverson, T.M.) 04/01/2017-03/31/2019

NIH

Project Title: Mechanisms of signal bias in arrestins

5% effort

NIH Research Grant **RO1 GM077561**

Project Title: Arrestin interactions with non-receptor binding partners (became part of MIRA R35 GM122491 award)

Direct costs from 04/01/2007 through 03/31/2011: \$180,000 per annum

Direct costs from 04/01/2012 through 03/31/2016: \$182,051; \$163,172; \$163,172; \$163,172.

NIH Research Grant **RO1 GM109955**

Project Title: Regulation of GPCR signaling with receptor-specific arrestins (became part of MIRA R35 GM122491 award)

Direct costs (1/1/2015-12/31/2018): \$236,742 per annum (from 5/1/2017 merged into R35 GM122491)

NIH Research Grant RO1 GM081756-01A1

Project Title: Conformational regulation of arrestin-mediated signaling

Direct costs \$213,250 per annum from 7/1/2008 through 6/30/2012 (includes subcontract to MCW, \$50,000 direct plus \$25,750 indirect per annum)

ARRA Research Supplement R01 GM081756-02S1

Project Title: Conformational regulation of arrestin-mediated signaling

Direct costs \$180,000 per annum (2009-2010)

Supplement 3 R01 EY011500-08S1

PI: V.V. Gurevich

Project Title: Structure-function studies of visual arrestin (Equipment supplement).

Direct costs \$54,190 (2003-2004)

Supplement 3 RO1 GM077561-01S1

Project Title: Arrestin interactions with non-receptor binding partners (Equipment supplement).

Direct costs \$25,000 (2007)

NIH Research Grant RO1 GM63097: Molecular mechanisms of arrestin function.

PI: V.V. Gurevich

Direct costs from 04/01/01 through 3/31/05: \$166,000 per annum.

Vanderbilt Discovery Grant 1040659012

Project Title: Arrestin role in photoreceptor survival

Direct costs \$50,000 per annum (2006-2007)

## PATENTS

1. Zozulya, S.A., Shirokova, E.P., **Gurevich, V.V.**, Kharitonov, S.I., Udovichenko, I.P., Zvyaga, T.A., Natochin, M.Y., and Badalov, P.R. Recombinant plasmid DNA pTISP6, coding the synthesis of RNA polymerase from *Salmonella typhimurium* phage SP6, the method of its construction and *E. coli* strain, overproducing SP6 RNA polymerase. USSR patent No1547313 (01/11/89).
2. **Gurevich, V.V.**, Gurevich, E.V., Zhan, X. Vanderbilt University. Peptide regulators of JNK family kinases. US patent 15/892,853 (02/09/2018).

## PUBLICATIONS IN PEER-REVIEWED JOURNALS:

Total citations (from Google Scholar): >20,700; h-index: 76; i10 index: 204

(<https://scholar.google.com/citations?user=O7PY3eAAAAAJ&hl=en>)

1. Voeikov, V.L., and **Gurevich, V.V.** Effects of trypsin on the regulation of  $\beta$ -adrenergic receptor by guanyl nucleotides. *Bioorg. Khim. (Rus)* **8**: 533-541 (1982).
2. Voeikov, V.L., Vilenskaya, N.D., Lukashev, M.E., and **Gurevich, V.V.** Isolation of rat reticulocyte membranes containing guanyl nucleotide sensitive adenylate cyclase and  $\beta$ -adrenergic receptor. *Bioorg. Khim. (Rus)* **8**: 524-532 (1982).
3. Voeikov, V.L., and **Gurevich, V.V.** Separation of free and bound to solubilized  $\beta$ -adrenergic receptor [3H]dihydroalprenolol using cation exchange resin. *Bioorg. Khim. (Rus)* **9**: 628-632(1983).
4. Voeikov, V.L., **Gurevich, V.V.**, and Udovichenko, I.P. Isolation of the  $\beta$ -adrenergic receptor from bovine cerebellum. *Biol. Membr. (Rus)* **1**: 65-73 (1984).
5. Zozulya, S.A., **Gurevich, V.V.**, Shmukler, B.E., Natochin, M.Y., Zvyaga, T.A., Gryaznov, S.M., and Shirokova, E.P. Synthesis of visual rhodopsin in a cell-free translation system. I. The effect of the structure of the synthetic bovine opsin mRNA on its translational efficiency. *Bioorg. Khim. (Rus)* **14**: 1663-1670 (1988).
6. Natochin, Yu.V., Parnova, R.G., **Gurevich, V.V.**, Didina, S.E., Reznik, L.V., and Shakhmatova, E.I. Chemical composition of the haemolymph and ionic regulation in cells of the caterpillar *Pieris Brassicae*. *J of Evolutionary Biochem and Physiol (Rus)* **24**: 149-156 (1988).
7. **Gurevich, V.V.**, Zozulya, S.A., Zvyaga, T.A., Natochin, M.Y., Shirokova, E.P., Garnovskaya, M.N., Dumler, I.L., Shmukler, B.E., and Korotkova, N.V. Functional activity of visual rhodopsin expressed in vitro. *Biol Membr (Rus)* **6**: 647-649 (1989).
8. Zozulya, S.A., **Gurevich, V.V.**, Zvyaga, T.A., Dumler, I.L., Garnovskaya, M.N., Shmukler, B.E., Natochin, M.Y., Shirokova, E.P., and Badalov, P.R. *In vitro* synthesis of visual rhodopsin for a protein engineering study. *J. Prot. Chem.* **8**: 380-382 (1989).
9. **Gurevich, V.V.**, Zozulya, S.A., Shirokova, E.P., Zvyaga, T.A., Garnovskaya, M.N., Dumler, I.L., Badalov, P.R., Natochin, M.Y., Pokrovskaya, I.D., and Shmukler, B.E. Synthesis of visual rhodopsin in a cell-free translation system. II. Functional properties of recombinant rhodopsin and its mutant forms. *Bioorg. Khim. (Rus)* **16**: 303-308 (1990).
10. Zozulya, S.A., **Gurevich, V.V.**, Zvyaga, T.A., Shirokova, E.P., Dumler, I.L., Garnovskaya, M.N., Natochin, M.Y., Shmukler, B.E., and Badalov, P.R. Functional expression *in vitro* of bovine visual rhodopsin. *Protein Engineering* **5**: 453-458 (1990).
11. **Gurevich, V.V.**, Zozulya, S.A., Zerf, E.P., Pokrovskaya, I.D., Obukhova, T.A., Garnovskaya, M.N., Dumler, I.L., and Rychkova, M.P. Visual rhodopsin: amino acid substitutions Asp83->Asn, and Glu 134->Gln prevent activation of cGMP phosphodiesterase. *Biomedical Science* **1**: 527-530 (1990).

12. **Gurevich, V.V.**, Pokrovskaya, I.D., Garnovskaya, M.N., Dumler, I.D., and Zozulya, S.A. Proper cotranslational insertion of the visual rhodopsin into lipid bilayer occurs in the absence of protein translocation machinery. *Biomedical Science* **2**: 187-192 (1991).
13. **Gurevich, V.V.**, Zozulya, S.A., Pokrovskaya, I.D., and Obukhova, T.A. Preparative *in vitro* mRNA synthesis using SP6 and T7 RNA polymerases. *Anal. Biochem.* **195**, 207-213 (1991).
14. **Gurevich, V.V.**, and Benovic, J.L. Cell-free expression of visual arrestin: Truncation mutagenesis identifies multiple domains involved in rhodopsin interaction. *J.Biol.Chem.* **267**, 21919-21923 (1992).
15. **Gurevich, V.V.**, and Benovic, J.L. Visual arrestin interaction with rhodopsin: Sequential multisite binding ensures strict selectivity towards light-activated phosphorylated rhodopsin. *J.Biol.Chem.* **268**, 11628-11638 (1993).
16. Sterne-Marr, R., **Gurevich, V.V.**, Goldsmith, P., Bodine, R.C., Sanders, C.Y., Donoso, L.A., and Benovic, J.L. Polypeptide variants of  $\beta$ -arrestin and a novel arrestin family member. *J.Biol.Chem.* **268**, 15640-15648 (1993).
17. **Gurevich, V.V.**, Richardson, R.M., Kim, C.M., Hosey, M.M., and Benovic, J.L. Binding of wild type and chimeric arrestins to the m2 muscarinic cholinergic receptor. *J.Biol.Chem.* **268**, 16879-16882 (1993).
18. Krupnick, J.G., **Gurevich, V.V.**, Schepers, T., Hamm, H.E., and Benovic, J.L. Arrestin-rhodopsin interaction: Multi-site binding delineated by peptide inhibition. *J.Biol.Chem.* **269**, 3226-3232 (1994).
19. **Gurevich, V.V.**, Chen, C.-Y., Kim, C.M., and Benovic, J.L. Visual arrestin binding to rhodopsin: Intramolecular interaction between the basic N-terminus and acidic C-terminus of arrestin may regulate binding selectivity. *J.Biol.Chem.* **269**, 8721-8727 (1994).
20. Kunapuli, P., **Gurevich, V.V.**, and Benovic, J.L. Phospholipid-stimulated autophosphorylation activates the G protein-coupled receptor kinase GRK5. *J.Biol.Chem.* **269**, 10209-10212 (1994).
21. Pokrovskaya, I.D., and **Gurevich, V.V.** *In vitro* transcription: preparative yields in analytical scale reactions. *Anal. Biochem.* **220**, 420-423 (1994).
22. **Gurevich, V.V.**, Dion, S.B., Onorato, J.J., Ptasienski, J., Kim, C.M., Sterne-Marr, R., Hosey, M.M., and Benovic, J.L. Arrestin interactions with G protein-coupled receptors: Direct binding studies with rhodopsin, b2-adrenergic, and m2 muscarinic cholinergic receptors. *J.Biol.Chem.* **270**, 720-731 (1995).
23. **Gurevich, V.V.**, and Benovic, J.L. Visual arrestin binding to rhodopsin: Diverse functional roles of positively charged residues within the phosphorylation-recognition region of arrestin. *J.Biol.Chem.* **270**, 6010-6016 (1995).
24. Goodman, O.B., Krupnick, J.G., Santini, F., **Gurevich, V.V.**, Penn, R.B., Gagnon, A.W., Keen, J.H., and Benovic, J.L.  $\beta$ -Arrestin functions as a clathrin adaptor to promote  $\beta$ 2-adrenergic receptor endocytosis. *Nature* **383**, 447-450 (1996).
25. **Gurevich, V.V.**, and Benovic, J.L. Mechanism of phosphorylation-recognition by visual arrestin and its role in arrestin transition into high-affinity binding state. *Mol. Pharmacol.* **51**, 161-169 (1997).
26. Goodman, O.B., Jr., Krupnick, J.G., **Gurevich V.V.**, Benovic, J.L., and Keen, J.H. Arrestin/Clathrin Interaction: localization of the arrestin binding locus to the clathrin terminal domain. *J. Biol. Chem.* **272**, 15017-15022 (1997).
27. Gray-Keller, M.P., Detwiler, P.B., Benovic, J.L., and **Gurevich V.V.** Arrestin with a single amino acid substitution quenches light-activated rhodopsin in a phosphorylation-independent fashion. *Biochemistry* **36**, 7058-7063 (1997).
28. Krupnick, J.G., **Gurevich, V.V.**, and Benovic, J.L. Mechanism of Quenching of Phototransduction. Binding competition between arrestin and transducin for phosphorhodopsin. *J. Biol. Chem.* **272**, 18125-18131 (1997).
29. Pals-Rylaarsdam, R., **Gurevich, V.V.**, Lee, K.B., Ptasienski, J.A., Benovic, J.L., and Hosey, M.M. Internalization of the m2 Muscarinic Acetylcholine Receptor: Arrestin-independent and -dependent pathways. *J. Biol. Chem.* **272**, 23682-23689 (1997).
30. **Gurevich, V.V.**, Pals-Rylaarsdam, R., Benovic, J.L., Hosey, M.M., and Onorato, J.J. Agonist-receptor-arrestin, an alternative ternary complex with high agonist affinity. *J.Biol.Chem.* **272**, 28849-28852 (1997).

31. Goodman, O.B., Jr, Krupnick, J.G., Santini, F., **Gurevich, V.V.**, Penn, R.B., Gagnon, A.W., Keen, J.H., and Benovic, J.L. Role of arrestins in G-protein-coupled receptor endocytosis. *Adv. Pharmacol* **42**, 429-433 (1998).
32. **Gurevich, V.V.** The selectivity of visual arrestin for light-activated phosphorhodopsin is controlled by multiple non-redundant mechanisms. *J.Biol.Chem.* **273**, 15501-15506 (1998).
33. Mukherjee, S., Palczewski, K., **Gurevich, V.V.**, Benovic, J.L., Banga, J.P., and Hunzicker-Dunn, M. A direct role for arrestins in desensitization of luteinizing hormone/choriogonadotropin receptor in porcine ovarian follicular membranes. *Proc. Natl. Acad. Sci. USA*, **96**, 493-498 (1999).
34. Gelber, E.I., Kroeze, W.K., Willins, D.L., Gray, J.A., Sinar, C.A., Hyde, E. G., **Gurevich, V.V.**, Benovic, J.L., and Roth, B.L. Structure and function of the third intracellular loop of the 5-hydroxytryptamine-2A receptor: the third intracellular loop is alpha-helical and binds purified arrestins. *J. Neurochem.* **72**, 2206-2214 (1999).
35. Mukherjee, S., Palczewski, K., **Gurevich, V.V.**, and Hunzicker-Dunn, M. Beta-arrestin-dependent desensitization of luteinizing hormone/choriogonadotropin receptor is prevented by a synthetic peptide corresponding to the third intracellular loop of the receptor. *J.Biol.Chem.* **274**, 12984-12989 (1999).
36. Koor, A., Celver, J., Abdryashitov, R.I., Chavkin, C., and **Gurevich, V.V.** Targeted construction of phosphorylation-independent  $\beta$ -arrestin mutants with constitutive activity in cells. *J.Biol.Chem.* **274**, 6831-6834 (1999).
37. Vishnivetskiy, S.A., Paz, C.L., Schubert, C., Hirsch, J.A., Sigler, P.B., and **Gurevich, V.V.** How does arrestin respond to the phosphorylated state of rhodopsin? *J. Biol. Chem.* **274**, 11451-11454 (1999).
38. Hosey, M.M., Pals-Rylaarsdam, R., Lee, K.B., Roseberry, A.G., Benovic, J.L., **Gurevich, V.V.**, and Bunemann, M. Molecular events associated with the regulation of signaling by M2 muscarinic receptors. *Life Sci.* **64**, 363-368 (1999).
39. Hirsch, J.A., Schubert, C., **Gurevich, V.V.**, and Sigler, P.B. The 2.8Å crystal structure of visual arrestin: a model for arrestin's regulation. *Cell* **97**, 257-269 (1999).
40. Schubert, C., Hirsch, J.A., **Gurevich, V.V.**, Engelman, D.M., Sigler, P.B., and Fleming, K.G. Visual arrestin activity may be regulated by self-association. *J. Biol. Chem.* **274**, 21186-21190 (1999).
41. Lee, K.B., Ptasienski, J.A., Pals-Rylaarsdam, R., **Gurevich, V.V.**, and Hosey, M.M. Arrestin binding to the M2 muscarinic acetylcholine receptor is precluded by an inhibitory element in the third intracellular loop of the receptor. *J. Biol. Chem.* **275**, 9284-9289 (2000).
42. Mushegian, A.R., Vishnivetskiy, S.A., and **Gurevich, V.V.** Conserved phosphoprotein interaction motif is functionally interchangeable between ataxin-7 and arrestins. *Biochemistry* **39**, 6809-6813 (2000).
43. Smith, W.C., Gurevich, E.V., Dugger, D.R., Shelamer, C.L., Vishnivetskiy, S.A., McDowell, H., and **Gurevich, V.V.** Cloning and functional characterization of salamander rod and cone arrestins. *Invest. Ophthalmol. Vis.Sci.* **41**, 2445-2455 (2000).
44. Mukherjee, S., **Gurevich, V.V.**, Jones, J.C.R., Casanova, J.E., Frank, S.R., Maizels, E.T., Bader, M.-F., Kahn, R.A., Palczewski, K., Aktories, K., and Hunzicker-Dunn, M. The ADP ribosylation factor nucleotide exchange factor ARNO promotes beta-arrestin release necessary for luteinizing hormone/choriogonadotropin receptor desensitization. *Proc. Natl. Acad. Sci. USA* **97**, 5901-5906 (2000).
45. Vishnivetskiy, S.A., Schubert, C., Climaco, G.C., Gurevich, Y.V., Velez, M.-G., and **Gurevich, V.V.** An additional phosphate-binding element in arrestin molecule: implications for the mechanism of arrestin activation. *J.Biol.Chem.* **275**, 41049-41057 (2000).
46. Celver, J.P., Lowe, J., Koor, A., **Gurevich, V.V.**, Chavkin, C. Threonine 180 is required for GRK3 and arrestin3 mediated desensitization of Mu opioid receptor in *Xenopus* oocytes. *J.Biol.Chem.*, **276**, 4894-4900 (2001).
47. Bennet, T.A., Prossnitz, E.R., Key, T.A., **Gurevich, V.V.**, Neubig, R., and Sklar, L.A. Real-time analysis of G protein-coupled receptor reconstitution in a solubilized system. *J.Biol.Chem.* **276**, 22453-22460 (2001).
48. Han, M., **Gurevich, V.V.**, Vishnivetskiy S.A., Sigler, P.B., and Schubert, C. Crystal Structure of  $\beta$ -Arrestin at 1.9Å: Possible Mechanism of Receptor Binding and Membrane Translocation. *Structure (Cambridge)* **9**, 869-880 (2001).

49. Key, T. A., Bennett, T. A., Foutz, T. D., **Gurevich, V. V.**, Sklar, L. A., and Prossnitz, E. R. Regulation of formyl peptide receptor agonist affinity by reconstitution with arrestins and heterotrimeric G proteins. *J. Biol. Chem.* **276**, 49204-49212 (2001).
50. Bennett, T. A., Foutz, T. D., **Gurevich, V. V.**, Sklar, L. A., and Prossnitz, E. R. Partial phosphorylation of the N-formyl peptide receptor inhibits G protein association independent of arrestin binding. *J. Biol. Chem.* **276**, 49195-49203 (2001).
51. Gurevich, E.V. Benovic, J.L., and **Gurevich, V.V.** Arrestin2 and arrestin3 are differentially expressed in the rat brain during post-natal development. *Neuroscience* **109**, 421-436 (2002).
52. Potter, R.M., Key, T.A., **Gurevich, V.V.**, Sklar, L.A., and Eric R. Prossnitz, E.R. Arrestin variants display differential binding characteristics for the phosphorylated N-formyl-peptide receptor carboxy terminus. *J. Biol. Chem.* **277**, 8970-8978 (2002).
53. Celver, J., Vishnivetskiy, S.A., Chavkin, C., and **Gurevich, V.V.** Conservation of the phosphate-sensitive elements in the arrestin family of proteins. *J. Biol. Chem.* **277**, 9043-9048 (2002).
54. Lowe, J.D., Celver, J.P., **Gurevich, V.V.**, and Chavkin, C. Mu opioid receptors desensitize less rapidly than delta opioid receptors due to less efficient activation of arrestin. *J. Biol. Chem.* **277**, 15729-15735 (2002).
55. Mukherjee, S., **Gurevich, V.V.**, Preninger, A., Hamm, H.H., Bader, M.-F., Fazleabas, A.T., Birnbaumer, L., and Hunzicker-Dunn, M. Aspartic acid 564 in the third cytoplasmic loop of luteinizing hormone/choriogonadotropin receptor is crucial for phosphorylation-independent interaction with arrestin2. *J. Biol. Chem.* **277**, 17916-17927 (2002).
56. DeGraff, J.L., **Gurevich, V.V.**, and Jeffrey L. Benovic, J.L. The third intracellular loop of alpha-2-adrenergic receptors determines subtype specificity of arrestin interaction. *J. Biol. Chem.* **277**, 43247-43252 (2002).
57. Vishnivetskiy, S.A., Hirsch, J.A., Velez, M.-G., Gurevich, Y.V., and **Gurevich, V.V.** Arrestin's transition into the active receptor-binding state requires an extended interdomain hinge. *J. Biol. Chem.* **277**, 43961-43967 (2002).
58. Key, T.A., Foutz, T.D., **Gurevich, V.V.**, Sklar, L.A., and Prossnitz, E.R. N-formyl peptide receptor phosphorylation domains differentially regulate arrestin and agonist affinity. *J. Biol. Chem.* **278**, 4041-4047 (2003).
59. Pan, L., Gurevich, E.V., and **Gurevich, V.V.** The nature of the arrestin-receptor complex determines the ultimate fate of the internalized receptor. *J. Biol. Chem.* **278**, 11623-11632 (2003).
60. Raman, D., Osawa, S, **Gurevich, V.V.**, and Weiss, E.R. The interaction with the cytoplasmic loops of rhodopsin plays a crucial role in arrestin activation and binding. *J. Neurochem.* **84**, 1040-1050 (2003).
61. Gray, J.A., Bhatnagar, A., **Gurevich, V.V.**, and Roth, B.L. The interaction of a constitutively active arrestin with the arrestin-insensitive 5-HT<sub>2A</sub> receptor induces agonist-independent internalization. *Mol. Pharmacol.* **63**, 961-972 (2003).
62. Shi, M., Bennett, T.A., Cimino, D.F., Maestas, D.C., Foutz, T.D., **Gurevich, V.V.**, Sklar, L.A., Prossnitz, E.R. Functional Capabilities of an N-Formyl Peptide Receptor-G(alpha)(i)(2) Fusion Protein: Assemblies with G Proteins and Arrestins. *Biochemistry* **42**, 7283-7293 (2003).
63. Vishnivetskiy, S.A., Hosey, M.M., Benovic, J.L., and **Gurevich, V.V.** Mapping the arrestin-receptor interface: Structural elements responsible for receptor specificity of arrestin proteins. *J. Biol. Chem.* **279**, 1262-1268 (2004).
64. Nair, K.S., Hanson, S.M., Kennedy, M.J., Hurley, J.B., **Gurevich, V.V.**, and Slepak, V.Z. Direct binding of visual arrestin to microtubules determines the differential subcellular localization of its splice variants in rod photoreceptors. *J. Biol. Chem.* **279**, 41240-41248 (2004).
65. Gurevich, E.V., Benovic, J.L., and **Gurevich, V.V.** Arrestin2 expression selectively increases during neural differentiation. *J. Neurochem.* **91**, 1404-1416 (2004).
66. Macey, T.A., **Gurevich, V.V.**, Neve, K.A. Preferential interaction between the dopamine D2 receptor and arrestin2 in neostriatal neurons. *Mol. Pharmacol.* **66**, 1635-1642 (2004).

