Eugenia V. Gurevich, Ph.D.
CURRICULUM VITAE

PERSONAL INFORMATION

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Citizenship: US (naturalized)

EDUCATION.

Year	Degree	Institution	Discipline
1985	BS/MS	Moscow State University, Moscow, Russia	Neuroscience
1990	PhD	Moscow State University, Moscow, Russia	Neuroscience
1993-1995	Postdoctoral	University of Pennsylvania, PA	Dept. of Psychiatry

ACADEMIC APPOINTMENTS.

1986 – 1992	Research Scientist, Institute of Cell Biophysics, Russian Academy of Sciences, Pushchino, Moscow Region, Russia
1995 – 2001	Staff Scientist, Sun Health Research Institute, Sun City, AZ
2001- 2003	Research Assistant Professor, Department of Pharmacology Vanderbilt University, Nashville, TN
2003 – 2010	Assistant Professor, Department of Pharmacology Vanderbilt University, Nashville, TN
2010 – present	Associate Professor, Department of Pharmacology Vanderbilt University, Nashville, TN

PROFESSIONAL ORGANISATIONS.

Member, Society for Neuroscience
Member, American Society for Pharmacology and Experimental Therapeutics
Member, Association for Research in Vision and Ophthalmology

PROFESSIONAL ACTIVITIES.

INTRAMURAL:

09/2009 – 20016 Member, Institutional Biosafety Committee
Mentoring Committee, Member
Ana Carneiro, Assistant professor of Pharmacology

Thesis committees:
Bonnie Garcia Pharmacology 2006 – 2010, **Chair** (defended March 19, 2010)
Kirsten Helmcke Pharmacology 2006 – 2010 Member (defended February 7, 2010)
Mingwei Ni Pharmacology 2008 – 2011, Member (defended August 18, 2011)
Kari Johnson Pharmacology 2008 – 2012, **Chair** (defended December 19, 2012)
Jennifer Madison Pharmacology 2009 – 2011, **Chair** (defended May 30, 2011)
Jennifer King Meharry Medical College, 2007 – 2011,Member (defended August 19, 2011)
Na Lian Pharmacology 2010 – 2011, Member (defended December 16, 2010)
Olga Dedalko Neuroscience, 2012 - 2015, Member (defended September 2015)
Alex Neckenoff Pharmacology 2011-2016, **Chair** (defended March 2016)
Belovich Andrea Pharmacology 2013 – **Chair** (defended December 2016)
Amy Palubinsky Neuroscience, 2012 - **Chair** (defended December 2018)
Emily Warren Pharmacology 2013 – **Chair** (defended March 2018)
Raajaram Gowrishankara Pharmacology, 2015 – Member (defended March 2018)
Aparna Shekar Pharmacology, 2015 – Member (defended January 2018)
Jenny Aguilar Pharmacology, 2016 - Member

EXTRAMURAL:

NIH, CNNT ad hoc study section reviewer.
NIH, Challenge grant reviewer.
NIH, BDCN Special Emphasis panel reviewer.

Reviewer for the Wellcome Trust (United Kingdom)
Reviewer for Parkinson's Disease Society of the United Kingdom

CNNT study Section, Permanent Member, starting Oct 2016.

Ad hoc reviewer (Journals):
Journal of Neuroscience
Neuropsychopharmacology
Journal of Neurochemistry
Behavioral Pharmacology
Molecular Pharmacology
Neurobiology of Disease
Journal of Pharmacology and Experimental Therapeutics
Neurobiology of Aging
Journal of Alzheimer's Disease
Nature Communications
Cell

HONORS AND AWARDS:

Ziskind-Somerfeld Research Award, Society of Biological Psychiatry, 1997
NARSAD Young Investigator Award, 2006
Michael J. Fox Foundation Target Validation Award, 2006
Michael J. Fox Foundation Cognitive deficits Award, 2008
CEBRA Research Award, NIDA 2011
R13 Research Conference Support Award, NIDA 2014

TEACHING ACTIVITIES.