67. Bezdard, E., Gross, C.E., Qin, L., **Gurevich, V.V.**, Benovic, J.L., and Gurevich, E.V. L-DOPA reverses the MPTP-induced elevation of the arrestin2 and GRK6 expression and enhanced ERK activation in monkey brain. *Neurobiol. Dis.* **18**, 323-335 (2005).
68. Key, T.A., Vines, C.M., Wagener, B.M., **Gurevich, V.V.**, Sklar, L.A., and Prossnitz, E.R. Inhibition of chemoattractant N-formyl peptide receptor trafficking by active arrestins. *Traffic* **6**, 87-99 (2005)
69. Macey, T.A., Liu, Y., **Gurevich, V.V.**, Neve, K.A. Dopamine D1 Receptor Interaction with Arrestin3 in Neostriatal Neurons. *J. Neurochem.* **93**, 128-134 (2005).
70. Zhang, R., Khoo, M.S., Wu, Y., Yang, Y., Grueter, C.E., Ni, G., Price, E.E., Thiel, W., Guatimosim, S., Song, L.S., Madu, E.C., Shah, A.N., Vishnivetskaya, T.A., Atkinson, J.B., **Gurevich, V.V.**, Salama, G., Lederer, W.J., Colbran, R.J., Anderson, M.E. Calmodulin kinase II inhibition protects against structural heart disease. *Nat Med* **11**, 409-417 (2005).
71. Nair, K.S., Hanson, S.M., Mendez, A., Gurevich, E.V., Kennedy, M.J., Shestopalov, V.I., Vishnivetskiy, S.A., Chen, J., Hurley, J.B., **Gurevich, V.V.**, and Slepak, V.Z. Light-dependent redistribution of arrestin in vertebrate rods is an energy-independent process governed by protein-protein interactions. *Neuron* **46**, 555-567 (2005).
72. Carter, J.M., **Gurevich, V.V.**, Prossnitz, E.R., and Engen, J.R. Conformational differences between arrestin2 and pre-activated mutants as revealed by hydrogen exchange mass spectrometry. *J Mol Biol* **351**, 865-878 (2005).
73. Sutton, R.B., Vishnivetskiy, S.A., Robert J., Hanson, S.M., Raman, D., Knox, B.E., Kono, M., Navarro, J., and **Gurevich, V.V.** Crystal structure of cone arrestin at 2.3Å: evolution of receptor specificity. *J Mol Biol* **354**, 1069-1080 (2005).
74. Hanson, S.M., and **Gurevich, V.V.** The differential engagement of arrestin surface charges by the various functional forms of the receptor. *J Biol Chem* **281**, 3453-3462 (2006).
75. Hanson, S.M., Francis, D.J., Vishnivetskiy, S.A., Kolobova, E.A., Hubbell, W.L., Klug, C.S., and **Gurevich, V.V.** Differential interaction of spin labeled arrestin with inactive and active phosphorhodopsin. *Proc. Natl. Acad. Sci. USA* **103**, 4900-4905 (2006).
76. Hanson, S.M., Francis, D.J., Vishnivetskiy, S.A., Klug, C.S., and **Gurevich, V.V.** Visual arrestin binding to microtubules involves a distinct conformational change. *J Biol Chem* **281**, 9765-9772 (2006).
77. Wu, N., Macion-Dazard, R., Nithianantham, S., Xu, Z., Hanson, S.M., Vishnivetskiy, S.A., **Gurevich, V.V.**, Thibonnier, M., and Shoham, M. Soluble mimics of the cytoplasmic face of the human V1-vascular vasopressin receptor bind arrestin2 and calmodulin. *Mol Pharmacol* **70**, 249-258 (2006).
78. Song, X., Raman, D., Gurevich, E. V., Vishnivetskiy, S. A., and **Gurevich, V. V.** Visual and both non-visual arrestins in their "inactive" conformation bind JNK3 and MDM2 and relocalize them from the nucleus to the cytoplasm. *J Biol Chem* **281**, 21491-21499 (2006).
79. Wu, N., Hanson, S.M., Francis, D.J., Vishnivetskiy, S.A., Thibonnier, M., Klug, C.S., Shoham, M., and **Gurevich, V. V.** Arrestin binding to calmodulin: a direct interaction between two ubiquitous signaling proteins. *J Mol Biol* **364**, 955-963 (2006).
80. Hanson, S.M., Gurevich, E.V., Vishnivetskiy, S.A., Ahmed, M.R., Song, X., and **Gurevich, V.V.** Each rhodopsin molecule binds its own arrestin. *Proc. Natl. Acad. Sci. USA* **104**, 3125-3128 (2007).
81. Chan, S., Rubin, W.W., Mendez, A., Liu, X., Song, X., Hanson, S.M., Craft, C.M., **Gurevich, V.V.**, Burns, M.E., and Chen, J. Functional comparisons of visual arrestins in rod photoreceptors of transgenic mice. *Invest Ophthalmol Vis Sci* **48**, 1968-1075 (2007).
82. Hanson, S.M., Van Eps, N., Francis, D.J., Altenbach, C., Vishnivetskiy, S.A., Arshavsky, V.Y., Klug, C.S., Hubbell, W.L., and **Gurevich, V.V.** Structure and Function of the Visual Arrestin Oligomer. *EMBO J* **26**, 1726-36 (2007).
83. Hanson, S.M., Cleghorn, W.M., Francis, D.J., Vishnivetskiy, S.A., Raman, D., Song, X., Nair, K.S., Slepak, V.Z., Klug, C.S., and **Gurevich, V.V.** Arrestin mobilizes signaling proteins to the cytoskeleton and redirects their activity. *J Mol Biol* **368**, 375-387 (2007).
84. Song, X., Gurevich, E.V., and **Gurevich, V.V.** Cone arrestin binding to JNK3 and Mdm2: conformational preference and localization of interaction sites. *J. Neurochem* **103**, 1053-1062 (2007).

85. Vishnivetskiy, S.A., Raman, D., Wei, J., Kennedy, M.J., Hurley, J.B., **Gurevich, V.V.** Regulation of arrestin binding by rhodopsin phosphorylation level. *J Biol Chem* **282**, 32075-83 (2007).
86. Ahmed, M.R., Bychkov, E., **Gurevich, V.V.**, Benovic, J.L., Gurevich, E.V. Altered expression and subcellular distribution of GRK subtypes in the dopamine-depleted rat basal ganglia is not normalized by L-DOPA treatment. *J Neurochem* **104**, 1622-36 (2008).
87. Bychkov, E.R., **Gurevich, V.V.**, Joyce, J.N., Benovic, J.L., Gurevich, E.V. Arrestins and two receptor kinases are upregulated in Parkinson's disease with dementia. *Neurobiol Aging* **29**, 379-96 (2008).
88. Bisegna, P., Caruso, G., Andreucci, D., Shen, L., **Gurevich, V.V.**, Hamm, H.E., and DiBenedetto, E. Diffusion of the Second Messengers in the Cytoplasm Acts as a Variability Suppressor of the Single Photon Response in Vertebrate Phototransduction. *Biophys J*, **94**, 3363-83 (2008).
89. Hanson, S.M., Vishnivetskiy, S.A., Hubbell, W.L., and **Gurevich, V.V.** The opposing effects of inositol hexakisphosphate (IP6) on rod arrestin and arrestin2 self-association. *Biochemistry* **47**, 1070-5 (2008).
90. Ahmed, M.R., **Gurevich, V.V.**, Dalby, K.N., Benovic, J.L., and Gurevich, E.V. Haloperidol and clozapine differentially affect the expression of arrestins, receptor kinases, and ERK activation. *J Pharmacol Exp Ther* **325**, 276-83 (2008).
91. Hanson, S.M., Dawson, E.S., Francis, D.J., Van Eps, N., Klug, C.S., Hubbell, W.L., Meiler, J., and **Gurevich, V.V.** A Model for the Solution Structure of the Rod Arrestin Tetramer. *Structure* **16**, 924-934 (2008).
92. Lan, H., Liu, Y., Bell, M.I., **Gurevich, V.V.**, and Neve, K.A. A Dopamine D2 Receptor Mutant Capable of G Protein-mediated Signaling but Deficient in Arrestin Binding. *Mol Pharmacol* **75**, 113-23 (2009).
93. Lan, H., Teeter, M.M., **Gurevich, V.V.**, and Neve, K.A. An Intracellular Loop 2 Amino Acid Residue Determines Differential Binding of Arrestin to the Dopamine D2 and D3 Receptors. *Mol Pharmacol* **75**, 19-26 (2009).
94. Song, X., Coffa, S., Fu, H., **Gurevich, V.V.** How does arrestin assemble MAP kinases into a signaling complex? *J Biol Chem* **284**, 685-95 (2009).
95. Wen, X.-H., Shen, L., Brush, R.S., Michaud, N., Al-Ubaidi, M.R., **Gurevich, V.V.**, Hamm, H.E., Lem, J., DiBenedetto, E., Anderson, R.E., Makino, C.L. Over-expression of rhodopsin alters the structure and photoresponse of rod photoreceptors. *Biophys J* **96**, 939-50 (2009).
96. DiNieri, J., Nemeth, C., Parsegian, A., Carle, T., **Gurevich, V.V.**, Gurevich, E.V., Neve, R., Nestler, E., and Carlezon, W. Altered sensitivity to rewarding and aversive drugs in mice with inducible disruption of CREB function within the nucleus accumbens. *J Neurosci* **29**, 1855-1859 (2009).
97. Song, X., Vishnivetskiy, S.A., Gross, O.P., Emelianoff, K., Mendez, A., Chen, J., Gurevich, E.V., Burns, M.E., **Gurevich, V.V.** Enhanced arrestin facilitates recovery and protects rods lacking rhodopsin phosphorylation *Curr Biol* **19**, 700-705 (2009).
98. Vishnivetskiy, S.A., Francis, D., Van Eps, N., Kim, M., Hanson, S.M., Klug, C.S., Hubbell, W.L., **Gurevich, V.V.** The role of arrestin  $\alpha$ -helix I in receptor binding. *J Mol Biol* **395**, 42-54 (2010).
99. Shen, L., Caruso, G., Bisegna, P., Andreucci, D., **Gurevich, V.V.**, Hamm, H.E., DiBenedetto, E. Dynamics of Mouse Rod Phototransduction and Its Sensitivity to Variation of Key Parameters. *IET Syst Biol* **4**, 12-32 (2010).
100. Shankar, H., Michal, A., Kern, R.C., Kang, D.S., **Gurevich, V.V.**, Benovic, J.L. Non-visual arrestins are constitutively associated with the centrosome and regulate centrosome function. *J Biol Chem* **285**, 8316-29 (2010).
101. Ahmed, M.R., Berthet, A., Bychkov, E., Porras, G., Li, Q., Bioulac, B.H., Carl, Y.T., Bloch, B., Kook, S., Aubert, I., Dovero, S., Doudnikoff, E., **Gurevich, V.V.**, Gurevich, E.V., Bezdard, E. Lentiviral overexpression of GRK6 alleviates L-DOPA-induced dyskinesia in experimental Parkinson's disease. *Sci Transl Med* **2**, 28ra28 (2010).

102. Zhuang, T., Vishnivetskiy, S.A., **Gurevich, V.V.**, Sanders, C.R. Elucidation of IP6 and heparin interaction site and conformational changes in arrestin-1 by solution NMR. *Biochemistry* **49**, 10473-10485 (2010).
103. Caruso, G., Bisegna, P., Lenoci, L., Andreucci, D., **Gurevich, V.V.**, Hamm, H.E., DiBenedetto, E. Kinetics of rhodopsin inactivation and its role in regulating recovery and reproducibility of rod photoresponse. *PLoS Computational Biology* **6**, e1001031 (doi: 10.1371/journal.pcbi.1001031) (2010).
104. Walther, C., Nagel, S., Gimenez, L.E., Morl, K., **Gurevich, V.V.**, Beck-Sickinger, A.G. Ligand induced internalization and recycling of the human neuropeptide Y2 receptor is regulated by its C-terminal tail. *J Biol Chem* **285**, 41578-41590 (2010).
105. Bayburt, T.H., Vishnivetskiy, S.A., McLean, M.A., Morizumi, T., Huang, C.-c., Tesmer, J.J.G., Ernst, O.P., Sligar, S.G., **Gurevich, V.V.** Monomeric rhodopsin is sufficient for normal rhodopsin kinase (GRK1) phosphorylation and arrestin-1 binding. *J Biol Chem* **286**, 1420-8 (2011).
106. Song, X., Vishnivetskiy, S.A., Seo, J., Chen, J., Gurevich, E.V., **Gurevich, V.V.** Arrestin-1 expression level in rods: balancing functional performance and photoreceptor health. *Neuroscience* **174**, 37-49 (2011).
107. Zhan, X., Gimenez, L.E., **Gurevich, V.V.**, Spiller B.W. Crystal structure of arrestin-3 reveals the basis of the difference in receptor binding between two non-visual subtypes. *J Mol Biol* **406**, 467-478 (2011).
108. Kim, M., Hanson, S.M., Vishnivetskiy, S.A., Song, X., Cleghorn, W.M., Hubbell, W.L., **Gurevich, V.V.** Robust self-association is a common feature of mammalian visual arrestin-1. *Biochemistry* **50**, 2235-2242 (2011).
109. Ahmed, M.R., Zhan, X., Song, X., Kook, S., **Gurevich, V.V.**, Gurevich, E.V. Ubiquitin ligase parkin promotes Mdm2-arrestin interaction but inhibits arrestin ubiquitination. *Biochemistry* **50**, 3749-3763 (2011).
110. Vishnivetskiy, S.A., Gimenez, L.E., Francis, D.J., Hanson, S.M., Hubbell, W.L., Klug, C.S., **Gurevich, V.V.** Few residues within an extensive binding interface drive receptor interaction and determine the specificity of arrestin proteins. *J Biol Chem* **286**, 24288-24299 (2011).
111. Caruso, G., Bisegna, P., Andreucci, D., Lenoci, L., **Gurevich, V.V.**, Hamm, H.E., DiBenedetto, E. Identification of key factors that reduce the variability of the single photon response. *Proc. Natl. Acad. Sci. USA* **108**, 7804-7807 (2011).
112. Seo, J., Tsakem, E.L., Breitman, M., and **Gurevich, V.V.** Identification of arrestin-3-specific residues necessary for JNK3 activation. *J Biol Chem* **286**, 27894-27901 (2011).
113. \*Coffa, S., Breitman, M., Spiller, B.W., and **Gurevich, V.V.** A single mutation in arrestin-2 prevents ERK1/2 activation by reducing c-Raf1 binding. *Biochemistry* **50**, 6951-6958 (2011).  
\*Highlighted on the Biochemistry home page.
114. Cleghorn, W.M., Tsakem, E.L., Song, X., Vishnivetskiy, S.A., Seo, J., Chen, J., Gurevich, E.V., and **Gurevich, V.V.** Progressive reduction of its expression in rods reveals two pools of arrestin-1 in the outer segment with different roles in photoresponse recovery. *PLoS One* **6** (7), e22797 (2011).
115. Bychkov, E.R., Ahmed, M.R., **Gurevich, V.V.**, Benovic, J.L., Gurevich, E.V. Reduced expression of G protein-coupled receptor kinases in schizophrenia but not in schizoaffective disorder. *Neurobiol Dis* **44**, 248-258 (2011).
116. \*Zhan, X., Kaoud, T.S., Dalby, K.N., **Gurevich, V.V.** Non-visual arrestins function as simple scaffolds assembling MKK4-JNK3a2 signaling complex. *Biochemistry* **50**, 10520-10529 (2011).  
\*Highlighted on the Biochemistry home page.
117. Coffa, S., Breitman, M., Hanson, S.M., Callaway, K., Kook, S., Dalby, K.N., **Gurevich, V.V.** The effect of arrestin conformation on the recruitment of C-Raf1, MEK1, and ERK1/2 activation. *PLoS One* **6**(12), e28723 (2011).
118. Aguila, B., Coulbault, L., Davis, A., Marie, N., Hasbi, A., Le Bras, F., Tóth, G., Borsodi, A., **Gurevich, V.V.**, Jauzac, P., Allouche, S.  $\beta$ Arrestin1-biased agonism at human  $\delta$ -opioid receptor by peptidic and alkaloid ligands. *Cell Signal* **24**, 699-707 (2012).



119. Gimenez, L.E., Kook, S., Vishnivetskiy, S.A., Ahmed, M.R., Gurevich, E.V., **Gurevich, V.V.** The role of receptor-attached phosphates in the binding of visual and non-visual arrestins to G protein-coupled receptors. *J Biol Chem* **287**, 9028-9040 (2012).
120. Mushegian, A., **Gurevich V.V.**, Gurevich, E.V. The origin and evolution of G protein-coupled receptor kinases. *PLoS One* **7**(3), e33806. doi:10.1371/journal.pone.0033806 (2012).
121. Breitman, M., Kook, S., Gimenez, L.E., Lizama, B.N., Palazzo, M.C., Gurevich, E.V., **Gurevich, V.V.** Silent scaffolds: inhibition of c-Jun N-terminal kinase 3 activity in the cell by a dominant-negative arrestin-3 mutant. *J Biol Chem* **287**, 19653-19664 (2012).
122. Gimenez, L.E., Vishnivetskiy, S.A., Baameur, F., **Gurevich, V.V.** Manipulation of very few receptor-discriminator residues greatly enhances receptor specificity of non-visual arrestins. *J Biol Chem* **287**, 29495-29505 (2012).
123. Kim, M., Vishnivetskiy, S.A., Van Eps, N., Alexander, N.S., Cleghorn, W.M., Zhan, X., Hanson, S.M., Morizumi, T., Ernst, O.P., Meiler\*, J., **Gurevich\*, V.V.**, Hubbell\*, W.L. (\*corresponding authors) Conformation of receptor-bound visual arrestin. *Proc. Natl. Acad. Sci. USA* **109**, 18407-18412 (2012).
124. Schattauer, S.S., Miyatake, M., Shankar, H., Zietz, C., Levin, J.R., Liu-Chen, L.Y., **Gurevich, V.V.**, Rieder, M.J., Chavkin, C. Ligand directed signaling differences between rodent and human kappa opioid receptors. *J Biol Chem* **287**, 41595-41607 (2012).
125. Zhuang, T., Chen, Q., Cho, M.-K., Vishnivetskiy, S.A., Iverson, T.M., **Gurevich\*, V.V.**, Sanders\*, C.R. (\*corresponding authors). Involvement of distinct arrestin-1 elements in binding to different functional forms of rhodopsin. *Proc. Natl. Acad. Sci. USA* **110** (3), 942-947 (2013).
126. Chen, Y.-J., Oldfield, S., Butcher, A.J., Tobin, A.B., Saxena, K., **Gurevich, V.V.**, Benovic, J.L., Henderson, G., Kelly, E. Identification of phosphorylation sites in the COOH-terminal tail of the  $\mu$ -opioid receptor. *J Neurochem* **124** (2), 189-199 (2013).
127. Vishnivetskiy, S.A., Chen, Q., Palazzo, M.C., Brooks, E.K., Altenbach, C., Iverson, T.M., Hubbell, W.L., **Gurevich, V.V.** Engineering visual arrestin-1 with special functional characteristics. *J Biol Chem* **288** (5), 3394-3405 (2013).
128. Vishnivetskiy, S.A., Baameur, F., Findley, K.R., **Gurevich, V.V.** Critical role of central 139-loop in stability and binding selectivity of arrestin-1. *J Biol Chem* **288** (17), 11741-50 (2013).
129. Singhal, A., Ostermaier, M.K., Vishnivetskiy, S.A., Panneels, V., Homan, K.T., Tesmer, J.J.G., Veprintsev, D., Deupi, X., **Gurevich, V.V.**, Schertler, G.F.X., Standfuss, J. Insights into congenital stationary night blindness based on the structure of G90D rhodopsin. *EMBO Rep* **14** (6), 520-526 (2013).
130. Moaven, H., Koike, Y., Jao, C., **Gurevich, V.V.**, Langen, R., Chen, J. Visual arrestin interaction with clathrin adaptor AP2 regulates photoreceptor survival in the vertebrate retina. *Proc. Natl. Acad. Sci. USA* **110** (23), 9463-9468 (2013).
131. Vishnivetskiy, S.A., Ostermaier, M.K., Singhal, A., Panneels, V., Homan, K.T., Glukhova, A., Sligar, S.G., Tesmer, J.J.G., Schertler, G.F.X., Standfuss, J., Gurevich, V.V. Constitutively active rhodopsin mutants causing night blindness are effectively phosphorylated by GRKs but differ in arrestin-1 binding. *Cell Signal* **25** (11), 2155-2162 (2013).
132. Zhan, X., Kaoud, T.S., Kook, S., Dalby, K.N., **Gurevich, V.V.** JNK3 enzyme binding to arrestin-3 differentially affects the recruitment of upstream mitogen-activated protein (MAP) kinase kinases. *J Biol Chem* **288** (40), 28535-28547 (2013).
133. Song, X., Seo, J., Baameur, F., Vishnivetskiy, S.A., Chen, Q., Kook, S., Kim, M., Brooks, E.K., Altenbach, C., Hong, Y., Hanson, S.M., Palazzo, M.C., Chen, J., Hubbell, W.L., Gurevich, E.V., **Gurevich, V.V.** Rapid degeneration of rod photoreceptors expressing self-association-deficient arrestin-1 mutant. *Cell Signal* **25**, 2613-2624 (2013).
134. Kook, S., Zhan, X., Kaoud, T.S., Dalby, K.N., **Gurevich, V.V.**, Gurevich, E.V. Arrestin-3 binds c-Jun N-terminal kinase 1 (JNK1) and JNK2 and facilitates the activation of these ubiquitous JNK isoforms in cells via scaffolding. *J Biol Chem* **288** (52), 37332-37342 (2013).

135. Kook, S., Zhan X., Cleghorn, W.M., Benovic, J.L., **Gurevich, V.V.**, Gurevich, E.V. Caspase-cleaved arrestin-2 and BID cooperatively facilitate cytochrome C release and cell death. *Cell Death Differ* **21** (1), 172-84; doi: 10.1038/cdd.2013.143 (2014).
136. Zhan, X., Perez, A., Gimenez, L.E., Vishnivetskiy, S.A., **Gurevich, V.V.** Arrestin-3 binds the MAP kinase JNK3 $\alpha$ 2 via multiple sites on both domains. *Cell Signal* **26** (4), 766-776 (2014).
137. Gimenez, L.E., Babilon, S., Wanka, L., Beck-Sickinger, A.G., **Gurevich, V.V.** Mutations in arrestin-3 differentially affect binding to neuropeptide Y receptor subtypes. *Cell Signal* **26** (7), 1523-1531 (2014).
138. Zhuo, Y., Vishnivetskiy, S.A., Zhan, X., **Gurevich, V.V.**, Klug, C.S. Identification of receptor binding-induced conformational changes in non-visual arrestins. *J Biol Chem* **289** (30), 20991-21002 (2014).
139. Mäde, V., Babilon, S., Jolly, N., Wanka, L., Bellmann-Sickert, K., Gimenez, L.E., Mörl, K., Cox, H.M., **Gurevich, V.V.**, Beck-Sickinger, A.G. Peptide Modifications Differentially Alter G Protein-Coupled Receptor Internalization and Signaling Bias, *Angew Chem Int Ed Engl*, **53** (38), 10067-10071 (2014).
140. Berkowitz, B.A., Gorgis, J., Patel, A., Baameur, F., **Gurevich, V.V.**, Craft, C.M., Kefalov, V.J., Roberts, R. Development of an MRI biomarker sensitive to tetrameric visual arrestin 1 and its reduction via light-evoked translocation in vivo. *FASEB J.* **29** (2), 554-564 (2015).
141. Cleghorn, W.M., Branch, K.M., Kook, S., Arnette, C., Bulus, N., Zent, R., Kaverina, I., Gurevich, E.V., Weaver, A.M. **Gurevich, V.V.** Arrestins regulate cell spreading and motility via focal adhesion dynamics. *Mol Biol Cell*, **26** (4), 622-635 (2015).
142. Li L, Homan KT, Vishnivetskiy SA, Manglik A, Tesmer JJ, **Gurevich VV**, Gurevich EV. G protein-coupled receptor kinases of the GRK4 protein subfamily phosphorylate inactive G protein-coupled receptors (GPCRs). *J Biol Chem* **290** (17), 10775-10790 (2015).
143. Azevedo, A.W., Doan, T., Moaven, H., Sokal, I., Baameur, F., Vishnivetskiy, S.A., Homan, K.T., Tesmer, J.J.G., **Gurevich, V.V.**, Chen, J., Rieke, F. C-terminal Threonines and Serines Play Distinct Roles in the Desensitization of Rhodopsin, a G protein-coupled Receptor. *eLife* **4**: e05981; doi: 10.7554/eLife.05981 (2015).
144. Ahmed, M.R., Bychkov, E., Li, L., **Gurevich, V.V.**, Gurevich, E.V. GRK3 suppresses L-DOPA-induced dyskinesia in the rat model of Parkinson's disease via its RGS homology domain. *Sci Rep* **5**, 10920; doi: 10.1038/srep10920 (2015).
145. Kang, Y., Zhou, X.E., Gao, X., He, Y., Liu, W., Ishchenko, A., Barty, A., White, T.A., Yefanov, O., Han, G.W., Xu, Q., de Waal, P.W., Ke, J., Tan, M.H.E., Zhang, C., Moeller, A., West, G.M., Van Eps, N., Caro, L.N., Vishnivetskiy, S.A., Lee, R.J., Suino-Powell, K.M., Gu, X., Pal, K., Ma, J., Zhi, X., Boutet, S., Williams, G.J., Messerschmidt, M., Gati, C., Zatsepin, N.A., Wang, D., James, D., Basu, S., Roy-Chowdhury, S., Conrad, C., Coe, J., Liu, H., Lisova, S., Kupitz, C., Grotjohn, I., Fromme, R., Jiang, Y., Tasn, M., Yang, H., Li, J., Wang, M., Li, D., Zhao, Y., Standfuss, J., Diederichs, K., Potter, C.S., Carragher, B., Caffrey, M., Jiang, H., Chapman, H.N., Spence, J.C.H., Fromme, P., Weierstall, U., Ernst, O.P., **Gurevich, V.V.**, Griffin, P.R., Hubbell, W.L., Stevens, R.C., Cherezov, V., Melcher, K., Xu, H.E. Crystal structure of rhodopsin bound to arrestin determined by femtosecond X-ray laser. *Nature* **523** (7562), 561-567; doi: 10.1038/nature14656 (2015).
146. Inagaki, S., Ghirlando, R., Vishnivetskiy, S.A., Homan, K.T., White, J.F., Tesmer, J.J., **Gurevich, V.V.**, Grisshammer, R. G protein-coupled receptor kinase 2 (GRK2) and 5 (GRK5) exhibit selective phosphorylation of the neurotensin receptor in vitro. *Biochemistry* **54** (28), 4320-9; doi: 10.1021/acs.biochem.5b00285 (2015).
147. Chang, S.D., Mascarella, S. W., Spangler, S.M., **Gurevich, V.V.**, Navarro, H.A., Carroll, F.I., Bruchas, M.R. Quantitative Signaling and Structure-Activity Analyses Demonstrate Functional Selectivity at the Nociceptin/Orphanin FQ Opioid Receptor. *Mol Pharmacol* **88** (3), 502-511 (2015).
148. Chatterjee D, Eckert CE, Slavov C, Saxena K, Fürtig B, Sanders CR, **Gurevich VV**, Wachtveitl J, Schwalbe H. Influence of arrestin on the photodecay of bovine rhodopsin. *Angew Chem Int Ed Engl* **54** (46), 13555-60; doi: 10.1002/anie.201505798 (2015)

149. Zhan, X., Stoy, H., Kaoud, T.S., Perry, N.A., Chen, Q., Perez, A., Els-Heindl, S., Slagis, J.V., Iverson, T.M., Beck-Sickinger, A.G., Gurevich, E.V., Dalby, K.N., **Gurevich, V.V.** Peptide mini-scaffold facilitates JNK3 activation in cells. *Sci Rep* **6**, 21025; doi: 10.1038/srep21025 (2016).
150. Hu, J., Stern, M., Gimenez, L.E., Wanka, L., Zhu, L., Rossi, M., Meister, J., Inoue, A., Beck-Sickinger, A.G., **Gurevich, V.V.**, Wess, J. A G protein-biased designer G protein-coupled receptor useful for studying the physiological relevance of Gq/11-dependent signaling pathways. *J Biol Chem* **291** (15), 7809-20; doi: 10.1074/jbc.M115.702282 (2016). JBC paper of the week.
151. Wanka, L., Babilon, S., Burket, K., Morl, K., **Gurevich, V.V.**, Beck-Sickinger, A.G. C-terminal motif of human neuropeptide Y4 receptor determines internalization and arrestin recruitment. *Cell Signal* **29**, 233-239; doi: 10.1016/j.cellsig.2016.11.003 (2017).
152. Zhu, L., Almacá, J., Dadi, P.K., Hong, H., Sakamoto, W., Rossi, M., Lee, R.J., Vierra, N.C. Lu, H., Cui, Y., McMillin, S.M., Perry, N.A., **Gurevich, V.V.**, Lee, A., Kuo, B., Leapman, R.D., Matschinsky, F.M., Doliba, N.M., Urs, N.M., Caron, M.G., Jacobson, D.A., Caicedo, A., Wess, J.  $\beta$ -Arrestin-2 is an essential regulator of pancreatic  $\beta$ -cell function under physiological and pathophysiological conditions. *Nat Commun* **8**, 14295; doi: 10.1038/ncomms14295 (2017).
153. Zurkovsky, L., Sedaghat, K., Ahmed, M.R., **Gurevich, V.V.**, Gurevich, E.V. Arrestin-2 and arrestin-3 differentially modulate locomotor responses and sensitization to amphetamine. *Neuropharmacology* **121**, 20-29; doi: 10.1016/j.neuropharm.2017.04.021 (2017).
154. Sullivan, L.S., Bowne, S.J., Koboldt, D.C., Cadena, E.L., Heckenlively, J.R., Branham, K.E., Birch, D.G., Wheaton, D.H., Jones, K.D., Ruiz, R.S., Pennesi, M., Northrup, H., **Gurevich, V.V.**, Xu, M., Li, Y., Chen, R., Daiger, S.P. A novel dominant mutation in SAG, the arrestin-1 gene, is a common cause of retinitis pigmentosa in Hispanic families in the Southwestern United States. *Invest Ophthalmol Vis Sci* **58** (5), 2774-2784; doi: 10.1167/iovs.16-21341 (2017).
155. Prokop, S., Perry, N.A., Vishnivetskiy, S.A., Toth, A.D., Inoue, A., Milligan, G., Iverson, T.M., Hunyady, L., **Gurevich, V.V.** Differential manipulation of arrestin-3 binding to basal and agonist-activated G protein-coupled receptors. *Cell Signal* **36**, 98-107; doi: 10.1016/j.cellsig.2017.04.021 (2017).
156. Zhu, L., Rossi, M., Cui, Y., Lee, R.J., Sakamoto, W., Perry, N.A., Urs, N.M., Caron, M.G., **Gurevich, V.V.**, Godlewski, G., Kunos, G., Chen, M., Chen, W., Wess, J. Hepatic b-arrestin-2 is essential for maintaining euglycemia. *J Clin Invest* **127** (8), 2941-2945; doi: 10.1172/JCI92913 (2017).
157. Zhou, X.E., He, Y., de Waal, P.W., Gao, X., Kang, Y., Van Eps, N., Yin, Y., Pal, K., Goswami, D., White, T.A., Barty, A., Latorraca, N.R., Chapman, H.N., Hubbell, W.L., Dror, R.O., Stevens, R.C., Cherezov, V., **Gurevich, V.V.**, Griffin, P.R., Ernst, O.P., Melcher, K., Xu, H.E. Structural Identification of Phosphorylation Codes for Arrestin Recruitment by G protein-coupled Receptors. *Cell* **170** (3), 457-469.e13; doi: 10.1016/j.cell.2017.07.002 (2017).
158. Vishnivetskiy, S.A., Lee, R.J., Zhou, X.E., Franz, A., Xu, Q., Xu, H.E., **Gurevich, V.V.** Functional role of the three conserved cysteines in the N-domain of visual arrestin-1. *J Biol Chem*, **292** (30), 12496-12502; doi: 10.1074/jbc.M117.790386 (2017).
159. Indrischek, H., Prohaska, S.J., **Gurevich, V.V.**, Gurevich, E.V., Stadler, P.F. Uncovering missing pieces: duplication and deletion history of arrestins in deuterostomes. *BMC Evol. Biol.* **17**(1): 163; doi: 10.1186/s12862-017-1001-4 (2017).
160. Chen, Q., Perry, N.A., Vishnivetskiy, S.A., Berndt, S., Gilbert, N.C., Zhuo, Y., Singh, P.K., Tholen, J., Ohi, M.D., Gurevich, E.V., Brautigam, C.A., Klug, C.S., **Gurevich, V.V.**, Iverson, T.M. Structural basis of arrestin-3 activation and signaling. *Nat Commun* **8** (1), 1427; doi: 10.1038/s41467-01701218-8 (2017).
161. Cleghorn, W.M., Bulus, N., Kook, S., **Gurevich, V.V.**, Zent, R., Gurevich, E. V. Non-visual arrestins regulate the focal adhesion formation via small GTPases RhoA and Rac1 independently of GPCRs. *Cell Signal* **42**, 259-269; doi: 10.1016/j.cellsig.2017.11.003 (2018).

162. Toth, A.D., Prokop, S., Gyombolai, P., Varnai, P., Balla, A., **Gurevich, V.V.**, Hunyady, L., Turu, G. Heterologous phosphorylation-induced formation of a stability lock permits regulation of inactive receptors by  $\beta$ -arrestins. *J Biol Chem* **293** (3), 876-892; doi: 10.1074/jbc.M117.813139 (2018).
163. Tso, S.-C., Chen, Q., Vishnivetskiy, S.A., **Gurevich, V.V.**, Iverson T.M., Brautigam, C.A. Using two-site binding models to analyze microscale thermophoresis data. *Anal Biochem* **540-541**, 64-75; doi: 10.1016/j.ab.2017.10.013 (2018).
164. Vishnivetskiy, S.A., Sullivan, L.S., Bowne, S.J., Daiger, S.P., Gurevich, E.V., **Gurevich, V.V.** Molecular defects of the disease-causing human arrestin-1 C147F mutants. *Invest Ophthalmol Vis Sci* **59** (1), 13-20; doi: 10.1167/iovs.17-22180 (2018).
165. Samaranyake, S., Song, X., Vishnivetskiy, S.A., Chen, J., Gurevich, E.V., **Gurevich, V.V.** Enhanced mutant compensates for defects in rhodopsin phosphorylation in the presence of endogenous arrestin-1. *Front Mol Neurosci* **11**, 203; doi: 10.3389/fnmol.2018.00203 (2018).
166. Perry, N.A., Kaoud, T.S., Ortega, O.O., Kaya, A.I., Marcus, D.J., Pleinis, J.M., Berndt, S., Chen, Q., Zhan, X., Dalby, K.N., Lopez, C.F., Iverson, T.M., **Gurevich, V.V.** Arrestin-3 scaffolding of the JNK3 cascade suggests a mechanism for signal amplification. *Proc Natl Acad Sci USA* **116** (3), 810-815; doi: 10.1073/pnas.1819230116 (2019).
167. Kook, S., Vishnivetskiy, S.A., **Gurevich, V.V.**, Gurevich, E.V. Cleavage of arrestin-3 by caspases attenuates cell death by precluding arrestin-dependent JNK activation. *Cell Signal* **54**, 161-169; doi: 10.1016/j.cellsig.2018.11.023 (2019).
168. Zheng, C., Tholen, J. **Gurevich, V.V.** Critical role of the finger loop in arrestin binding to the receptors. *PLoS One* **14** (3), e0213792; doi: 10.1371/journal.pone.0213792 (2019).
169. Berndt, S., Gurevich, V.V., Iverson, T.M. Crystal structure of the SH3 domain of human Lyn non-receptor tyrosine kinase. *PLoS One* **14** (4), e0215140; doi: 10.1371/journal.pone.0215140 (2019).
170. Sammons, R.M., Perry, N.A., Li, Y., Cho, E.J., Piserchio, A., Zamora-Olivares, D.P., Ghose, R., Kaoud, T.S., Debevec, G., Bartholomeusz, C., **Gurevich, V.V.**, Iverson, T.M., Giulianotti, M., Houghten, R.A., Dalby, K.N. A Novel Class of Common Docking Domain Inhibitors That Prevent ERK2 Activation and Substrate Phosphorylation. *ACS Chem Biol* **14** (6), 1183-1194; doi: 10.1021/acscchembio.9b00093 (2019).
171. Barella, L.F., Rossi, M., Zhu, L., Cui, Y., Cheng, X., Chen, W., **Gurevich, V.V.**, Wess, J. Beta-cell-intrinsic  $\beta$ -arrestin-1 signaling enhances sulfonyleurea-induced insulin secretion. *J Clin Invest* **130**, 3732-3737; doi: 10.1172/JCI126309 (2019).
172. Klaus, C., Caruso, G., **Gurevich, V.V.**, DiBenedetto, E. Multi-scale numerical modeling of spatio-temporal signaling in cone phototransduction. *PLoS One* **14** (7), e0219848; doi: 10.1371/journal.pone.0219848 (2019).
173. Perry, N.A., Fialkowski, K.P., Kaoud, T.S., Kaya, A.I., Chen, A.L., Taliaferro, J.M., **Gurevich, V.V.**, Dalby, K.N., Iverson, T.M. Arrestin-3 interaction with maternal embryonic leucine-zipper kinase. *Cell Signal* **63**, 109366; doi: 10.1016/j.cellsig.2019.109366 (2019).
174. Meister, J., Bone, D.B.J., Godlewski, G., Liu, Z., Lee, R.J., Vishnivetskiy, S.A., **Gurevich, V.V.**, Springer D., Kunos, G., Wess, J. Metabolic effects of skeletal muscle-specific deletion of beta-arrestin-1 and -2 in mice. *PLoS Genet* **15** (10) e1008424, doi: 10.1371/journal.pgen.1008424 (2019).
175. Caruso, G., **Gurevich, V.V.**, Klaus, C., Hamm, H., Makino, C.L., DiBenedetto, E. Local, non-linear effects of cGMP and  $\text{Ca}^{2+}$  reduce single photon response variability in retinal rods. *PLoS One* **14** (12): e0225948. doi: 10.1371/journal.pone.0225948 (2019).
176. Kook, S., Zhan, X., Thibeault, K., Ahmed, M.R., **Gurevich, V.V.**, Gurevich, E.V. Mdm2 enhances ligase activity of parkin and facilitates mitophagy. *Sci Rep* **10** (1) 5028; doi: 10.1038/s41598-020-61796-4 (2020).
177. Kaya, A.I., Perry, N.A., **Gurevich, V.V.**, Iverson, T.M. Phosphorylation barcode-dependent signal bias of the dopamine D1 receptor. *Proc Natl Acad Sci USA* **117** (25): 14139-14149; doi: 10.1073/pnas.1918736117 (2020).