1. IGP course. Flextime I (GPCR trafficking) and II (lipid-mediated signaling) for cell Signaling course (C. Chung – Director) (fall semester of 2005; 2006; 2007; 2008; four conferences/semester).
2. Graduate course. Cellular and Molecular Neuroscience course (NEURO 345), Module IV Neural Disorders: Parkinson's disease (R. Blakely – Director) – fall semester of 2005; 2006; 2007; two lectures/semester plus examination.
3. Graduate course. Director, Neuroanatomy Laboratory, NEURO350 course, fall semester of 2006&2007, 10 laboratories/semester plus examination – ***developed the laboratory course for graduate students***.
4. Graduate course. Pharm 320 Targets course (A. Brush – Director); Catecholamine and Serotonin Signaling and Pharmacology, fall semester of 2007, three lectures and examination.
5. Graduate course. Medical Pharmacology 501; Neuroanatomy and Neuroscience; spring 2008, three lectures plus examination - ***developed the neuroscience segment of the course for Pharmacology graduate students*** (in collaboration with Dr. Gregg Stanwood).
6. Graduate course. Graduate Neuroanatomy NEURO327; Course Director, fall semester, started in 2008 and ran through 2011; the course included 12 lectures (6 lectures delivered by me, 7 - in 2011), 10 laboratories plus midterm and final examinations; required for Neuroscience graduate students; ***developed the Neuroanatomy course consisting of lectures and laboratories specifically for graduate Neuroscience students.***
7. Graduate course. Targets, Systems, and Drug Action course, Neuroscience Module Director for Pharmacology graduate students, spring semester of 2009, three lectures plus examination; fall of 2010- winter of 2013, 4 lectures and 4 paper presentations plus examination; in 2014-2015 – 6 lectures and 2 papers presentations; ***developed the neuroscience segment of the course for Pharmacology graduate students***.
8. Graduate course. Neuroanatomy Laboratory. A laboratory supplement to NEURO350 course (A. Roe - Director) for graduate students; fall semester of 2012-2014; 3 laboratories.

STUDENTS SUPERVISED:
Graduate students:
Shaun Cole – rotation.
Mohammed Aiyegbo – summer (currently in Biochemistry Graduate program).
Anthony Blount – rotation.
Ashley Torain – two rotations.
Guy Watkins – rotation.
Thomas Bridges – rotation
Claire DelBove – rotation
Emily Warren - rotation
Ashley Torain – graduate student (Pharmacology).
Yonatan Carl – graduate student (Pharmacology)
Mika Garret - graduate student (Neuroscience)

Kristopher Abney - rotation

Undergraduate students:
Dynora Pierre-Loius – summer student (2010), Vanderbilt University Summer Science Academy, Minority Research Program.
Carlie Siedlecki - undergraduate student (Neuroscience, Vanderbilt University)
Taylor Ross - summer student (2012), Vanderbilt Summer Science Academy
Cara Mosses – Neuroscience undergraduate 292a and 292b projects
Yulia Khalina – Neuroscience undergraduate 292b project
Naveetha Nandakumar - Neuroscience undergraduate 292a and 293b projects
Connie Ge - Neuroscience undergraduate 292a project; 293a projects, Honor project
Frank S. Pair – Neuroscience undergraduate 292 b and 293a projects, Honors project
Joseph Braun - Neuroscience undergraduate 292 b and 293a projects
Sonia Kim - Neuroscience undergraduate 292 b project

POSTDOCTORAL FELLOWS SUPERVISED:
M. Rafiuddin Ahmed (2003 – 2010); Research Instructor, Department of Pharmacology, Vanderbilt University (2010-2016).
Elena Kolobova (2002 – 2005)
Evgeny Bychkov (2004 –2009); Present position – Assistant Professor, Military Medical Academy, St.Petersburg, Russia
Seunghyi Kook (2004 – present)
Lilia Zurkovsky (2008 – 2012)
Katayoun Sedaghat (2009 – 2010)
Lingong Li (2011 - 2014)