178. Zhuo, Y., **Gurevich, V.V.**, Vishnivetskiy, S.A., Klug, C. Marchese, A. A non-GPCR binding partner interacts with a novel surface on  $\beta$ -arrestin1 to mediate GPCR signaling. *J Biol Chem* **295** (41), 14111-14124; doi: 10.1074/jbc.RA120.015074 (2020).
179. Krug, U., Gloge, A., Schmidt, P., Baldus, J., Bernhard, F., Kaiser, A., Montag, C., Gauglitz, M., Vishnivetskiy, S.A., **Gurevich, V.V.**, Beck-Sickinger, A.G., Glaubitz, C., Huster, D. The Conformational Equilibrium of the Neuropeptide Y2 Receptor. *Angew Chem Int Ed Engl* **59** (52), 23854-23861; doi: 10.1002/anie.202006075 (2020).
180. Böttke, T., Ernicke, S., Serfling, R., Ihling, C., Burda, E., **Gurevich, V.V.**, Sinz, A., Coin, I. Exploring GPCR-arrestin interfaces with genetically encoded crosslinkers. *EMBO Rep* **21** (11): e50437; doi: 10.15252/embr.202050437 (2020).
181. Samaranayake, S., Vishnivetskiy, S.A., Shores, C.R., Thibeault, K.C., Kook, S., Chen, J., Burns, M.E., Gurevich, E.V., **Gurevich, V.V.** Biological role of arrestin-1 oligomerization. *J Neurosci* **40** (42), 8055-8069; doi: 10.1523/JNEUROSCI.0749-20.2020 (2020).
182. Caruso, G., Klaus, C.J., Hamm, H.E., **Gurevich, V.V.**, Makino, C.L., DiBenedetto, E. Position of rhodopsin photoisomerization on the disk surface confers variability to the rising phase of the single photon response in vertebrate rod photoreceptors. *PLoS One* **15** (10), e0240527; doi: 10.1371/journal.pone.0240527 (2020).
183. Vogel, A., Bosse, M., Gauglitz, M., Wistuba, S., Schmidt, P., Kaiser, A., **Gurevich, V.V.**, Beck-Sickinger, A.G., Hildebrand, P.W., Huster, D. The Dynamics of the Neuropeptide Y Receptor Type 1 Investigated by Solid-State NMR and Molecular Dynamics Simulation. *Molecules* **25** (23) E5489; doi: 10.3390/molecules25235489 (2020).
184. Chen, Q., Zhuo, Y., Sharma, P., Perez, I., Francis, D.J., Chakravarthy, S., Vishnivetskiy, S.A., Berndt, S., Hanson, S.M., Zhan, X., Brooks, E.K., Altenbach, C., Hubbell, W.L., Klug, C.S., Iverson, T.M., **Gurevich, V.V.** An eight amino acid segment controls oligomerization and preferred conformation of the two non-visual arrestins. *J Mol Biol* **433** (4), 166790; doi: 10.1016/j.jmb.2020.166790 (2021).
185. Vishnivetskiy, S.A., Zheng, C., May, M.B., Karnam, P.C., Gurevich, E.V., **Gurevich, V.V.** Lysine in the lariat loop of arrestin does not serve as phosphate sensor. *J Neurochem* **156** (4), 435-444; doi: 10.1111/jnc.15110 (2021).
186. Vishnivetskiy, S.A., Huh, E.K., Gurevich, E.V., **Gurevich, V.V.** The finger loop as an activation sensor in arrestin. *J Neurochem* **157** (4), 1138-1152; doi: 10.1111/jnc.15232 (2021).
187. Qu, C., Park, J.Y., Yun, M.W., He, Q.-T., Yang, F., Kim, K., Ham, D., Li, R.-R., Iverson, T.M., **Gurevich, V.V.**, Sun, J.-P., Chung, K.Y. Scaffolding mechanism of arrestin-2 in the cRaf/MEK1/ERK signaling cascade. *Proc Natl Acad Sci USA* **118** (37), e2026491118; DOI 10.1073/pnas.2026491118 (2021).
188. Klaus, C., Caruso, G., **Gurevich, V.V.**, Hamm, H.E., Makino, C.L., DiBenedetto, E. Phototransduction in retinal cones: analysis of parameter importance. *PLoS One* **16** (10), e0258721; doi 10.1371/journal.pone.0258721 (2021).
189. Perez, I., Berndt, S., Agarwal, R., Castro, M.A., Vishnivetskiy, S.A., Smith, J.C., Sanders, C.R., **Gurevich, V.V.**, Iverson, T.M. A model of the signal initiation complex between arrestin-3 and the Src family kinase Fgr. *J Mol Biol* **434** (2), 167400; doi: 10.1016/j.jmb.2021.167400 (2022).
190. Perry-Hauser, N.A., Hopkins, J.B., Zhuo, Y., Zheng, C., Perez, I., Schulz, K.M., Vishnivetskiy, S.A., Kaya, A.I., Sharma, P., Dalby, K.N., Chung, K.Y., Klug, C.S., **Gurevich, V.V.**, Iverson, T.M. The two non-visual arrestins engage ERK2 differently. *J Mol Biol* **434** (7), 167465; doi: 10.1016/j.jmb.2022.167465 (2022).
191. Asher, W.B., Terry, D.S., Gregorio, G.A., Kahsai, A.W., Borgia, A., Xie, B., Modak, A., Zhu, Y., Jang, W., Govindaraju, A., Huang, L.-Y., Inoue, A., Lambert, N.A., **Gurevich, V.V.**, Shi, L., Lefkowitz, R.J., Blanchard, S.C., Javitch, J.A. GPCR-mediated  $\beta$ -arrestin activation deconvoluted with single-molecule precision. *Cell* **185** (10), 1661-1675.e16; doi: 10.1016/j.cell.2022.03.042 (2022).

192. Hsieh, C.-H., Yao, Y., **Gurevich, V.V.**, Chen, J. Arrestin facilitates rhodopsin dephosphorylation in vivo. *J Neurosci* **42** (17), 3537-3545; doi: 10.1523/JNEUROSCI.0141-22.2022 (2022).
193. Perry-Hauser, N.A., Kaoud, T.S., Stoy, H., Zhan, X., Chen, Q., Dalby, K.N., Iverson, T.M., **Gurevich, V.V.**, Gurevich, E.V. Short arrestin-3 derived peptides activate JNK3 in cells. *Int J Mol Sci* **23** (15), 8679; doi: 10.3390/ijms23158679 (2022).
194. Vishnivetskiy, S.A., Huh, E.K., Karnam, P.C., Oviedo, S., Gurevich, E.V., **Gurevich, V.V.** The Role of arrestin-1 middle loop in rhodopsin binding. *Int J Mol Sci* **23** (22), 13887; doi: 10.3390/ijms232213887 (2022).
195. Geva, P., Caruso, G., Klaus, C., Hamm, H.E., **Gurevich, V.V.**, DiBenedetto, E., Makino, C.L. Single photon response reproducibility in retinal rods: effects of cell size and bicarbonate. *Front Mol Neurosci* **16**, 1050545; doi: 10.3389/fnmol.2022.1050545 (2022).
196. Caruso, G., Claus, C., Hamm, H.E., **Gurevich, V.V.**, Bisegna, P., Andreucci, D., DiBenedetto, E., Makino, C. Pepperberg Plot: Modeling Flash Response Saturation in Vertebrate Retinal Rods. *Front Mol Neurosci*, **15**, 1054449; doi: 10.3389/fnmol.2022.1054449 (2023).
197. Aydin, Y., Böttke, T., Lam, J.H., Ernicke, S., Fortmann, A., Tretbar, M., Zarzycka, B., **Gurevich, V.V.**, Katritch, V., Coin, I. Structural details of a class B GPCR-arrestin complex revealed by genetically encoded crosslinkers in living cells. *Nat Commun* **14** (1), 1151; doi 10.1038/s41467-023-36797-2 (2023).
198. Vishnivetskiy, S.A., Weinstein, L.D., Zheng, C., Gurevich, E.V., **Gurevich, V.V.** Functional Role of arrestin-1 residues interacting with unphosphorylated rhodopsin elements. *Int J Mol Sci* **24** (10), 8903; doi.org/10.3390/ijms24108903; 10.20944/preprints202304.0476.v1 (2023).
199. Zheng, C., Weinstein, L.D., Nguen, K.K., Grewal, A., Gurevich, E.V., **Gurevich, V.V.** GPCR binding and JNK activation by arrestin-3 have different structural requirements. *Cells* **12**, 1563; doi: 10.3390/cells12121563 (2023)

#### **BOOK CHAPTERS, METHODS PAPERS, ENCYCLOPEDIA ENTRIES, EDITORIALS, AND INVITED REVIEWS:**

1. **Gurevich, V.V.** Use of bacteriophage RNA polymerase in RNA synthesis. In: Methods in Enzymology, v. **275** (Kuo, L.C., Olsen, D.B., and Carroll, S.S., Eds.), 382-397 (1996).
2. **Gurevich, V. V.**, Orsini, M.J., and Benovic, J.L. Characterization of arrestin expression and function. In: Receptor Biochemistry and Methodology, Vol. **IV**, 157-178 (1999).
3. **Gurevich, V.V.**, and Benovic, J.L. Arrestin: mutagenesis, expression, purification, and functional characterization. In: Methods in Enzymology, v. **315** (Palczewski, K., Ed.) 422-437 (2000).
4. Hunzicker-Dunn, M., **Gurevich, V.V.**, Casanova, J.E., and Mukherjee, S. ARF6: a newly appreciated player in G protein-coupled receptor desensitization. *FEBS Lett.* **521**(1-3), 3-8 (2002).
5. **Gurevich, V.V.** and Gurevich, E.V. The new face of active receptor-bound arrestin attracts new partners. *Structure* **11**, 1037-1042 (2003).
6. **Gurevich, V.V.** and Gurevich, E.V. The molecular acrobatics of arrestin activation. *Trends Pharmacol Sci* **25**, 105-111 (2004).
7. Guigoni, C., Aubert, I., Qin, L., **Gurevich, V.V.**, Benovic, J.L., Ferry, S., Mach, U., Stark, H., Leriche, L., Hakansson, K., Bioulac, B.H., Gross, C.E., Sokoloff, P., Fisone, G., Gurevich, E.V., Bloch, B., and Bezaud, E. Pathogenesis of levodopa-induced dyskinesia: focus on D1 and D3 dopamine receptors. *Parkinsonism Relat Disord* **11**, S25-S29 (2005).
8. **Gurevich, V.V.** and Gurevich, E.V. The structural basis of arrestin-mediated regulation of G protein-coupled receptors. *Pharmacol Ther* **110**, 465-502 (2006).
9. Gurevich, E.V., and **Gurevich, V.V.** Arrestins are ubiquitous regulators of cellular signaling pathways. *Genome Biol* **7**, 236 (2006).
10. **Gurevich, V.V.**, Hanson, S.M., Gurevich, E.V., Vishnivetskiy, S.A. How Rod Arrestin Achieved Perfection: Regulation of its Availability and Binding Selectivity. In: Signal Transduction in the retina (Kisselev, O., and Fliesler, S.J., Eds), pp 55-88. Methods in Signal Transduction Series, CRC Press, Boca Raton, FL (2007).

11. **Gurevich, V.V.**, Gurevich, E.V., Cleghorn, W.M. Arrestins as multi-functional signaling adaptors. In: Handbook of Experimental Pharmacology, vol. 186. Protein-protein interactions as new drug targets (Klussmann, E., and Scott, J., Eds), pp. 15-37. Springer-Verlag, Berlin (2008).
12. **Gurevich, V.V.** and Gurevich, E.V. GPCR monomers and oligomers: it takes all kinds. *Trends Neurosci* **31**, 74-81 (2008).
13. **Gurevich, V.V.** and Gurevich, E.V. How and why do GPCRs dimerize? *Trends Pharmacol Sci* **29**, 234-240 (2008).
14. **Gurevich, V.V.** Gurevich, E.V. Rich tapestry of GPCR signaling and regulatory mechanisms. *Mol Pharmacol* **74**, 312-316 (2008).
15. Gurevich, E.V. and **Gurevich, V.V.** Dopamine receptors and treatment of Parkinson's disease. Chapter 18, pp. 525-585. In: Dopamine Receptors, Second Edition (Neve, K.A., Ed.), ISBN: 978-1-60327-332-9, Humana Press, Totowa, NJ (2009).
16. **Gurevich, V.V.** and Gurevich, E.V. Phototransduction: inactivation in rods. In: Darlene A. Dartt, editor. Encyclopedia of the Eye, Vol 3. Oxford: Academic Press; pp. 375-380. ISBN-13: 978-0-12-374198-1 (2010).
17. **Gurevich, V.V.** and Gurevich, E.V. Phototransduction: inactivation in cones. In: Darlene A. Dartt, editor. Encyclopedia of the Eye, Vol 3. Oxford: Academic Press; pp. 370-374. ISBN-13: 978-0-12-374198-1 (2010).
18. **Gurevich, V.V.** and Gurevich, E.V. Custom-designed proteins as novel therapeutic tools? The case of arrestins. *Expert Rev Mol Med* **12**, e13, doi: 10.1017/S1462399410001444 (2010).
19. **Gurevich, V.V.** and Gurevich, E.V. Chapter 17. The mechanics of arrestin-receptor interaction: how GPCRs and arrestins talk to each other. In "G protein-coupled receptors: From structure to function" (Eds. Jesús Giraldo and Jean-Philippe Pin), The Royal Society of Chemistry, pp. 335-358 (2011).
20. **Gurevich, V.V.**, Hanson, S.M., Song, X., Vishnivetskiy, S.A., Gurevich, E.V. The functional cycle of visual arrestins in photoreceptor cells. *Prog Retin Eye Res* **30**, 405-430 (2011).
21. Gurevich, E.V., Tesmer, J.J.G., Mushegian, A., **Gurevich, V.V.** G protein-coupled receptor kinases: More than just kinases and not only for GPCRs. *Pharmacol Ther* **133**, 40-69 (2012).
22. **Gurevich, V.V.** and Gurevich, E.V. Synthetic biology with surgical precision: targeted reengineering of signaling proteins. *Cell Signal* **10**, 1899-1908 (2012).
23. **Gurevich, V.V.** and Gurevich, E.V. Structural determinants of arrestin functions. Chapter 3 in The Molecular Biology of Arrestins, Luttrell, L.M., volume Editor. P. M. Conn, Series Editor. UK: Academic Press, Elsevier. *Prog Mol Biol Transl Sci* **118**, 57-92; doi: 10.1016/B978-0-12-394440-5.00003-6 (2013).
24. Gurevich, E.V. and **Gurevich, V.V.** Therapeutic potential of small molecules and engineered proteins. In: Arrestins – Pharmacology and Therapeutic Potential. Handb Exp Pharmacol 219, p. 1-12; doi 10.1007/978-3-642-41199-1\_1; Springer-Verlag, Berlin-Heidelberg (2014).
25. **Gurevich, V.V.**, Song, X., Vishnivetskiy, S.A., Gurevich, E.V. Enhanced phosphorylation-independent arrestins and gene therapy. In: Arrestins – Pharmacology and Therapeutic Potential. Handb Exp Pharmacol 219, p. 133-152; DOI 10.1007/978-3-642-41199-1\_7, Springer-Verlag, Berlin-Heidelberg (2014).
26. Gimenez, L.E., Vishnivetskiy, S.A., and **Gurevich, V.V.** Targeting individual GPCRs with redesigned non-visual arrestins. In: Arrestins – Pharmacology and Therapeutic Potential. Handb Exp Pharmacol 219, p. 153-170; 10.1007/978-3-642-41199-1\_8, Springer-Verlag, Berlin-Heidelberg (2014).
27. Chen, Q., Zhuo, Y., Kim, M., Hanson, S.M., Vishnivetskiy, S.A., Altenbach, C., Klug, C.S., Hubbell, W.L., and **Gurevich, V.V.** Self-association of arrestin family members. In: Arrestins – Pharmacology and Therapeutic Potential. Handb Exp Pharmacol 219, p. 205-223; DOI 10.1007/978-3-642-41199-1\_11, Springer-Verlag, Berlin-Heidelberg (2014).

28. Zhan, X., Kook, S., Gurevich, E.V. and **Gurevich, V.V.** Arrestin-dependent activation of JNK family kinases. In: Arrestins – Pharmacology and Therapeutic Potential. *Handb Exp Pharmacol* 219, p. 259-280; DOI 10.1007/978-3-642-41199-1\_13, Springer-Verlag, Berlin-Heidelberg (2014).
29. Kook, S., **Gurevich, V.V.** and Gurevich, E.V. Arrestins in apoptosis. In: Arrestins – Pharmacology and Therapeutic Potential. *Handb Exp Pharmacol* 219, p. 309-339; DOI 10.1007/978-3-642-41199-1\_16, Springer-Verlag, Berlin-Heidelberg (2014).
30. **Gurevich, V.V.** and Gurevich, E.V. Design of super-arrestins for gene therapy of diseases associated with excessive signaling of G protein-coupled receptors. Ch 14 in: G protein-coupled receptor genetics: research and methods in post-genomic era. Craig W. Stevens, Ed. Springer Protocols, Methods in Pharmacology and Toxicology. Humana Press, Springer Science+Business Media, NY (2014).
31. **Gurevich, V.V.** and Gurevich, E.V. Extensive shape shifting underlies functional versatility of arrestins. *Curr Opin Cell Biol* 27, 1-9 (2014).
32. **Gurevich, V.V.** and Gurevich, E.V. Arrestin makes T cell stop and become active. *EMBO J* 33 (6) 531-533 (2014).
33. **Gurevich, V.V.** and Gurevich, E.V. Overview of Different Mechanisms of Arrestin-Mediated Signaling. *Curr Protoc Pharmacol* 67, 2.10.1-9; doi: 10.1002/0471141755.ph0210s67 (2014).
34. Vishnivetskiy S.A., Zhan, X., Chen, Q., Iverson, T.M., **Gurevich VV.** Arrestin expression in E. coli and purification. *Curr Protoc Pharmacol* 67, 2.11.1-2.11.19; doi: 10.1002/0471141755.ph0211s67 (2014).
35. **Gurevich V.V.**, Kenakin T. Pharmacodynamics (Molecular Mechanisms of Drug Action), Reference Module in Biomedical Sciences. Elsevier. 18-Oct-2014 doi: 10.1016/B978-0-12-801238-3.00246-4
36. Chen, Q., Vishnivetskiy, S.A., Zhuang, T., Cho, M.-K., Thaker, T.M., Sanders, C.R., **Gurevich, V.V.**, Iverson, T.M. The rhodopsin-arrestin-1 interaction in bicelles. Chapter 6 in Rhodopsin: Methods and Protocols (Beata Jastrzebska, ed.), Methods in Molecular Biology, vol. 1271, pp. 77-95; doi: 10.1007/978-1-4939-2330-4\_6; Springer, New York (2015).
37. Zhan, X., Kook, S., Kaoud, T.S., Dalby, K.N., Gurevich, E.V., and **Gurevich, V.V.** 2015. Arrestin-3-Dependent Activation of c-Jun N-Terminal Kinases (JNKs). *Curr Protoc Pharmacol* 68:2.12.1-2.12.26. doi: 10.1002/0471141755.ph0212s68 (2015).
38. **Gurevich, V.V.** and Gurevich, E.V. Arrestins: critical players in trafficking of many GPCRs. *Prog Mol Biol Transl Sci* 132, 1-14; doi: 10.1016/bs.pmbts.2015.02.010 (2015).
39. **Gurevich, V.V.** and Gurevich, E.V. Beyond traditional pharmacology: new tools and approaches. *Br J Pharmacol* 172, 3229–324; doi: 10.1111/bph.13066 (2015).
40. Stoy, H. and **Gurevich, V.V.** How genetic errors in GPCRs affect their function: possible therapeutic strategies. *Genes Dis* 2, 108-132 (2015).
41. Heifetz A, Schertler GF, Seifert R, Tate CG, Sexton PM, **Gurevich VV**, Fourmy D, Cherezov V, Marshall FH, Storer RI, Moraes I, Tikhonova IG, Tautermann CS, Hunt P, Ceska T, Hodgson S, Bodkin MJ, Singh S, Law RJ, Biggin PC. GPCR structure, function, drug discovery and crystallography: report from academia-industry international conference (UK Royal Society) Chicheley Hall, 1-2 September 2014. *Naunyn Schmiedebergs Arch Pharmacol* 388 (8), 883-903. doi: 10.1007/s00210-015-1111-8 (2015).
42. Donthamsetti, P., Quejada, J.R., Javitch, J.A., **Gurevich V.V.**, Lambert, N.A. Using bioluminescent resonance energy transfer (BRET) to characterize agonist-induced arrestin recruitment to modified and unmodified G protein-coupled receptors (GPCRs). *Curr Protoc Pharmacol* 70, 2.14.1-2.14.14; doi: 10.1002/0471141755.ph0214s70 (2015).
43. Nakajima, K.-I, Gimenez, L.E.D., **Gurevich, V.V.**, Wess, J. Design and analysis of arrestin-biased DREADD. Chapter 2 in Designer receptors exclusively activated by designer drugs. Thiel, G. (ed). Neuromethods, v 108, pp. 29-48 (2015).
44. **Gurevich, V.V.** and Gurevich, E.V. Analyzing the roles of multi-functional proteins in cells: the case of arrestins and GRKs. *Crit Rev Biochem Mol Biol* 50 (5), 440-52 (2015).