MENTORING COMMITTEE
Ana Carneiro, Assistant Professor of Pharmacology

RESEARCH PROGRAM:

Current funding:

5 R01 EY011500-14 (Gurevich, V.V.) 08/01/2009–07/31/2014
NIH/NEI
Co-Investigator
Structure-function studies of visual arrestin.
The objectives of this project are: 1) Determine the conformation of receptor-bound arrestin and the shape of arrestin-rhodopsin complex; 2) Determine whether rhodopsin dimerization plays a role in arrestin binding and whether arrestin "prefers" monomeric or dimeric phosphorhodopsin; 3) Elucidate the functional role of rod arrestin1 self-association in photoreceptor cells; 4) Design "enhanced" arrestin mutants with higher affinity for Rh* and reduced self-association to compensate for defects in rhodopsin phosphorylation in mouse models of human congenital visual disorders associated with excessive rhodopsin signaling.

1RO1 GM109955-01 (Gurevich, V.V.) 01/01/2015-12/31/2019
NIH/NIGMS
Co-Investigator

Regulation of GPCR signaling with receptor-specific arrestins
This proposal focuses on the construction and functional characterization of non-visual arrestins with dramatically enhanced specificity for individual G protein-coupled receptors (GPCRs). Receptor-specific mutants will be tested for their ability to selectively regulate signaling by particular GPCR subtypes via G proteins and arrestins, and to determine dopamine receptor subtype that plays key role in dyskinesia, a common side effect of currently used treatment for Parkinson's disease. Receptor-specific regulation of GPCR signaling has therapeutic potential in multiple disorders associated with congenital or acquired imbalances in cell signaling.

2R01 GM077561 (Gurevich, V.V.) 04/01/2006-03/31/2016
NIH/ NIGMS
Co-Investigator
Arrestin Interactions with non-receptor binding partners
To elucidate molecular mechanisms of the interaction of non-visual arrestins with ASK1, MKK4/7, and JNK1/2/3 and the role of these interactions in cell death and survival. Construct arrestins with enhanced or reduced ability to promote JNK activation and test the ability of these tools to directly affect cell fate.

Completed grants:

RO1 NS065868 (Gurevich, EV)
07/01/2009-06/30/2015
NIH/NINDS
Signaling regulation in the striatum in Parkinson's disease
The objective of the project is to determine the specific role of GRK isoforms in regulating dopaminergic signaling in the dopamine-depleted striatum and to evaluate therapeutic potential of GRK overexpression for the treatment of L-DOPA-induced dyskinesia. The Specific Aims of the project are designed to test 1) for the role of GRK isoforms in regulating dopamine-dependent behavior and for the role of structure-functional elements in the GRL molecules in the GRK effects; 2) for the role of arrestins in regulating, in cooperation with GRKs, the dopamine-dependent behavior; 3) for the downstream signaling effects and molecules that mediate the behavioral effects of GRKs and GRK/arrestin combinations; and finally, 4) for the therapeutic potential of GRK isoforms for the treatment of L-DOPA-induced dyskinesia in Parkinson's disease. The project utilizes lentivirus-mediated gene transfer and microRNA knockdown technology.

1R21DA030103 (Gurevich, E.V.) 04/15/2011- 03/31/2013
NIH/NIDA
The role of receptor desensitization in psychostimulant addiction
The objective of the project is to determine the specific role of GRK isoforms in regulating dopaminergic signaling in the brain of animals addicted to psychostimulants and to evaluate the contribution of the arrestin- and GRK-mediated desensitization of dopamine receptors to drug craving and relapse.

Cognitive Deficits and Mood Disorders in PD 2008 Award (Gurevich EV)
09/15/2008-09/14/2009 $104,565.40
Michael J. Fox Foundation

Validation of the dopamine-depleted CHT hemizygous mouse as an animal model of Parkinson's disease with dementia.
The objective of the project is to determine whether a combined loss of dopamine and acetylcholine in mice would produce cognitive deficits, particularly deficits in executive functions, reminiscent of those seen in Pakinson's patients with dementia. The project is aimed at developing the first animal model of Parkinson's disease with dementia using hemizygous mice with deleted high affinity choline transporter partially depleted of dopamine to mimic the conditions in Parkinson's disease with dementia.
Role: PI.