45. **Gurevich V.V.** Welcome to the new journal! Editorial. *EC Pharmacol Toxicol* **1** (1), 1-4 (2015).
46. Gurevich, E.V., Gainetdinov, R.R. and **Gurevich, V.V.** G protein-coupled receptor kinases as regulators of dopamine receptor functions. *Pharmacol Res* **111**, 1-16; doi: 10.1016/j.phrs.2016.05.010 (2016).
47. **Gurevich, V.V.** and Gurevich, E.V. G protein-coupled receptor kinases (GRKs) history: evolution and discovery. In: G protein-coupled receptor kinases. Eds: V.V. Gurevich, E. V. Gurevich and J. G. Tesmer. Springer-Verlag, Berlin-Heidelberg, pp. 3-22 (2016).
48. Gurevich, E.V., Gainetdinov, R.R. and **Gurevich, V.V.** Regulation of dopamine-dependent behaviors by G protein-coupled receptor kinases. In: G protein-coupled receptor kinases. Eds: V.V. Gurevich, E. V. Gurevich and J. G. Tesmer. Springer-Verlag, Berlin-Heidelberg, pp. 237-269 (2016).
49. **Gurevich V.V.** Paradigm shift is the normal state of pharmacology. *EC Pharmacol Toxicol* **2** (2), 80-85 (2016).
50. **Gurevich, V.V.** and Gurevich, E.V. Phototransduction: inactivation in rods. Chapter 01477 in Reference Module in Neuroscience and Biobehavioral Psychology, Elsevier, 2017. ISBN 9780128093245 (2017).
51. **Gurevich, V.V.** and Gurevich, E.V. Phototransduction: inactivation in cones. Chapter 01476 in Reference Module in Neuroscience and Biobehavioral Psychology, Elsevier, 2017. ISBN 9780128093245 (2017).
52. **Gurevich, V.V.** and Gurevich, E.V. Arrestins: discovery of the family and functional role of conformational flexibility. Ch 1 in “The structural basis of arrestin functions”, pp. 3-18. Springer-Verlag, Berlin-Heidelberg, ISBN 978-3-319-57552-0 (2017).
53. Spiller, B.W., Zhan, X., **Gurevich, V.V.** Arrestin-3: the structural basis of lower receptor selectivity. Ch 5 in “The structural basis of arrestin functions”, pp. 59-68. Springer-Verlag, Berlin-Heidelberg, ISBN 978-3-319-57552-0 (2017).
54. Wiener, R, Vishnivetskiy, S.A., **Gurevich, V.V.**, Hirsch, J.A. Phosphate sensor and construction of phosphorylation-independent arrestins. Ch 6 in “The structural basis of arrestin functions”, pp. 69-82. Springer-Verlag, Berlin-Heidelberg, ISBN 978-3-319-57552-0 (2017).
55. Vishnivetskiy, S.A., Hubbell, W.L., Klug, C.S., **Gurevich, V.V.** GPCR footprint on arrestins and manipulation of receptor specificity. Ch 10 in “The structural basis of arrestin functions”, pp. 133-142. Springer-Verlag, Berlin-Heidelberg, ISBN 978-3-319-57552-0 (2017).
56. Bandyopadhyay, A., Zhuo, Y., Hubbell, W.L., Klug, C.S., **Gurevich, V.V.**, Ernst, O.P. Active conformations of arrestins: expected and unexpected changes. Ch 12 in “The structural basis of arrestin functions”, pp. 159-174. Springer-Verlag, Berlin-Heidelberg, ISBN 978-3-319-57552-0 (2017).
57. Kang, Y, Melcher, K., **Gurevich, V.V.**, Xu, H.E. The arrestin-receptor complex: exciting answers and new questions. Ch 13 in “The structural basis of arrestin functions”, pp. 175-186. Springer-Verlag, Berlin-Heidelberg, ISBN 978-3-319-57552-0 (2017).
58. Zhan, X., **Gurevich, V.V.**, Gurevich, E.V. Scaffolding c-Jun N-terminal kinase cascades: mechanistic insights from the reconstituted arrestin-JNK cascades. Ch 14 in “The structural basis of arrestin functions”, pp. 187-198. Springer-Verlag, Berlin-Heidelberg, ISBN 978-3-319-57552-0 (2017).
59. Perry, N.A., Zhan, X., Iverson, T.M., Gurevich, E.V., **Gurevich, V.V.** Monofunctional elements of multi-functional arrestin proteins. Ch 18 in “The structural basis of arrestin functions”, pp. 255-272. Springer-Verlag, Berlin-Heidelberg, ISBN 978-3-319-57552-0 (2017).
60. Berndt, S., **Gurevich, V.V.**, Gurevich, E.V. Arrestins in cell death. Ch 19 in “The structural basis of arrestin functions”, pp. 273-302. Springer-Verlag, Berlin-Heidelberg, ISBN 978-3-319-57552-0 (2017).
61. **Gurevich, V.V.** and Gurevich, E.V. Molecular mechanisms of GPCR signaling *Int J Mol Sci* **18** (12), E2519; doi: 10.3390/ijms18122519 (2017).

62. **Gurevich, V.V.**, Gurevich, E.V., and Uversky, V.N. Arrestins: structural disorder creates rich functionality. *Protein Cell* **9** (12), 986-1003; DOI: 10.1007/s13238-017-0501-8 (2018).
63. Chen, Q., Iverson, T.M., **Gurevich, V.V.** Structural basis of arrestin-dependent signal transduction. *Trends Biochem Sci* **43** (6), 412-423; doi: 10.1016/j.tibs.2018.03.005 (2018).
64. **Gurevich, V.V.**, Gurevich, E.V. GPCRs and signal transducers: interaction stoichiometry. *Trends Pharm Sci* **39** (7), 672-684; doi: 10.1016/j.tips.2018.04.002 (2018).
65. **Gurevich, V.V.** Protein Flexibility and Cellular Signaling. *EC Pharmacology and Toxicology* **6.6**, 384-389 (2018).
66. **Gurevich, V.V.**, Gurevich, E.V. Arrestins and G proteins in cellular signaling: the coin has two sides. *Sci Signal* **11** (549), eaav1646; doi: 10.1126/scisignal.aav1646 (2018).
67. **Gurevich, V.V.**, Chen, Q., Gurevich, E.V. Arrestins: introducing signaling bias into multi-functional proteins. *Prog Mol Biol Transl Sci* **160**, 47-61 (2018).
68. **Gurevich, V.V.**, Gurevich, E.V. Arrestin-mediated signaling: is there a controversy? *World J Biol Chem* **9** (3) 25-35 (2018). DOI: <https://dx.doi.org/10.4331/wjbc.v9.i3.25>
69. **Gurevich, V.V.**, Gurevich, E.V. Arrestin mutations: some cause diseases, others promise cure. *Prog Mol Biol Transl Sci* **161**, 29-45; doi: 10.1016/bs.pmbts.2018.09.004 (2019).
70. Perry, N.A., Zhan, X., Gurevich, E.V., Iverson, T.M., **Gurevich, V.V.** Using in vitro pull-down and in cell overexpression assays to study protein interactions with arrestins; pp. 107-120. In: Beta-arrestins: Methods and protocols, vol. 1957, M. G. Scott, S. A. Laporte, Eds. Springer-Verlag, Berlin-Heidelberg; DOI: [10.1007/978-1-4939-9158-7\\_7](https://doi.org/10.1007/978-1-4939-9158-7_7) (2019).
71. **Gurevich, V.V.**, Gurevich, E.V. The structural basis of the arrestin binding to GPCRs. *Mol Cell Endocrinol* **484**, 34-41; doi: 10.1016/j.mce.2019.01.019 (2019).
72. **Gurevich, V.V.**, Gurevich, E.V. GPCR signaling regulation: the role of GRKs and arrestins. *Front Pharmacol* **10**, 125; [doi.org/10.3389/fphar.2019.00125](https://doi.org/10.3389/fphar.2019.00125) (2019).
73. **Gurevich, V.V.** Protein multi-functionality: introduction. *Cell Mol Life Sci* **76**, 4405-4406; doi: 10.1007/s00018-019-03271-6 (2019).
74. **Gurevich, V.V.**, Gurevich, E.V. Plethora of functions packed into 45 kDa arrestins: biological implications and possible therapeutic strategies. *Cell Mol Life Sci* **76**, 4413-4421; doi: 10.1007/s00018-019-03272-5 (2019).
75. **Gurevich, V.V.**, Gurevich, E.V. Receptors talking: solo vs chorus. *Atlas of science* <https://atlasofscience.org/receptors-talking-solo-vs-chorus/> (2019).
76. Shieh, B.-H., Gurevich, E. V., and **Gurevich, V. V.** Receptor Adaptation Mechanisms. In: eLS. John Wiley & Sons, Ltd: Chichester; DOI: 10.1002/9780470015902.a0000052.pub3 (2020).
77. **Gurevich, V.V.**, Gurevich, E.V. Biased GPCR signaling: possible mechanisms and inherent limitations. *Pharm Ther* **211**, 107540; doi: 10.1016/j.pharmthera.2020.107540 (2020).
78. **Gurevich, V.V.**, Gurevich, E.V. Targeting arrestin interactions with its partners for therapeutic purposes. Chapter 7 in: Adv Protein Chem Struct Biol. Protein interactions as targets in drug discovery. Ed: Rossen Donev. Elsevier, ISBN: 978-0-12-816846-2, Vol **121**, 169-197 (2020).
79. **Gurevich VV**, Gurevich EV. [Corrigendum to "Biased GPCR signaling: Possible mechanisms and inherent limitations" \[Pharmacology & Therapeutics 211 \(2020\) 107540\]](https://doi.org/10.1016/j.pharmthera.2020.107615). *Pharmacol Ther* **213**, 107615; doi: 10.1016/j.pharmthera.2020.107615 (2020).
80. **Gurevich VV**, Gurevich EV. Designer adhesion GPCR tells its signaling story. *Nat Chem Biol* **16** (12), 1280-1281; doi: 10.1038/s41589-020-00673-7 (2020).
81. Gurevich EV, **Gurevich VV**. GRKs as modulators of neurotransmitter receptors. *Cells* **10** (1), E52; doi: 10.3390/cells10010052 (2020).
82. **Gurevich VV**. GRKs. Scholarly Community Encyclopedia, <https://encyclopedia.pub/7370> (2021).
83. Seyedabadi, M., Gharghabi, M., Gurevich EV, **Gurevich VV**. Receptor-arrestin interactions: the GPCR perspective. *Biomolecules* **11** (2), 218; doi: 10.3390/biom11020218 (2021).
84. **Gurevich, V. V.**, Benovic, J. L., Gurevich, V.V. Chapter 00109. G Protein-Coupled Receptor Kinases and Arrestins. In: Jez Joseph (eds.) Encyclopedia of Biological Chemistry, 3rd Edition. vol. 6, pp. 423–433. Oxford: Elsevier. DOI: [10.1016/B978-0-12-819460-7.00109-2](https://doi.org/10.1016/B978-0-12-819460-7.00109-2) (2021).

85. **Gurevich V.V.** GPCR. Scholarly Community Encyclopedia, <https://encyclopedia.pub/9741> (2021).
86. **Gurevich V.V.**, Gurevich E.V. Receptor-enzyme complex structures show how receptors start to switch off. *Nature* **595** (7868), 499-500; doi: 10.1038/d41586-021-01873-4 (2021).
87. **Gurevich V.V.** Biology and structure of arrestin proteins [Video file]. In *The Biomedical & Life Sciences Collection, Henry Stewart Talks*. <https://hstalks.com/bs/4663/> (2021).
88. Karnam, P.C., Vishnivetskiy, S.A., **Gurevich, V.V.** Structural basis of arrestin selectivity for active phosphorylated G protein-coupled receptors. *Int J Mol Sci* **22** (22), 12481; DOI: doi.org/10.3390/ijms222212481 (2021).
89. **Gurevich V.V.**, Gurevich E.V. History of arrestins. Ch. 1 (pp. 1-8) in “Arrestin: structure and function in vision and beyond”. Gurevich V.V., ed. Academic Press, ISBN: 978-0-323-85756-7; <https://doi.org/10.1016/B978-0-323-85756.00003-0> (2022).
90. **Gurevich V.V.**, Gurevich E.V. Signaling-biased arrestin-based molecular tools. Ch. 7 (pp. 105-124) in “Arrestin: structure and function in vision and beyond”. Gurevich V.V., ed. Academic Press, ISBN: 978-0-323-85756-7; <https://doi.org/10.1016/B978-0-323-85756.00007-8> (2022).
91. Seyedabadi, M., Gharghabi, M., Gurevich, E.V., **Gurevich, V.V.** Structural basis of GPCR coupling to distinct transducers: implications for biased signaling. *Trends Biochem Sci* **47** (7), 570-581; doi: 10.1016/j.tibs.2022.03.009 (2022).
92. **Gurevich V.V.**, Gurevich E.V. Solo vs chorus: monomers and oligomers of arrestin proteins. *Int J Mol Sci* **23** (13), 7253; doi.org/10.3390/ijms23137253 (2022).
93. **Gurevich V.V.** Beta-adrenergic receptors. In *Primer on Autonomic Nervous System*, 4<sup>th</sup> edition (Biaggioni, I., Browning, K., Fink, G., Jordan, J., Low, P.A., Paton, J.F.R., eds.), San Diego: Elsevier Inc./Academic Press, p. 53-55 (2023).
94. **Gurevich V.V.**, Gurevich E.V. A boost in learning by removing nuclear phosphodiesterases and enhancing nuclear cAMP signaling. *Sci Signal* **16** (778), eadg9504; doi: 10.1126/scisignal.adg9504 (2023).
95. Wess, J, Oteng, A.B., Rivera-Gonzalez, O., Gurevich, E.V., **Gurevich, V.V.**  $\beta$ -Arrestins: Structure, Function, Physiology, and Pharmacological Perspectives. *Pharmacol Rev*, in press; doi: 10.1124/pharmrev.121.000302 (2023).
96. **Gurevich V.V.** Conformational flexibility underlies the versatility of arrestins. *BioEssays*, in press; doi: 10.1002/bies.202300085 (2023).

#### BOOK EDITOR

1. Arrestins – Pharmacology and Therapeutic Potential. Handbook of Experimental Pharmacology 219, Springer-Verlag, Berlin-Heidelberg, ISBN: 978-3-642-41198-1 (2014).
2. G protein-coupled receptor kinases. Co-edited with Eugenia V. Gurevich and John G. Tesmer. Springer-Verlag, Berlin-Heidelberg, ISBN: 978-1-4939-3796-7 (2016).
3. The structural basis of arrestin functions. Springer-Verlag, Berlin-Heidelberg, ISBN 978-3-319-57552-0 (2017).
4. Arrestin: structure and function in vision and beyond. Elsevier, in press (2022).

#### INVITED PRESENTATIONS:

1. Harvard University, Department of Ophthalmology, March 1996.
2. Jacques Monod Conference “Molecular and Cellular Biology of Ras-like and Heterotrimeric G Proteins”, June 1996, France.
3. New York University, Department of Pharmacology, May 1998.
4. Millennium Pharmaceuticals, Inc., September 1999.
5. Vanderbilt University, Department of Pharmacology, March 2001.
6. Case Western Reserve University, Department of Ophthalmology, March 2001.
7. Mayo Clinic, Department of Pharmacology, March 2001.
8. University of New Mexico, Department of Cell Biology and Physiology, June 2001.

9. Pharmacology of Adrenoceptors. The 2nd Annual ASPET G Protein-Coupled Receptor Symposium - An official satellite meeting of the IUPHAR XIVth World Congress of Pharmacology. Rohnert Park, CA, June 2002.
10. University of North Carolina, Department of Pharmacology, February 2003.
11. University of Utah, Department of Ophthalmology and Visual Sciences, Moran Eye Center, February 2003.
12. University of Miami School of Medicine, Department of Molecular and Cellular Pharmacology, May 2003.
13. Case Western Reserve University, Department of Biochemistry, September 2003.
14. Medical College of Wisconsin, Department of Biophysics, October 2003.
15. Oregon Health Sciences University, Department of Behavioral Neuroscience, February 2004.
16. Portland Veterans Administration Medical Center, February 2004.
17. University of Texas Medical Branch (Galveston), Department of Neuroscience and Cell Biology, March 2004.
18. Cleveland Clinic Foundation, Cole Eye Institute, Department of Ophthalmology, November 2004.
19. University of Rochester, Department of Pharmacology and Physiology, November 2006.
20. University of Louisville, Department of Pharmacology and Toxicology, November 2006.
21. Tennessee State University, Department of Biological Sciences, February 2007.
22. The Biology and Chemistry of Vision, FASEB summer research conference, Snowmass Village, CO, June 2007.
23. International Narcotics Research Conference, Berlin, Germany, July 2007.
24. Charité Universitätsmedizin Berlin, Institut für Medizinische Physik und Biophysik, Berlin, Germany, July 2007.
25. University of Texas Health Science Center at Houston, Department of Integrative Biology and Pharmacology, January 2008
26. Tennessee State University, Department of Biological Sciences, September 2008.
27. 10th International Dahlem Symposium "Signal Recognition and Transduction", Berlin-Dahlem, February 2009.
28. The University of Texas at Austin, Institute for Cellular and Molecular Biology, September 2009.
29. Medical College of Georgia, Department of Pharmacology and Toxicology, October 2009.
30. Drug Discovery: Targets and Tools. Berlin, Germany, March 17-19, 2010
31. Keystone Symposium: G protein-coupled receptors. Breckenridge, CO, April 7-12, 2010
32. Evolution of G Protein Coupled Signaling: Lineages, Constraints, and Tempo. Chapel Hill, NC, May 17-19, 2010
33. Leipzig University, Germany, Department of Biological Sciences, June 2010.
34. Neurotalk-2010, Singapore, June 25-28, 2010
35. Keystone Symposium: Trans-membrane signaling by GPCRs and channels. Taos, NM, January 23-28, 2011
36. The Scripps Research Institute, Departments of Molecular Biology, Chemistry, and Cell Biology, March 7, 2011
37. Cold Spring Harbor Conference Asia, Membrane proteins: Structure and function, Suzhou, China, May 16-20, 2011.
38. Leipzig University, Germany, Department of Biological Sciences, May 2011.
39. The Biology and Chemistry of Vision, FASEB summer research conference, Carefree, AZ, June 19-24, 2011.
40. MRC Laboratory of Molecular Biology, Hills Road, Cambridge CB2 0QH, UK, September 7, 2011.
41. Institut de Génomique Fonctionnelle, UMR 5203 CNRS – U 661 INSERM, University Montpellier, 34094 Montpellier Cedex 05, France, September 9, 2011.
42. NRW International Graduate Research School, Universität Bonn, Konviktstrasse 9, 53113 Bonn, Germany, September 13, 2011.

43. Paul Scherrer Institut, OFLC-103, 5232 Villigen PSI, Switzerland, September 15, 2011.
44. Cell Signaling Technology, Danvers, MA, April 5, 2012.
45. Modulators of GPCR trafficking and signaling, satellite of Endocrine Society annual meeting (ENDO 2012), Houston, TX, June 22, 2012.
46. 15<sup>th</sup> International Conference on Retinal Proteins, Monte Verita, Ascona, Switzerland, September 29 - October 5, 2012.
47. Medical College of Wisconsin, October 26, 2012.
48. University of Washington, Department of Pharmacology, May 21, 2013.
49. Leipzig University, Germany, Department of Biological Sciences, July 8-11, 2013.
50. 14<sup>th</sup> Annual Great Lakes GPCR retreat, Cleveland, OH, October 17-19, 2013.
51. Leipzig-Vanderbilt symposium, Pharmacology section, Vanderbilt University, October 31, 2013.
52. Loyola University, Department of Pharmacology, December 4, 2013.
53. University of Florida, Gainesville, Department of Pharmacology, February 5, 2014.
54. University of Tennessee Health Science Center, Memphis, Department of Pharmacology, March 5, 2014.
55. Meeting: "G protein-coupled receptors: structural dynamics and functional implications". Keystone symposium, Snowbird, Utah, March 30 through April 4, 2014.
56. 5<sup>th</sup> Focused Cell Signaling Meeting, British Pharmacological Society, Leicester, UK, April 28-29, 2014.
57. Meeting "Biomolecular structure, dynamics, and function: membrane proteins". Vanderbilt University, May 2-4, 2014.
58. ARVO annual meeting, Symposium Phototransduction, May 6, Orlando, FL, May 4-7, 2014.
59. Department of Pharmacology, University of Michigan, Ann Arbor, May 8-9, 2014.
60. Faculty of Pharmacy, University of Toronto, Toronto, Canada, May 15, 2014.
61. Meeting "GPCRs: Structure, function, and drug discovery". Boston, MA May 22-23, 2014.
62. FASEB meeting "G protein-coupled receptor kinases: from molecules to diseases". Steamboat Springs, CO (June 8-13, 2014).
63. Keynote talk at the 2014 G Protein Signaling Workshop, Philadelphia, PA (June 16, 2014).
64. GPCR structure, function, drug discovery, and crystallography. Academia-industry international conference, Kavli Royal Society International Centre, Chicheley Hall, Chicheley, Newport Pagnell, Buckinghamshire, MK16 9JJ, United Kingdom (1-2 September 2014).
65. Department of Pharmacology, Marburg University, Marburg, Germany (September 4, 2014).
66. JSEI, UCLA, Los Angeles, CA (October 17, 2014).
67. Symposium "Biased agonist: an emerging paradigm in GPCR drug discovery" at the 249<sup>th</sup> ACS meeting, Denver, Colorado (March 22, 2015).
68. Julius Axelrod Symposium "The ins and outs of G protein-coupled receptor signaling", ASPET meeting, Boston, Massachusetts (March 29, 2015).
69. 2<sup>nd</sup> GPCR Targeted Screening, Berlin, Germany (May 7-8, 2015).
70. 11<sup>th</sup> International NPY-PYY-PP Meeting, Leipzig, Germany (August 22-26, 2015).
71. International Conference on Synthetic Biology, Houston, TX (September 28-29, 2015).
72. VisionFest-2015, Vanderbilt University, Nashville, TN (November 9, 2015).
73. Department of Ophthalmology, Baylor College of Medicine, Houston, TX (November 20, 2015).
74. Institute of Neurobiology, San Juan, Puerto Rico (January 20, 2016).
75. Wittenberg University, Department of Chemistry, Springfield, OH (April 5, 2016).
76. 2016 G protein signaling workshop, New York, NY (June 14, 2016).
77. Tennessee Tech University, Department of Chemistry, Cookeville, TN (September 9, 2016).
78. Augusta University, Department of Pharmacology and Toxicology, Augusta, GA (December 2, 2016).
79. Case Western Reserve University, Departments of Ophthalmology and Pharmacology, Cleveland, OH (February 28, 2017).
80. Austin Peay State University, Department of Biology, Clarksville, TN (March 13, 2017).

81. EB 2017, ASPET mini-symposium “GRKs and b-arrestins in cardiovascular therapy”, Chicago, IL (April 24, 2017).
82. University of Illinois-Chicago, Department of Physiology and Biophysics, Chicago, IL (May 12, 2017).
83. FASEB meeting “G protein-coupled receptor kinases and arrestins: from structure to disease”. Saxtons River, VT (June 11-16, 2017).
84. Southeastern Vision Conference, Nashville, TN (October 2-3, 2017).
85. NIH NIDDK, Bethesda, MD (November 1, 2017)
86. XXIII Biennial Meeting of the International Society for Eye Research, Belfast, Northern Ireland, UK (September 9-13, 2018).
87. Van Andel Institute, Grand Rapids, MI (July 24, 2019).
88. 12<sup>th</sup> International NPY-PYY-PP 2019 meeting, Edmonton, Canada (July 27-31, 2019).
89. World Congress of Light and Life. Invited Symposium Speaker of the Symposium Retinal Proteins in Animals, Mechanisms: Vision. Barcelona, Spain (August 29, 2019).
90. University of Iowa, Iowa City, IA (September 24, 2019).
91. University of Indiana, Bloomington (March 4, 2022).
92. FASEB conference “G Protein-Coupled Receptor Kinases and Arrestins: Key Modulators of GPCR Signal Transduction”, Jupiter, FL, August 21-26, 2022.

#### ABSTRACTS:

1. **Gurevich, V.V.**, and Voeikov, V.L. Trypsin freezes a high-affinity agonist-binding state of the  $\beta$ 2-adrenergic receptor. 4th All-Union Conference of Cyclic Nucleotides, Minsk, 1982, Abstracts, p. 315.
2. **Gurevich, V.V.**, Krasovskaya, L.A., Muranov, A.V., Muranova, T.A., and Natochin, M.Y. Purification of  $\beta$ 2-adrenergic receptor by affinity and HPLC gel-filtration. 4th All-Union University Conference of Cell Biology, Tbilisi, 1985, Abstracts, v.1, pp. 209-210.
3. **Gurevich, V.V.**, Zozulya, S.A., Zvyaga, T.A., Natochin, M.Y., Gryaznov, S.M., Shirokova, E.P., and Korotkova, N.V. Synthesis of bovine visual rhodopsin in vitro. 7th All-Union Symposium of Protein and Peptide Chemistry, Tallinn, 1987, Abstracts, pp. 47-48.
4. **Gurevich, V.V.**, Zozulya, S.A., Shmukler, B.E., Zvyaga, T.A., Natochin, M.Y., Gryaznov, S.M., Shirokova, E.P., and Ovchinnikov, Yu.A. In vitro expression of the visual rhodopsin. 14th International Congress of Biochemistry, Prague, 1988, Abstracts, v. 1, p. 207.
5. **Gurevich, V.V.**, Zvyaga, T.A., Shirokova, E.P., Natochin, M.Y., Badalov, P.R., Gryaznov, S.M., and Zozulya, S.A. 5'-UTR governs the efficiency of bovine rhodopsin translation in the wheat germ extract cell-free system. 5th International Conference of Young Scientists on Organic and Biological Chemistry, Pushchino, 1988, Abstracts, p. 21.
6. **Gurevich, V.V.**, Pokrovskaya, I.D., Zerf, E.P., Obukhova, T.A., and Zozulya, S.A. Functional role of two negative charges in transmembrane domains of bovine rhodopsin. 6th International Conference of Young Scientists on Organic and Biological Chemistry, Berlin, 1989, Abstracts, p. 87.
7. Zerf, E.P., **Gurevich, V.V.**, Pokrovskaya, I.D., Dumler, I.L., Garnovskaya, M.N., and Zozulya, S.A. Functional properties of bovine rhodopsin mutants Asp83Asn and Glu134Gln. All-Union Symposium on Protein Chemistry, Tbilisi, 1990, Abstracts, p. 38.
8. Zozulya, S.A., **Gurevich, V.V.**, Pokrovskaya, I.D., Zerf, E.P., Obukhova, T.A., Badalov, P.R. Liposome-coupled translation in vitro: a novel approach to functional receptor expression. UCLA Symposia on Molecular and Cellular Biology, 19th Annual Meetings, Los Angeles, CA, 1990, J.Cell.Biochem., Suppl.14E, p. 169.
9. **Gurevich, V.V.**, Pokrovskaya, I.D., Garnovskaya, M.N., Dumler, I.L., Obukhova, T.A., Zerf, E.P., and Zozulya, S.A. Protein engineering study of the role of negatively charged residues in II and III transmembrane domains of visual rhodopsin. 7th International Conference of Young Scientists on Organic and Biological Chemistry, Varna, 1990, Abstracts, pp. 125-127.

10. Pokrovskaya, I.D., **Gurevich, V.V.**, Garnovskaya, M.N., Dumler, I.L., and Zozulya, S.A. Visual rhodopsin does not need protein translocation machinery for proper cotranslational insertion into lipid bilayer. 7th International Conference of Young Scientists on Organic and Biological Chemistry, Varna, 1990, Abstracts, pp. 112-114.
11. **Gurevich, V.V.**, and Benovic, J.L. Functional expression and truncation mutagenesis of arrestin and  $\beta$ -arrestin in a cell-free translation system. LVII Cold Spring Harbor Symposium on Quantitative Biology, The Cell Surface, Cold Spring Harbor, NY, 1992, Abstracts, p. 43.
12. **Gurevich, V.V.**, Dion, S.B., Onorato, J.J., Ptasienski, J., Kim, C.M., Sterne-Marr, R., Hosey, M.M., and Benovic, J.L. Arrestin interactions with G protein-coupled receptors: Direct binding studies of wild-type, truncated, and chimeric arrestins with rhodopsin,  $\beta$ 2-adrenergic, and m2 muscarinic cholinergic receptors. Pharmacology of Adrenoceptors (Satellite of the XIIth IUPHAR Congress), King of Prussia, PA, 1994, Abstracts, p. 26.
13. Kunapuli, P. **Gurevich, V.V.**, and Benovic, J.L. Regulation of the G protein-coupled receptor kinase GRK5 by autophosphorylation. FASEB J. 8 (7), A1327 (1994).
14. **Gurevich, V.V.**, and Benovic, J.L. Diverse functional roles of positively charged residues within the phosphorylation-recognition region of visual arrestin. ARVO Annual Meeting, Fort Lauderdale, FL, 1995, IOVS 36 (4,) p. S222.
15. **Gurevich, V.V.**, and Benovic, J.L. The mechanism of phosphorylation-recognition by visual arrestin: phosphorylation-independent arrestin mutants. ARVO Annual Meeting, Fort Lauderdale, FL, 1996, IOVS 37 (3) p. S239 (1084).
16. Goodman, O.B., Krupnick, J.G., Santini, F., **Gurevich, V.V.**, Penn, R., Keen, J.H., and Benovic, J.L. Beta-arrestins function as clathrin adapter proteins to promote agonist-specific internalization of the beta2-adrenergic receptor. FASEB J. 10 (6), 2241 (1996).
17. **Gurevich, V.V.**, M.P. Gray-Keller, P.B. Detwiler, and Benovic, J.L. Diverse functional roles of negatively charged residues in arrestin C-terminus. ARVO Annual Meeting, Fort Lauderdale, FL, 1997, IOVS 38 (4) p. S23 (97 Part 1).
18. Gray-Keller, M.P., P.B. Detwiler, **Gurevich, V.V.**, and Benovic, J.L. Single amino acid substitution in visual arrestin quenches light-activated rhodopsin. ARVO Annual Meeting, Fort Lauderdale, FL, 1997, IOVS 38 (4) p. S23 (99 Part I).
19. **Gurevich, V.V.** Constitutively active arrestin mutants: can they be used to manipulate the efficiency of signaling by G protein-coupled receptors. Society for Neuroscience 27 Annual Meeting, New Orleans, 1997, v. 23, Part 2, p. 2339.
20. Gurevich, E.V., **Gurevich, V.V.**, and Joyce, J.N. Developmental expression of beta-arrestin and arrestin3 in the rat brain. Society for Neuroscience 27 Annual Meeting, New Orleans, 1997, v. 23, Part 1, p. 41.
21. Benovic, J.L., Gagnon, A.W., Goodman, O.B., **Gurevich, V.V.**, Kallal, L., Krupnick, J.G., Penn, R.B., Santini, F., and Keen, J.H. Role of arrestins in regulating G protein-coupled receptor signaling and trafficking. J. Leukocyte Biol. 63, Suppl. 1 (1998).
22. Benovic, J.L., Gagnon, A.W., Goodman, O.B., **Gurevich, V.V.**, Kallal, L., Krupnick, J.G., Penn, R.B., Santini, F., and Keen, J.H. Role of arrestins in trafficking of the beta2-adrenergic receptor. Naunyn-Schmiedeberg's Arch. Pharmacol. 358 (1), P666, Suppl. 2 (1998).
23. Mukherjee, S., Palcewski, K, **Gurevich V.V.**, and Hunzicker-Dunn, M. Role of arrestin protein in regulating desensitization of LH/CG receptor in porcine follicular membranes. 19<sup>th</sup> annual minisymposium at the Center for Reproductive Sciences, Northwestern University, Evanston, IL, October 1998.
24. **Gurevich, V.V.** Multiple non-redundant mechanisms control arrestin selectivity towards P-Rh\*. ARVO Annual Meeting, Fort Lauderdale, FL, 1998. IOVS 39 (4) p.S954.
25. Mukherjee, S., **Gurevich, V.V.**, and Hunzicker-Dunn, M. Phosphorylation independent mutants of arrestin protein promote desensitization of LH/CG receptor in porcine follicular membranes. 81<sup>st</sup> Annual Endocrine Society meeting, June 1999, San Diego, CA.

26. Mukherjee, S., **Gurevich, V.V.**, and Hunzicker-Dunn, M. Phosphorylation independent mutants of arrestin protein promote desensitization of LH/CG receptor in porcine follicular membranes. *12<sup>th</sup> Signal transduction meeting*, May 1999, San Diego, CA.
27. Raman, D., Osawa, S., **Gurevich, V.V.**, and Weiss, E.R. The binding of the mutant R175E arrestin to rhodopsin mutants in a phosphorylation-independent manner. ARVO Annual Meeting, Fort Lauderdale, FL, 1999. IOVS 40 (4) p. S209 (1100B8).
28. Vishnivetskiy, S.A., and **Gurevich, V.V.** A mosaic of charged groups in arrestin phosphate-binding pocket: surprising interchangeability of positive and negative charges. ARVO Annual Meeting, Fort Lauderdale, FL, 1999. IOVS 40 (4) p. S210 (1106B14).
29. **Gurevich, V.V.**, Vishnivetskiy, S.A., and Paz, C.L. Arrestin N-terminus controls its preferential binding to phosphorylated rhodopsin. ARVO Annual Meeting, Fort Lauderdale, FL, 1999. IOVS 40 (4) p. S210 (1107B15).
30. **Gurevich, V.V.**, Vishnivetskiy, S.A., Gurevich, Y.V., Climaco, G.C. Adjacent elements in arrestin N-terminus stabilize its basal (inactive) and rhodopsin-bound (active) state. ARVO Annual Meeting, Fort Lauderdale, FL, 2000. IOVS 41 (4) S608 (3228B326 Suppl S).
31. Vishnivetskiy, S.A., Velez, M.-G., Gurevich, Y.V., and **Gurevich, V.V.** Arrestin transition into rhodopsin-binding state involves a movement of N- and C-domains relative to each other. ARVO Annual Meeting, Fort Lauderdale, FL, 2000. IOVS 41 (4) S608 (3229B327 Suppl S).
32. Smith, W.C., Gurevich, E.V., Dugger, D.R., Vishnivetskiy, S.A., Shelamer, C.L., McDowell, H., and **Gurevich, V.V.** Two arrestins from the retina of tiger salamander, *Ambystoma tigrinum*: Cloning, expression, regulation, and receptor specificity. ARVO Annual Meeting, Fort Lauderdale, FL, 2000. IOVS 41 (4) S321 (1695 Suppl).
33. Vrecl M, Heding A, Sellar R, Taylor PL, Hanyaloglu AC, **Gurevich VV**, Eidne KA. Mammalian GnRH receptor internalization is not promoted by phosphorylation-independent  $\beta$ -arrestin mutants. 11<sup>th</sup> International Congress of Endocrinology, Sydney 2000; Abstracts, p. 456.
34. Bennett, T.A., Prossnitz, E.R., **Gurevich, V.V.**, Neubig, R., and Sklar, L.A. G protein-coupled receptor reconstitution in a solubilized system. *Mol. Biol. Cell* 11, 548, Suppl. S (2000).
35. **Gurevich, V.V.**, Hosey, M.M., and Vishnivetskiy, S.A. A small element in the N-terminal domain of arrestins determines their receptor specificity. *FASEB J.* 15 (5), A1165, Part 2 (2001).
36. Klug, C.S., **Gurevich, V.V.**, and Hubbell, W.L. The solution structure of visual arrestin: A site-directed spin-labeling study. 45<sup>th</sup> Annual Meeting of the Biophysical Society, February 17-21, 2001, Boston, MA. *Biophys. J.* 80 (1) 1682, Part 2 (2001).
37. Klug, C.S., **Gurevich, V.V.**, and Hubbell, W.L. Using site-directed spin labeling EPR to investigate the solution structure of visual arrestin. EPR Symposium, July 2001, Denver, CO. *Biophys J.* 80 (1), 1682 Part 2.
38. Vishnivetskiy, S.A., Velez, M.-G., Gurevich, Y.V., and **Gurevich, V.V.** Similar conformational rearrangement of arrestin is required for its binding to activated phosphorhodopsin and for mutants' binding to other functional forms of rhodopsin. ARVO Annual Meeting, Fort Lauderdale, FL, 2001. IOVS 42 (4) S185 (991 Suppl).
39. **Gurevich, V.V.**, Vishnivetskiy, S.A., Schubert, C., Climaco, G.C., Gurevich, Y.V., and Velez, M.-G. Arrestin has two phosphate-binding elements localized in the two "hot spots" that must be rearranged for rhodopsin binding. ARVO Annual Meeting, Fort Lauderdale, FL, 2001. IOVS 42 (4) S307 (1655 Suppl).
40. Potter RM, Key TA, **Gurevich VV**, Sklar LA, Prossnitz ER. Arrestin variants display differential binding characteristics for the formyl-peptide receptor carboxyl terminus in a bead-based assay system. *Mol Biol Cell* 12: 1810, Suppl. S NOV 2001.
41. Vishnivetskiy, S.A., **Gurevich, V.V.**, and Hosey, M.M. Two elements in the two domains of the arrestin molecule determine its receptor specificity. ARVO Annual Meeting, Fort Lauderdale, FL, 2002. IOVS 44 (4), 1393 Suppl.