1 RO1 NS045117-01A1 (Gurevich EV)
08/01/2003-06/30/2008 $1,635,187.50
Dopamine receptor trafficking in Parkinson's disease.
The objectives of the project are: 1) To determine whether dopaminergic denervation and/or subsequent dopamine replacement therapy cause alterations in the expression the two ARRs and four GRKs in the brain of patients with PD as compared to age-matched control; 2) To test whether 6-OHDA lesion and subsequent L-DOPA treatment change expression of ARR/GRK in the rat brain; 3) To study the effects of lentivirus-mediated overexpression of GRK2 and the inhibitor of GRK2 (GRK2ct) on behavioral and molecular effects of 6-OHDA lesion and subsequent L-DOPA treatment.

Michael J. Fox Foundation Target Validation Award (Gurevich EV – Co-PI)
Lentivirally-delivered GRK2 and GRK6 for decreasing the severity of levodopa-induced dyskinesia.
Principal Investigators: Bezard E (PI); Gurevich EV (co-PI)
07/01/06-06/30/07 $50,000.00
The objectives of the project are: 1) To determine whether lentivirally-mediated overexpression of GRK2 or GRK6 in the putamen of monkeys lesioned with MPTP and subsequently rendered dyskinetic by treating with levodopa would decrease the expression of dyskinesia: 2) to determine whether overexpression of GRK2 or GRK6 in the internal segment of the globus pallidus would decrease the severity of dyskinesia.

NARSAD Young Investigator Award (Gurevich EV)
07/01/2005-06/30/2007 $60,000.00
The role of arrestins in neurodevelopment: Implications for schizophrenia.
The objectives of this project are: 1) To determine the effect of elevated arrestin2 concentration on proliferation of neural precursors; 2) To determine the effect of elevated arrestin2 concentration on cell fate determination; 3) To determine the effect of elevated arrestin2 expression on neuronal migration.

RO3 NIMH (Gurevich EV)
12/01/2000-10/30/2002 $165,000.00
Antipsychotics and receptor desensitization machinery
The objectives of the project were: 1) to determine whether different subtypes of rat striatal output neurons have distinct repertoires of arrestins and GRKs; 2) to determine whether acute and subchronic administration of typical and atypical antipsychotic drugs changes expression of the two arrestin and four GRKs in the rat striatum, hippocampus and neocortex.; 3) to determine whether changes in expression of arrestins and GRKs are associated with the development of tardive dyskinesia.

<u>Extramural support for students/fellows (Gurevich EV – mentor):</u>

Individual NRSA (F31) from NINDS to support Mr. Yonatan Carl (4/10-3/13)

INVITED PRESENTATIONS:

1. **Gurevich EV**, Song X, Vishnivetskiy SA, Mendez A, Chen J, Gurevich VV. 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.
2. Song X, Ahmed MR, Gurevich VV, **Gurevich EV**. Wild type parkin, but not parkin mutants associated with Parkinson's disease, interacts with arrestins and promotes Mdm2 recruitment by arrestin2. 10th International Symposium on Parkinson's Research (National Parkinson Foundation). November 1-2, 2007, San Diego, CA.
3. **Gurevich EV**. Aberrant signaling in the striatum in Parkinson's disease: How can it be fixed? NeuroTalk-2010, Singapore, June 24-28, 2010.
4. **Gurevich EV**. Arrestin Ubiquitination: Ubiquitin ligase parkin promotes Mdm2-arrestin interaction but inhibits arrestin ubiquitination. Ubiquitin drug Discovery and Diagnostics Conference, Philadelphia, PA, July 11-13, 2011.
5. **Gurevich EV**. Alleviating L-DOPA-induced dyskinesia via modulation of GRK- and arrestin-dependent desensitization of dopamine receptors. Symposium "Runaway Dopamine Receptor Signaling in L-DOPA-Induced Dyskinesia: New Therapeutic Approaches", Society for Neuroscience Meeting, Washington, DC, November 12-16, 2011.
6. **Gurevich EV**. Sex-specific signaling mechanisms in schizophrenia. Panel "Sex differences in brain and behavior: Emerging genetic and cellular mechanisms", ACNP Annual Meeting, Waikoloa, Hawaii, December 4-8, 2011.
7. **Gurevich EV.** Targeting G protein-coupled receptor kinases to combat runaway dopaminergic signaling in L-DOPA-induced dyskinesia. World Pharma Congress, Philadelphia, PA, June 4-5, 2012.
8. **Gurevich EV.** The role of GRKs in Parkinson's disease and L-DOPA-induced dyskinesia. FASEB Summer Research Conference "G protein-coupled receptor kinases: From molecules to diseases", Steamboat Springs, CO, June 8-13, 2014; Conference Organizer and Session Chair.
9. **Gurevich EV.** GRKs and arrestins in dopamine-dependent behavior. University of Michingan at Ann Arbor, May 2014.
10. **Gurevich EV.** L-DOPA induced dyskinesia via arrestin3-mediated activation of JNK. GPCR Targeted Screening, Berlin, Germany, May 7-8, 2015.
11. **Gurevich EV.** Role of GRKs in L-DOPA-induced dyskinesia. 1ST Neurological Disorder Summit, San Francisco, CA, USA, September 6-9, 2015.
12. **Gurevich EV**, Vishnevetskiy SA, Thibeault KC, Gurevich VV. High expression of constitutively monomeric arrestin-1 causes degeneration of rod photoreceptors. XXII Biennial Meeting of ESER, September 25-29, 2016, Tokyo, Japan.
13. **Gurevich EV**. Talk: Nipping dyskinesia in the bud: arrestin3-derived peptides as anti-dyskinetic agents. GRKs and Arrestins: From structure to disease. FASEB Summer Conference, Saxton River, VT, June 11-16, 2017. Sessions Chair: GRKs and Arrestins in Neurobiology.
14. **Gurevich EV,** Zhan, X, Gurevich VV. Peptide-based therapeutics for the treatment of neurodegenerative diseases; Challenges and Opportunities. Pharmaceutics and Drug Delivery Systems 2017, Valencia, Spain, June 29-July 1, 2017.

15. **Gurevich EV**. Keynote Talk: Signaling peptides for brain diseases: Delivery and actions. Pharmaceutics and Drug Delivery Systems, 2nd Global Conference, Rome, Italy, June 3-6, 2018. Member of the Organizing Committee.

16. **Gurevich EV.** Talk: Arrestin-3-dependent activation of the JNK pathway as a therapeutic target for L-DOPA-induced dyskinesia. Neurology and Brain Disorders, Rome, Italy, June 3-6, 2018.

PEER-REVIEWED PUBLICATIONS:

1. Kook S, Gurevich VV, and **Gurevich EV** (2019) Cleavage of arrestin-3 by caspases attenuates cell death by precluding arrestin-dependent JNK activation. *Cell Signal,* **54**: 161-169.
2. Samaranayake S, Song X, Vishnivetskiy SA, Chen J, **Gurevich EV**, Gurevich VV (2018) Enhanced mutant compensates for defects in rhodopsin phosphorylation in the presence of endogenous arrestin-1. *Front Mol Neurosci* **11**: 203.
3. Vishnivetskiy SA, Lori S. Sullivan, LS, Sara J. Bowne, SJ, Daiger, SP, Eugenia V. Gurevich, EV, Gurevich, VV (2017) Molecular defects of disease-causing human arrestin-1 C147F mutant. *Invest Ophtalmol Vis Sci,* **59**: 13-20.
4. Cleghorn WM, Bulus N, Kook S, Gurevich VV, Zent R, **Gurevich EV** (2015) Non-visual arrestins regulate the focal adhesion formation via activity of small GTPases RhoA and Rac1 independently of GPCRs. *Cell Signal,* **42**: 259-269.
5. Chen Q, Perry NA, Vishniveteskiy SA, Gilbert NC, Zhuo Y, Berndt S, Singh PK, Tholen J, Ohi MD, **Gurevich EV**, Brautigam CA, Klug CS, Gurevich VV, Iverson TM (2017) Structural basis of arrestin-3 activation and signaling. *Nature Commun,* **8**:1427.
6. Zurkovsky L, Sedaghat K, Ahmed R, Gurevich VV and **Gurevich EV** (2017) Arrestin-2 and arrestin-3 differentially modulate locomotor responses and sensitization to amphetamine. *Neuropharmacology,* **121**: 20-29.
7. Indrischek H, Prohaska SJ, Gurevich VV, **Gurevich EV**, Stadler PF (2017) Uncovering missing pieces: Duplication and deletion history of arrestins in Deuterostomes. *BMC Evol Biol*, **17**: 163.
8. Zhan X, Stoy H, Kaoud TS, Perry NA, Chen Q, Perez A, Els-Heindl S, Slagis JV, Iverson TM, Beck-Sickinger AG, **Gurevich EV**, Dalby KN, Gurevich VV (2015) Peptide mini-scaffold facilitates JNK3 activation in cells. *Scientific Report,* **6**: 21025 .
9. Ahmed MR, Bychkov E, Li L, Gurevich VV, and **Gurevich EV** (2015) GRK3 suppresses L-DOPA-induced dyskinesia in the rat model of Parkinson's disease via its RGS homology domain. *Scientific Report*, **5**: 10920.
10. Zhan X, Kook S, Kaud TS, Dalby KN, **Gurevich EV** and Gurevich VV (2015) Arrestin-3-dependent activation of c-Jun N-terminal kinases (JNKs). *Curr Protoc Pharmacol* **68**: 2.12-2.26.
11. Li L, Homan KT, Vishnivetskiy SA, Manglik A, Tesmer JJG, Gurevich VV, and **Gurevich EV** (2015) G protein-coupled receptor kinases of the GRK4 subfamily phosphorylate inactive GPCRs. *J Biol Chem*, **290**: 10775-10790.
12. Ahmed MR, Bychkov E, Kook S, Zurkovsky L, Dalby KN, and **Gurevich EV** (2015) Overexpression of GRK6 rescues L-DOPA-induced signaling abnormalities in the dopamine-depleted striatum of hemiparkinsonian rats. *Exp Neurol*, **266**: 42-54.

13. Cleghorn WM, Branch KM, Kook S, Arnette C, Bulus N, Zent R, Kaverina I, **Gurevich EV**, Weaver AM, and Gurevich VV (2015) Arrestins regulate cell spreading and motility via focal adhesion dynamics. *Mol Biol Cell*, **26**: 622-635.

14. **Gurevich EV** and Gurevich VV (2014) Arrestin makes T cells stop and become active. EMBO J, **33**: 531-533.

15. Kook S, Zhan X, Kaoud TS, Dalby KN, Gurevich VV and **Gurevich EV** (2014). Arrestin-3 binds JNK1 and JNK2 and facilitates the activation of these ubiquitous JNK isoforms in cells via scaffolding. *J Biol Chem,* **288**:37332-37342.

16. Kook S, Zhan X, Cleghorn WM, Benovic JL, Gurevich VV and **Gurevich EV** (2014) Caspases-cleaved arrestin-2 and BID cooperatively facilitate cytochrome C release and cell death. *Cell Death&Diff*, **21**: 172-184.

17. Song X, Seo J, Baamer F, Vishnivetskiy SA, Chen Q, Kim M, Brooks EK, Altenbach C, Hong Y, Hanson SM, Palazzo MC, Chen J, Hubbell WL, **Gurevich EV**, and Gurevich VV (2013). Monomeric arrestin1 induces degeneration of rod photoreceptors. *Cell Signal,* **25**: 2613-2624.