42. **Gurevich, V.V.**, Vishnivetskiy, S.A., and Velez, M.-G. The role of amphipathic alpha-helix I in arrestin membrane translocation. ARVO Annual Meeting, Fort Lauderdale, FL, 2002. IOVS 43, 1394 Suppl.
43. **Gurevich, V.V.** Molecular Acrobatics: Arrestin Transition into Active Rhodopsin-Binding State. ARVO Annual Meeting, Fort Lauderdale, FL, 2003. IOVS 44, 1515 Suppl.
44. Vishnivetskiy, S.A., Wiener, R., Lvov, A., Hirsch, J.A., and **Gurevich, V.V.** Temperature Dependence of Arrestin Binding to Rhodopsin: Role of Arrestin Structural Elements in Stabilizing its Basal Conformation. ARVO Annual Meeting, Fort Lauderdale, FL, 2003. IOVS 44, 1516 Suppl.
45. Buckheister, S.M., Eisley, M.E., Vishnivetskiy, S.A., Hubbell W.L., C., Klug, C.S., Hubbell, W.L., Fleming, K.G., and **Gurevich, V.V.** Mutational Analysis of the Visual Arrestin Dimer Interface. ARVO Annual Meeting, Fort Lauderdale, FL, 2003. IOVS 44, 1517 Suppl.
46. Kolobova, E.A., Klug, C.S., Buckheister, S.M., Kuznetzow, A.K., Hubbell, W.L., and **Gurevich, V.V.** Identification of Elements Involved in Arrestin-rhodopsin Interaction by Site-directed Spin-labelling. ARVO Annual Meeting, Fort Lauderdale, FL, 2003. IOVS 44, 3176 Suppl.
47. Nair, S.K., Buckheister, S.M., **Gurevich, V.V.**, and Slepak, V.Z. Mechanisms and Effects of Signal-Dependent Translocation of the G protein, RGS, and Arrestin to Lipid Rafts in Rod Outer Segment. ARVO Annual Meeting, Fort Lauderdale, FL, 2003. IOVS 44, 3179 Suppl.
48. Zhang, R., Khoo, M.S.C., Ni, G.M., Vishnivetskaya, T.A., Wu, Y.J., Yang, J.Y., Madu, E., **Gurevich, V.V.**, and Anderson, M.E. Calmodulin kinase is required for beta adrenergic stimulation in myocardium. CIRCULATION 106 (19): 15 Suppl. S, NOV 5 2002.
49. Robert J, Sutton RB, Navarro J, **Gurevich VV**, Vishnivetskiy SA, Raman D, Okada T High-resolution crystal structure of cone arrestin from salamander. Biophys J 86 (1): 492A-492A Part 2 Suppl. S (2004).
50. Vishnivetskiy, S.A., Benovic, J.L., and **Gurevich, V.V.** Very Few Arrestin Residues Determine Its Receptor Preference. ARVO Annual Meeting, Fort Lauderdale, FL, 2004. IOVS 45, E-abstract 1270.
51. Hanson, S.M., Gurevich, E.V., Nair, K.S., Vishnivetskiy, S.A., Mendez, A., Chen, J., Slepak, V.Z., and **Gurevich, V.V.** Mutations In The C-terminus Enhancing Arrestin Binding To Tubulin Affect Its Light-dependent Translocation In Mouse Rod Photoreceptors In Vivo. ARVO Annual Meeting, Fort Lauderdale, FL, 2004. IOVS 45, E-abstract 3450.
52. **Gurevich, V.V.**, Burns, M.E., Vishnivetskiy, S.A., Emelianoff, K.A., Vishnivetskaya, T.A., Mendez, A., Chen, C.-K., and Chen, J. The Expression Of Phosphorylation-independent “super-arrestins” Protects Rod Outer Segments In Rhodopsin Kinase Knockout Mice. ARVO Annual Meeting, Fort Lauderdale, FL, 2004. IOVS 45, E-abstract 3452.
53. **Gurevich, V.V.**, and Vishnivetskiy, S.A. Structural determinants of arrestin receptor specificity. 2004 ASBMB Annual Meeting and 8<sup>th</sup> IUBMB Conference, Boston, MA, 2004.
54. Kolobova, E.A., Gurevich, E.V., and **Gurevich, V.V.** Regulation of dopamine D2 and D3 receptor trafficking by arrestins and GRKs. 2004 ASBMB Annual Meeting and 8<sup>th</sup> IUBMB Conference, Boston, MA, 2004.
55. Hanson, S.M., Francis, D.J., Vishnivetskiy, S.A., Nair, K.S., Slepak, V.Z., Hubbell, W.L., Klug, C.S., **Gurevich, V.V.** Rhodopsin and Microtubules Compete for Arrestin Binding in Rod Photoreceptors ARVO Annual Meeting, Fort Lauderdale, FL, 2005. IOVS 46, E-abstract 1715.
56. Song, X., Vishnivetskiy, S.A., Gurevich, E.V., Mendez, A., Chen, J., **Gurevich, V.V.** How Much Arrestin Is Good for Rod Photoreceptors? ARVO Annual Meeting, Fort Lauderdale, FL, 2005. IOVS 46, E-abstract 1717.
57. **Gurevich, V.V.**, Sutton, B.R., Vishnivetskiy, S.A., Raman, D., Robert, J., Hanson, S.M., Navarro, J., Knox, B.E., Kono, M. Structure and Function of Cone Arrestin: Does Transient Binding to Cone Opsin Contribute to the Speed of Cone Recovery? ARVO Annual Meeting, Fort Lauderdale, FL, 2005. IOVS 46, E-abstract 1176.
58. Raman, D., Kennedy, M.J., Hurley, J.B., **Gurevich, V.V.** Threshold Mechanism of Arrestin Activation: Two Rhodopsin-Attached Phosphates Are Necessary and Sufficient for High-Affinity Arrestin Binding ARVO Annual Meeting, Fort Lauderdale, FL, 2005. IOVS 46, E-abstract 1177.

59. Vishnivetskiy, S.A., Hanson, S.M., Francis, D.J., Kuznetzow, A.K., Klug, C.S., Hubbell, W.L., **Gurevich, V.V.** The Arrestin-Rhodopsin Interface: Implications for the Structure of the Complex ARVO Annual Meeting, Fort Lauderdale, FL, 2005. IOVS 46, E-abstract 1178.
60. Slepak, V.Z., Nair, K.S., Shestopalov, V.I., Hanson, S.M., Hurley, J.B., **Gurevich, V.V.** Mechanism of Light-Dependent Translocation of Arrestin and Transducin in Vertebrate Rod Photoreceptors: Passive Diffusion Restricted by Protein Interactions ARVO Annual Meeting, Fort Lauderdale, FL, 2005. IOVS 46, E-abstract 4781.
61. Gurevich, E.V., Ahmed, M.R., Nichols, O., Benovic, J.L., and **Gurevich, V.V.** Effect of antipsychotic drugs on the G protein-coupled receptor desensitization machinery. SCHIZOPHRENIA BULLETIN 31 (2): 300-301 APR 2005.
62. Francis, D.J., Hanson, S.M., **Gurevich, V.V.**, Hubbell, W.L., Klug, C.S. Solution structure of a plastic region in visual arrestin using SDSL EPR spectroscopy. BIOPHYSICAL JOURNAL 88 (1): 157A-157A Part 2 Suppl. S JAN 2005.
63. Neitzel, K.L., Ramineni, S., Pao, C., Benovic, J.L., **Gurevich, V.V.**, Hepler, J.R. Functional effects of direct RGS-GPCR interactions on GRK phosphorylation and arrestin binding. FASEB JOURNAL 19 (5): A1100-A1100 Part 2 Suppl. S MAR 7 2005.
64. Lan, H.X., Liu, Y., **Gurevich, V.V.**, Neve, K.A. In vitro binding of the second and third intracellular segments of dopamine D2 and D3 receptors to arrestin-2 and -3. FASEB JOURNAL 19 (4): A515-A515 Part 1 Suppl. S MAR 4 2005.
65. Hanson, S.M., Francis, D.J., Vishnivetskiy, S.A., Raman, D., Van Eps, N., Hubbell, W.L., Klug, C.S., **Gurevich, V.V.** Arrestin binding to microtubules involves a distinct conformational change. FASEB J 20 (4): A110 Part 1. Abstract 101.1 at 2006 ASBMB Annual Meeting, San Francisco, CA, 2006.
66. **Gurevich, V.V.**, Raman, D., Gurevich, E.V., Vishnivetskiy, S.A. Arrestin-dependent subcellular redistribution of signaling proteins. FASEB J 20 (4): A110 Part 1. Abstract 101.2 at 2006 ASBMB Annual Meeting, San Francisco, CA, 2006.
67. Francis, D.J., Hanson, S.M., Vishnivetskiy, S.A., Van Eps, N., Hubbell, W.L., **Gurevich, V.V.**, Klug, C.S. Structural dynamics of arrestin proteins upon receptor binding. FASEB J 20 (4): A110-A111, Part 1. Abstract 101.3 at 2006 ASBMB Annual Meeting, San Francisco, CA, 2006.
68. Song, X., Raman, D., **Gurevich, V.V.** Visual Arrestins Interact With Cell Survival Regulators JNK3 and Mdm2 ARVO Annual Meeting, Fort Lauderdale, FL, 2006. Invest. Ophthalmol. Vis. Sci. 2006 47: 817 Suppl. S 2006.
69. Hanson, S.M., Francis D.J., Van Eps, N., Hubbell, C., Vishnivetskiy, S.A., Klug, C.S., Hubbell, W.L., **Gurevich, V.V.** The Molecular Mechanism and Functional Role of Visual Arrestin Self-Association. ARVO Annual Meeting, Fort Lauderdale, FL, 2006. Invest. Ophthalmol. Vis. Sci. 2006 47: 823 Suppl. S 2006.
70. **Gurevich, V.V.**, Hanson, S.M., Francis, D.J., Vishnivetskiy, S.A., Hubbell, W.L., Klug, C.S. Watching Arrestin Bind: Differential Engagement of Arrestin Residues by Different Functional Forms of Rhodopsin. ARVO Annual Meeting, Fort Lauderdale, FL, 2006. Invest. Ophthalmol. Vis. Sci. 2006 47: 824 Suppl. S 2006
71. Vishnivetskiy, S.A., Hanson, S.M., Francis, D.J., Hubbell, W.L., Klug, C.S., **Gurevich, V.V.** Structural Dynamics of Visual Arrestin-Rhodopsin Binding. ARVO Annual Meeting, Fort Lauderdale, FL, 2006. Invest. Ophthalmol. Vis. Sci. 2006 47: 825 Suppl. S 2006.
72. **Gurevich, V.V.**, Hanson, S.M., Gurevich, E.V., Vishnivetskiy, S.A., Ahmed, M.R., Raman, D., Wei, J., Kennedy, M.J., Song, X., Mendez, A., Hurley, J.B., Chen, J. Simple rules of arrestin binding: one rhodopsin, two phosphates. XVII International Congress of Eye Research, October 29 – November 3, 2006, Buenos Aires, Argentina, Abstract Book p. 88 (Invited Talk).
73. Gurevich, E.V., Song, X., Vishnivetskiy, S.A., Mendez, A., Chen, J., **Gurevich, V.V.** Too much of a good thing: High expression of “super-arrestin” causes photoreceptor degeneration. XVII International Congress of Eye Research, October 29 – November 3, 2006, Buenos Aires, Argentina, Abstract Book p. 88 (Invited Talk).

74. **Gurevich, V.V.**, Hanson, S.M., Gurevich, E.V., Vishnivetskiy, S.A., Ahmed, M.R, Song, X. Each receptor molecule binds its own arrestin. ASBMB Meeting, April 2007. FASEB J 21, A613-A613 (2007).
75. Cleghorn, W.M., Hanson, S.M., Francis, D.J., Vishnivetskiy, S.A., Raman, D., Song, X., Klug, C.S., **Gurevich, V.V.** Arrestin-dependent mobilization of signaling proteins to the cytoskeleton. ASBMB Meeting, April 2007. FASEB J 21, A613-A613 (2007).
76. F.Y. Cheng, X. Song, S.A. Vishnivetskiy, E.V. Gurevich, A. Mendez, J. Chen, **V.V. Gurevich**. Life or Death of Photoreceptors Depends on the Expression Level of Arrestin Mutant (585/B42) ARVO Annual Meeting, Fort Lauderdale, FL, 2007.
77. X. Song, E.V. Gurevich, **V.V. Gurevich**. Cone Arrestin Interaction With JNK3 and Mdm2: Conformational Preference and the Localization of Binding Sites. (602/B59) ARVO Annual Meeting, Fort Lauderdale, FL, 2007.
78. **V.V. Gurevich**, S.M. Hanson, E.V. Gurevich, S.A. Vishnivetskiy, M.R. Ahmed, X. Song. Each Rhodopsin Molecule Binds Its Own Arrestin. (1110, Talk) ARVO Annual Meeting, Fort Lauderdale, FL, 2007.
79. W.M. Cleghorn, S.M. Hanson, D.J. Francis, S.A. Vishnivetskiy, D. Raman, X. Song, K.S. Nair, V.Z. Slepak, C.S. Klug, **V.V. Gurevich**. Rod and Cone Arrestins Differentially Mobilize Signaling Proteins to Microtubules. (600/B57) ARVO Annual Meeting, Fort Lauderdale, FL, 2007.
80. S.A. Vishnivetskiy, D. Raman, J. Wei, M.J. Kennedy, J.B. Hurley, **V.V. Gurevich**. Regulation of Arrestin Binding by the Number of Rhodopsin-Attached Phosphates. (4661/B533) ARVO Annual Meeting, Fort Lauderdale, FL, 2007.
81. Kim, M, Van Eps, N., Vishnivetskiy, S.A., Cleghorn, W.M., Hanson, S.M., Gurevich, V.V., Hubbell, W.L. A site-directed spin-labeling study of arrestin conformation in solution and bound to activated rhodopsin. ASBMB Meeting, April 2008 San Diego, CA; S539, 645.6 (2008).
82. Vishnivetskiy, S.A., Francis, D., Klug, C.S., Gurevich, V.V. Few residues within extensive binding interface determine receptor preference of arrestin proteins. ASBMB Meeting, April 2008 San Diego, CA; 812.6 (2008).
83. Cleghorn, W.M., Chen, D., Zhang, X., Zent, R., Gurevich, V.V. Regulation of cell adhesion and motility: a novel function of arrestin proteins. ASBMB Meeting, April 2008 San Diego, CA; 824.4 (2008).
84. Gurevich, V.V., Vishnivetskiy, S.A., Francis, D.J., Hanson, S.M., Van Eps, N., Hubbell, W.L., Klug, C.S. Mutations in arrestin alpha-helix I affect receptor binding. ASBMB Meeting, April 2008 San Diego, CA; 1046.6 (2008).
85. Song, X., Gurevich, V.V. How arrestin assembles MAP kinases into a signaling complex. ASBMB Meeting, April 2008 San Diego, CA; 1052.4 (2008).
86. Cleghorn, W.M., Kim, M., Van Eps, N., Vishnivetskiy, S.A., Hanson, S.M., Gurevich, V.V., Hubbell, W.L. A Site-Directed Spin Labeling Study of the Conformation of Free and Rhodopsin-Bound Arrestin. (161/A261) ARVO Annual Meeting, Fort Lauderdale, FL (2008).
87. Song, X., Vishnivetskiy, S.A., Gross, O.P., Emelianoff, K., Gurevich, E.V., Burns, M.E., Gurevich, V.V. Enhanced Arrestin Mutant Protects Rod Photoreceptors and Facilitates Photoresponse Recovery in the Absence of Rhodopsin Phosphorylation (1669/A263) ARVO Annual Meeting, Fort Lauderdale, FL (2008).
88. Vishnivetskiy, S.A., Francis, D.J., Hanson, S.M., Van Eps, N., Hubbell, W.L., Klug, C.S., Gurevich, V.V. Arrestin Alpha-Helix I Participates in Rhodopsin Binding: What Does the Complex Look Like? (1670/A264) ARVO Annual Meeting, Fort Lauderdale, FL (2008).
89. Gurevich, V.V., Hanson, S.M., Dawson, E.S., Francis, D.J., Van Eps, N., Klug, C.S., Meiler, J., Hubbell, W.L. Solution Structure of the Rod Arrestin Tetramer Explains the Mode of Its Formation and Its Inability to Bind Rhodopsin (2414) ARVO Annual Meeting, Fort Lauderdale, FL (2008).
90. H. Moaven, Y. Koike, B. Soreghan, V.V. Gurevich, J. Chen. Expression of Arrestin1 Splice Variant, p44, Rescues Retinal Degeneration in K296E Mouse Models of ADRP (2990/A25). ARVO Annual Meeting, Fort Lauderdale, FL (2009).

91. S.A. Vishnivetskiy, X. Song, H.E. Boyd, V.V. Gurevich. Improving Phosphorylation-Independent Arrestin1: Redesign of the Rhodopsin-Binding Surface (4792). ARVO Annual Meeting, Fort Lauderdale, FL (2009).
92. X. Song, S.A. Vishnivetskiy, J. Chen, V.V. Gurevich. Evaluation the Effects of Transgenic Manipulation of Arrestin1 Expression Level on Retinal Rod Function (5424/A375). ARVO Annual Meeting, Fort Lauderdale, FL (2009).
93. W.M. Cleghorn, S. Kook, E.V. Gurevich, V.V. Gurevich. Caspase Cleavage of Arrestin1 in Photoreceptor Apoptosis (5436/A387). ARVO Annual Meeting, Fort Lauderdale, FL (2009).
94. V.V. Gurevich, T.H. Bayburt, S.M. Fluss, S.A. Vishnivetskiy, S.G. Sligar. Arrestin1 Binds Monomeric P-Rh\* in Nanodiscs With the Same Affinity and Stoichiometry as in Native Disc Membranes (5448/A399). ARVO Annual Meeting, Fort Lauderdale, FL (2009).
95. S. Coffa, Song, X., **Gurevich, V.V.** Identification of arrestin elements mediating c-Raf-1 binding. ASBMB Meeting, April 2010 Anaheim, CA; 710.1 (2010).
96. S. Kook, **V. Gurevich**, E. Gurevich. Cleavage of arrestin3 by caspases prevents apoptosis via modulation of JNK-dependent cell death pathway. ASBMB Meeting, April 2010 Anaheim, CA; 485.13 (2010).
97. **V. V. Gurevich**, X. Song, S. A. Vishnivetskiy, M. Kim, S. M. Hanson, W. L. Hubbell, J. Chen, E. V. Gurevich. Arrestin1 self-associates to prevent cell death induced by the cytotoxic monomer. ASBMB Meeting, April 2010 Anaheim, CA; 707.1 (2010).
98. S. A. Vishnivetskiy, T. H. Bayburt, T. Morizumi, C. Huang, J. J. Tesmer, O. P. Ernst, S. G. Sligar, **V. V. Gurevich**. Monomeric rhodopsin in nanodiscs is phosphorylated by rhodopsin kinase and binds arrestin with high affinity in the presence of negatively charged lipids. ASBMB Meeting, April 2010 Anaheim, CA; 707.3 (2010).
99. L. E. Gimenez, G. J. Digby, C. D. Weaver, P. J. Conn, **V. V. Gurevich**. Measuring arrestin binding to G protein coupled receptors: BRET and recruitment assays tell different stories. ASBMB Meeting, April 2010 Anaheim, CA; 857.2 (2010).
100. W. Cleghorn, N. Bulus, D. Chen, X. Zhang, R. Zent, **V. Gurevich**. Regulation of cell adhesion and motility: a novel function of arrestin proteins. ASBMB Meeting, April 2010 Anaheim, CA; 711.1 (2010).
101. W. Cleghorn, S. Kook, V.A. Chiodo, W.W. Hauswirth, E.V. Gurevich, **V.V. Gurevich**. Caspase Cleavage of Arrestin1 in Photoreceptor Apoptosis. 1089/D755 ARVO Annual Meeting, Fort Lauderdale, FL (2010).
102. Vishnivetskiy, T.H. Bayburt, T. Morizumi, C.-C. Huang, J.J. Tesmer, O.P. Ernst, S.G. Sligar, **V.V. Gurevich**. Rhodopsin Monomer is Phosphorylated by Rhodopsin Kinase and Binds Arrestin With High Affinity in the Presence of Negatively Charged Lipids. 1098/D764 ARVO Annual Meeting, Fort Lauderdale, FL (2010).
103. **V.V. Gurevich**, X. Song, S.A. Vishnivetskiy, M. Kim, S.M. Hanson, J.C. Chen, W.L. Hubbell, E.V. Gurevich. Cytotoxicity of Monomeric Arrestin1 Explains Its Robust Self-Association. 1104/D770 ARVO Annual Meeting, Fort Lauderdale, FL (2010).
104. **V.V. Gurevich**, T. Zhuang, S.A. Vishnivetskiy, C. R. Sanders. Elucidation of IP6 and heparin interaction sites and conformational changes in arrestin-1 by solution NMR. ASBMB Meeting, April 2011, Washington, DC; 750.3/B330 (2011).
105. M. Kim, S. A. Vishnivetskiy, N. Van Eps, X. Zhan, W. M. Cleghorn, N. Alexander, S. M. Hanson, J. Meiler, **V.V. Gurevich**, W. L. Hubbell. Conformation of receptor-bound arrestin-1: a site-directed spin labeling study. ASBMB Meeting, April 2011, Washington, DC; 750.5/B332 (2011).
106. S. A. Vishnivetskiy, L. E. Gimenez, **V.V. Gurevich**. Relatively few non-phosphate-binding residues drive receptor binding of non-visual arrestins. ASBMB Meeting, April 2011, Washington, DC; 750.9/B336 (2011).

107. Y. Zhuo, X. Zhan, S. M. Hanson, M. Warthaka, K.N. Dalby, **V.V. Gurevich**, C.S. Klug. Identification of ERK2-arrestin-3 binding sites. ASBMB Meeting, April 2011, Washington, DC; 750.10/B337 (2011).
108. J. Seo, **V.V. Gurevich**. Identification of arrestin-3-specific residues necessary for JNK3 activation. ASBMB Meeting, April 2011, Washington, DC; 751.15/B352 (2011).
109. X. Zhan, L.E. Gimenez, **V.V. Gurevich**, B. Spiller. Crystal structure of arrestin-3 reveals the basis of the difference in receptor binding between two non-visual arrestins. ASBMB Meeting, April 2011, Washington, DC; 751.18/B355 (2011).
110. Cleghorn, W.M., Lenou, E., Song, X., Vishnivetskiy, S.A., Seo, J., Gurevich, E.V., **Gurevich, V.V.** Reduced arrestin in the OS slows down photoresponse recovery in rods. 32/A23 ARVO Annual Meeting, Fort Lauderdale, FL (2011).
111. **Gurevich, V.V.**, Kim, M., Vishnivetskiy, S.A., Van Eps, N., Alexander, N., Hanson, S.M., Zhan, X., Cleghorn, W.M., Meiler, J., Hubbell, W.L. The conformation of the active receptor-bound arrestin. 37/A28 ARVO Annual Meeting, Fort Lauderdale, FL (2011).
112. **Vishnivetskiy, S.A.**, Kim, M., Hanson, S.M., Song, X., Cleghorn, W.M., Hubbell, W.L., **Gurevich, V.V.** Robust self-association of arrestin-1 is conserved among mammalian species. 52/A43 ARVO Annual Meeting, Fort Lauderdale, FL (2011).
113. **Chen, Q.**, Zhuang, T., Vishnivetskiy, S.A., **Gurevich, V.V.**, Sanders, C.R. Screening of membrane mimics for arrestin-1. Cold Spring Harbor Asia Conference "Membrane proteins: structure and function". May 16-20, Suzhou (2011).
114. **Chen, Q.**, Zhuang, T., Vishnivetskiy, S.A., Cho, M.-K., Thaker, T.M., Iverson, T.I., **Gurevich, V.V.**, Sanders, C.R. NMR Study of Arrestin-1 Binding to Rhodopsin. GPCR Workshop Dec 4-8, 2011, Maui, Hawaii (2011).
115. **Gurevich, V.V.**, Breitman, M., Gimenez, L.E., Kook, S., Lizama, B.N., Palazzo, M.C., Gurevich, E.V. Silent scaffolds: inhibition of JNK3 activity in living cells by a dominant-negative arrestin-3 mutant. ASBMB Meeting, April 2012, San Diego, CA; 761.2/A167 (2012).
116. Gimenez, L.E., **Gurevich, V.V.**, Construction of non-visual arrestins with enhanced specificity for individual G protein-coupled receptors. ASBMB Meeting, April 2012, San Diego, CA; 761.3/A168 (2012).
117. Zhan, X., Kaoud, T.S., Dalby, K.N., **Gurevich, V.V.** Non-visual arrestins function as simple scaffolds assembling the MKK4-JNK3a2 signaling complex. ASBMB Meeting, April 2012, San Diego, CA; 761.5/A170 (2012).
118. **Gurevich, V.V.**, Vishnivetskiy, S.A., Standfuss, J., Ostermaier, M., Bayburt, T., Homan, K.T., Glukhova, A., Sligar, S.G., Tesmer, J.J., Schertler, G. Monomeric wild type and constitutively active rhodopsin is effectively phosphorylated by different GRKs and binds arrestin-1. 751/A628. ARVO Annual Meeting, Fort Lauderdale, FL (2012).
119. Vishnivetskiy, S.A., Kim, M., Van Eps, N., Palazzo, M.C., Lizama, B.N., Hubbell, W.L., **Gurevich, V.V.** Central 139-loop enhances stability and selectivity for P-Rh\* of arrestin-1. 4131 (talk, session 403: Phototransduction proteins and signaling) ARVO Annual Meeting, Fort Lauderdale, FL (2012).
120. Chen, Q., Zhuang, T., Vishnivetskiy, S.A., Cho, M.-K., Thaker, T.M., Iverson, T.M., **Gurevich, V.V.**, Sanders, C.R. NMR study of arrestin-1 binding to rhodopsin. 4132 (talk, session 403: Phototransduction proteins and signaling) ARVO Annual Meeting, Fort Lauderdale, FL (2012).
121. **\*Gurevich, V.V.**, Vishnivetskiy, S.A., Kim, M., Hanson, S.M., Alexander, N.S., Chen, Q., Zhuang, T., Van Eps, N., Cleghorn, W.M., Cho, M.-K., Zhan, X., Thaker, T., Iverson, T.I., Meiler, J., Sanders, C.R., Hubbell, W.L. The mechanism of arrestin-1 binding to light-activated phosphorhodopsin. 15<sup>th</sup> International Conference on Retinal Proteins, Monte Verita, Ascona, Switzerland, September 29 - October 5, 2012. \*Invited talk.
122. Ahmed, M.R., **Gurevich, V.V.**, Gurevich, E.V. The role of kinase and RGS activity of GRKs in regulating the dopaminergic signaling in hemiparkinsonian rats. EB Annual Meeting, Boston, April 20-24, 2013. *FASEB J* April 9, 2013 27:1172.11

123. Gimenez, L.E., Babilon, S., Beck-Sickinger, A.G., **Gurevich, V.V.** Specific mutations on the receptor-binding interface of non-visual arrestins differently affect recruitment by the NPY receptor family. EB Annual Meeting, Boston, April 20-24, 2013. *FASEB J* April 9, 2013 27:1031.3
124. Kook, S., Zhan, X., Kaoud, T.S., Dalby, K.N., **Gurevich, V.V.**, Gurevich, E.V. Arrestin-3 binding to JNK1alpha1/JNK2alpha2: modulation of JNK1 and JNK2 activity via scaffolding. EB Annual Meeting, Boston, April 20-24, 2013. *FASEB J* April 9, 2013 27:1042.6
125. **Gurevich, V.V.**, Kim, M., Vishnivetskiy, S.A., Van Eps, N., Alexander, N.S., Cleghorn, W.M., Zhan, X., Hanson, S.M., Morizumi, T., Ernst, O.P., Meiler, J., Hubbell, W.L. The conformation of active receptor-bound arrestin. EB Annual Meeting, Boston, April 20-24, 2013. *FASEB J* April 9, 2013 27:1031.9
126. Zhan, X., Kaoud, T.S., Kook, S., Dalby, K.N., **Gurevich, V.V.** JNK3 binding to arrestin-3 differentially affects recruitment of upstream MAP kinase kinases. EB Annual Meeting, Boston, April 20-24, 2013. *FASEB J* April 9, 2013 27:1042.4
127. Gurevich, E.V., Song, X., Seo, J., Baameur, F., Vishnivetskiy, S.A., Chen, Q., Kim, M., Chen, J., Hubbell, W.L., **Gurevich, V.V.** Robust self-association of arrestin-1 is a neuroprotective mechanism. 2456 - D0061. ARVO Annual Meeting, Seattle, WA, May 5-9, 2013.
128. Vishnivetskiy, S.A., Baameur, F., Findley, K.R., **Gurevich, V.V.** Critical role of central 139 loop in stability and binding selectivity of arrestin-1. 2458 - D0063. ARVO Annual Meeting, Seattle, WA, May 5-9, 2013.
129. **Gurevich, V.V.**, Vishnivetskiy, S.A., Chen, Q., Palazzo, M.C., Brooks, E.K., Altenbach, C., Iverson, T.M., Hubbell, W.L. Independent manipulation of binding selectivity and self-association of arrestin-1. 2460 - D0065. ARVO Annual Meeting, Seattle, WA, May 5-9, 2013.
130. Gurevich, E.V., Vishnivetskiy, S.A., **Gurevich, V.V.** Functional implications of the localization of arrestin-1 in rod synaptic terminals. 1337 — A0055. ARVO Annual Meeting, Orlando, FL, May 4-8, 2014.
131. Vishnivetskiy, S.A., Chen, Q., Kim, M., Van Eps, N., Zhuang, T., Hubbell, W.L., Sanders, C.R., **Gurevich, V.V.** Rhodopsin binding-induced conformational changes in arrestin-1. 3028 (talk). ARVO Annual Meeting, Orlando, FL, May 4-8, 2014.
132. **Gurevich, V.V.**, Vishnivetskiy, S.A., Kook, S., Gurevich, E.V. Self-association does not play a decisive role in the distribution of arrestin-1 in dark-adapted rods. 3029 (talk). ARVO Annual Meeting, Orlando, FL, May 4-8, 2014.
133. **\*Gurevich, V.V.** Structure-based construction of arrestins with special functional characteristics. International NPY-PYY-PP Meeting, August 22-26, 2015, Leipzig, Germany. *Neuropeptides, Volume 55, February 2016, Page 11*. \*Invited talk.
134. Schubert, M., Stichel, J.D., Sliwosky, G.R., **Gurevich, V.V.**, Weaver, C.D., Meiler, J., Beck-Sickinger, A.G. Allosteric modulators to target the human Y4 receptors. P1.15. 11<sup>th</sup> International NPY-PYY-PP Meeting, August 22-26, 2015, Leipzig, Germany.
135. Chen, Q., Zhuo, Y., Kook, S., Francis, D.J., Vishnivetskiy, S.A., Hanson, S.M., Zhan, X., Brooks, E.K., Iverson, T.M., Altenbach, C., Hubbell, W.L., Klug, C.S., **Gurevich V.V.** The two non-visual arrestins from distinct oligomers with different functional capabilities. P2.6. 11<sup>th</sup> International NPY-PYY-PP Meeting, August 22-26, 2015, Leipzig, Germany.
136. Wanka, L., Babilon, S., Burkert, K., **Gurevich, V.V.**, Beck-Sickinger, A.G. Influence of distinct motifs within the carboxyl-terminus of the human neuropeptide Y4 receptor on internalization and arrestin-3 recruitment. P2.7. 11<sup>th</sup> International NPY-PYY-PP Meeting, August 22-26, 2015, Leipzig, Germany. *Neuropeptides, Volume 55, February 2016, Page 23*.
137. Perry, N.A., Stoy, H., Chen, Q., **Gurevich, V.V.** Ability of peptide mini-scaffolds to serve as JNK3 activators. P2.8. 11<sup>th</sup> International NPY-PYY-PP Meeting, August 22-26, 2015, Leipzig, Germany. International NPY-PYY-PP Meeting, August 22-26, 2015, Leipzig, Germany. *Neuropeptides, Volume 55, February 2016, Pages 23-24*.
138. Perry, N.A., Stoy, H., Chen, Q., Gurevich, E.V., Zhan, X., Kaoud, T.S., Dalby, K.N., Iverson, T.M., **Gurevich, V.V.** Ability of peptide mini-scaffolds to serve as JNK3 activators.

Keystone meeting “G protein-coupled receptors: structure, signaling, and drug discovery”.

Keystone, Colorado, February 21-25, 2016.

139. Chen, Q., Gilbert, N.C., Perry, N.A., Zhuo, Y., Berndt, S., Vishnivetskiy, S.A., Tholen, J., Klug, C.S., **Gurevich, V.V.**, Iverson, T.M. Structural basis for arrestin-3 activation and signaling. 2016 G protein signaling workshop, New York, NY, June 14, 2016.
140. \***Gurevich, V.V.**, Perry, N.A., Chen, Q., Zhan, X., Stoy, H., Kaoud, T.S., Perez, A., Els-Heindl, S., Beck-Sickinger, A.G., Gurevich, E.V., Dalby, K.N., Iverson, T.M. Structural basis of arrestin-mediated signaling. 2016 G protein signaling workshop, New York, NY, June 14, 2016. \*Invited talk.
141. \***Gurevich, V.V.** Deciphering structural basis of arrestin functions. FASEB meeting “G protein-coupled receptor kinases and arrestins: from structure to disease. Saxtons River, VT (June 11-16, 2017). \*Invited talk.
142. Berndt, S., Vishnivetskiy, S.A., Chen, Q., **Gurevich, V.V.**, Iverson, T.M. Allosteric connections between activators and effectors in arrestin-3. FASEB meeting “G protein-coupled receptor kinases and arrestins: from structure to disease. Saxtons River, VT (June 11-16, 2017).
143. Pair, F.S., Perry, N.A., Ge, C., **Gurevich, V.V.**, Gurevich, E.V. Arrestin-3-derived peptides as tools to manipulate JNK signaling in cells. FASEB meeting “G protein-coupled receptor kinases and arrestins: from structure to disease. Saxtons River, VT (June 11-16, 2017).
144. \*Vishnivetskiy, S.A., Lee, R.J., Zhou, X.E., Franz, A., Xu, Q., Xu, H.E., **Gurevich, V.V.** Functional role of conserved cysteines in visual arrestin-1. FASEB meeting “G protein-coupled receptor kinases and arrestins: from structure to disease. Saxtons River, VT (June 11-16, 2017). \*Short talk.
145. \*Perry, N.A., Marcus, D.J., Kaoud, T.S., Kaya, A.I., Pleinis, J.M., Chen, Q., Berndt, S., Zhan, X., Dalby, K.N., Iverson, T.M., **Gurevich, V.V.** Regulation of the binding of the ASK1-MKK4/7-JNK3 cascade components to arrestin-3 by kinase activation and ATP. FASEB meeting “G protein-coupled receptor kinases and arrestins: from structure to disease. Saxtons River, VT (June 11-16, 2017). \*Short talk.
146. \*Chen, Q., Perry, N.A., Vishnivetskiy, S.A., Gilbert, N.C., Zhuo, Y., Berndt, S., Sing, P.K., Tholen, J., Ohi, M.D., Gurevich, E.V., Brautigam, C.A., Klug, C.S., **Gurevich, V.V.**, Iverson, T.M. Structural basis of arrestin-3 activation and signaling. FASEB meeting “G protein-coupled receptor kinases and arrestins: from structure to disease. Saxtons River, VT (June 11-16, 2017). \*Short talk.
147. Tóth, A.D., Prokop, S., Gyombolai, P., Várnai, P., Balla, A., **Gurevich, V.V.**, Hunyady, L. Turu, G. Inactive AT<sub>1</sub> angiotensin receptor acts as a signaling hub: a novel mechanism of receptor cross-talk. Angiotensin Gordon Research Conference, Vantura, CA (February 2018).
148. Böttke, T., **Gurevich, V.V.**, Coin, I. Genetically encoded photo-crosslinkers to map GPCR-Arrestin interfaces. Keystone Symposium GPCR Structure and Function: Taking GPCR Drug Development and Discovery to the Next Level. February 16-20, Santa Fe, New Mexico USA (2018).
149. **Gurevich, V.V.**, Van Eps, N., Vishnivetskiy, S.A., Shamambo, L., Perry, N.A., Hubbell, W.L. Conformational flexibility of the arrestin-rhodopsin complex. Poster 2354 - B0364, ARVO annual meeting 2018, Honolulu, Hawaii, April 29-May 4 (2018).
150. Samaranayake, S.A., Vishnivetskiy, S.A., Thibeault, K.C., Gurevich, E.V., **Gurevich, V.V.** High expression of monomeric arrestin-1 causes retinal degeneration. Poster 3063 - A0034, ARVO annual meeting 2018, Honolulu, Hawaii, April 29-May 4 (2018).
151. Vishnivetskiy, S.A., Sullivan, L.S., Bowne, S.J., Daiger, S.P., Gurevich, E.V., **Gurevich, V.V.** Molecular defects of the disease-causing human arrestin-1 C147F mutant. Poster 3062 – A0033, ARVO annual meeting 2018, Honolulu, Hawaii, April 29-May 4 (2018).
152. Perry, N.A., Kaoud, T.S., Ortega, O.O., Kaya, A.I., Marcus, D.J., Pleinis, J.M., Berndt, S., Chen, Q., Zhan, X., Dalby, K.N., Lopez, C.F., Iverson, T.M., and **Gurevich, V.V.** Arrestin-3 scaffolding of the JNK3 cascade suggests the mechanism of signal amplification. G protein signaling workshop, Philadelphia, PA, June 18 (2018).
153. **Gurevich, V.V.** Molecular mechanism of arrestin binding to GPCRs. G protein signaling workshop, Philadelphia, PA, June 18 (2018).

154. **Gurevich, V.V.** Molecular mechanism of arrestin-1 binding to rhodopsin. XXIII Biennial Meeting of the International Society for Eye Research, Belfast, Northern Ireland, UK (September 9-13, 2018).
155. **Gurevich, V.V.**, Van Eps, N., Vishnivetskiy, S.A., Perry, N.A., Xu, E.H., Hubbell, W.L. Conformational flexibility of the arrestin-rhodopsin complex. Southeastern Vision Research Conference, Birmingham, AL (December 10-11, 2018).
156. Vishnivetskiy, S.A., Sullivan, L.S., Bowne, S.J., Daiger, S.P, Gurevich, E.V., **Gurevich, V.V.** Molecular defects of the disease-causing human arrestin-1 C147F mutant. Southeastern Vision Research Conference, Birmingham, AL (December 10-11, 2018).
157. Samaranyake, S., Vishnivetskiy, S.A., Thibeault, K.C., Gurevich, E.V., **Gurevich, V.V.** High expression of monomeric arrestin-1 causes retinal degeneration. Southeastern Vision Research Conference, Birmingham, AL (December 10-11, 2018).
158. **Gurevich, V.V.**, Samaranyake, S., Vishnivetskiy, S.A. B0020: The effect of arrestin-1 self-association on its distribution in rods. April 28, 2019, ARVO annual meeting, Vancouver, Canada, April 28- May 2, 2019.
159. Vishnivetskiy, S.A., Elgeti, M., Van Eps, N., Perry, N.A., Hubbell, W.L., **Gurevich, V.V.** B0021: Divergent conformations of the arrestin-rhodopsin complex in solution. April 28, 2019, ARVO annual meeting, Vancouver, Canada, April 28- May 2, 2019.
160. Gurevich, E.V., Samaranyake, S., Vishnivetskiy, S.A., **Gurevich, V.V.** B0022: Arrestin-1 in rod synaptic terminals. April 28, 2019, ARVO annual meeting, Vancouver, Canada, April 28- May 2, 2019.
161. Huh, E., Vishnivetskiy, S.A., **Gurevich, V.V.** The role of the finger loop in rhodopsin binding by arrestin-1. ARVO 2020 virtual meeting. *Invest Ophthalmol Vis.Sci* **61** (7), 1522 (2020).
162. Gurevich, V.V., May, M.B., Karnam, P., Zheng, C., Vishnivetskiy, S.A. The mechanism of phosphate sensing by arrestin-1. ARVO 2020 virtual meeting. *Invest Ophthalmol Vis.Sci* **61** (7), 1523 (2020).
163. Samaranyake, S., Vishnivetskiy, S.A., Gurevich, E.V., Gurevich, V.V. The effect of arrestin-1 self-association on rod mitochondria. ARVO 2020 virtual meeting. *Invest Ophthalmol Vis.Sci* **61** (7), 1521 (2020).
164. Zheng, C., Perry, N.A., Vishnivetskiy, S.A., Berndt, S., Gurevich, E.V., **Gurevich, V.V.** Arrestin-3 interacts with parkin mutants linked to Parkinson's disease. EB 2020 virtual meeting. *FASEB J* **34** (S1), (2020).
165. Zheng, C., Weinstein, L.D., Nguyen, K.K., Grewal, A., Gurevich, E.V., Gurevich, V.V. GPCR binding and arrestin-3-dependent JNK3 activation have different structural requirements. (Also short talk). FASEB conference "G Protein-Coupled Receptor Kinases and Arrestins: Key Modulators of GPCR Signal Transduction", Jupiter, FL, August 21-26, 2022.
166. Vishnivetskiy, S.A., Huh, E.K., Gurevich, E.V., Gurevich, V.V. The finger loop is an activation sensor in arrestin. (Also short talk). FASEB conference "G Protein-Coupled Receptor Kinases and Arrestins: Key Modulators of GPCR Signal Transduction", Jupiter, FL, August 21-26, 2022.
167. Ahmed, M.R., Gurevich, V.V., Gurevich, E.V. Arrestin-3-derived T1A peptide recapitulates pro-dyskinetic effect of arrestin-3 via activation of the JNK pathway. (Also short talk). FASEB conference "G Protein-Coupled Receptor Kinases and Arrestins: Key Modulators of GPCR Signal Transduction", Jupiter, FL, August 21-26, 2022.