18. Zurkovsky L, Bychkov E, Tsakem EL, Siedlecki C, Blakely RD, and **Gurevich EV** (2013) Dopamine depletion in the context of reduced acetylcholine content: a novel model of Parkinson's disease dementia. *Disease, Models&Mechanisms,* **6**: 171-183.

19. Bychkov E, Zurkovsky L, Garret M, Ahmed MR, and **Gurevich EV** (2012). Distinct cellular and subcellular distribution of G protein-coupled receptor kinase and arrestin isoforms in the striatum. *PLoS One,* **7**: e48912.

20. Breitman M, Gimenez LE, Kook S, Palazzo MC, **Gurevich EV** and Gurevich VV (2012). Silent scaffold: Inhibition of JNK3 activity in the cell by a dominant negative arrestin3 mutant. *J Biol Chem*, **287**: 19653-19664.

21. Mushegian A, Gurevich VV, and **Gurevich EV** (2012) The origin and evolution of G protein-coupled receptor kinases. *PLoS One*, **7**: e33806.

22. Gimenez LE, Kook S, Vishnivetskiy SA, Ahmed MR, **Gurevich EV**, and Gurevich VV (2012) The role of receptor-attached phosphates in the binding of visual and non-visual arrestins to G protein-coupled receptors. *J Biol Chem*, **7**: e33806.

23. Wang Q, Levay K, Chanturiya T, Dvoryanchikova G, Andersen K, Bianco SDC, Ueta CB, Molano RD, Pileggi A, **Gurevich EV**, Gavrilova O, and Slepak VZ (2011). Targeted deletion of one or two copies of the G protein beta subunit Gβ5 gene has distinct effects on body weight and behavior in mice. *FASEB J,* 25: 3949-3957.

24. Cleghorn WM, Lenou E, Song X, Vishnivetskiy SA, Seo J, Chen J, **Gurevich EV**, and Gurevich VV (2011). 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**: e22797.

25. Bychkov E, Ahmed MR, Gurevich VV, Benovic JL, and **Gurevich EV** (2011). Distinct changes in the expression of arrestins and G protein-coupled receptor kinases in schizophrenia and schizoaffective disorder. *Neurobiol Dis,* **44**: 248-258.

26. Ahmed MR, Znah X, Song X, Kook S, Gurevich VV, and **Gurevich EV** (2011). Ubiquitin ligase parkin promotes Mdm2-arrestin interaction but inhibits arrestin ubiquitination. *Biochemistry,* **50***:* 3749-3763.

27. Song X, Vishnivetskiy SA, Seo J, Chen J, **Gurevich EV**, and Gurevich VV (2010). Arrestin-1 expression level in rods: balancing functional performance and photoreceptor health. *Neuroscience*. **174**: 37-49.

28. Ahmed MR, Berthet A, Bychkov E, Porras G, Li Q, Bioulac BH, Carl YT, Bloch B, Kook S, Aubert I, Dovero S, Doudnikoff E, Gurevich VV, **Gurevich EV** (**co-senior author**) and Bezard E (2010) Lentiviral overexpression of GRK6 alleviates L-DOPA-induced dyskinesia in experimental Parkinson's disease. *Science Trans Med,* **2***:* 28ra28.

29. Bychkov E, Ahmed MR, **Gurevich EV** (2010) Sex differences in the activity of signaling pathways and expression of G protein-coupled receptor kinases in the neonatal ventral hippocampal lesion model of schizophrenia. *Int J Neuropsychopharmacol*, **17**: 1-15.

30. Song X, Vishnivetskiy SA, Gross QP, Emelianoff K, Mendez A, Chen J, **Gurevich EV**, Burns ME, Gurevich VV (2009). Enhanced arrestin mutant facilitates photoresponse recovery and protects rhodopsin phosphorylation-deficient rod photoreceptors. *Curr Biol*, **19**: 700-705.

31. DiNieri JA, Nemeth C, Tiffany CT, Gurevich VV, **Gurevich EV**, Neve RL, Nestler EJ, and Carlezon WA (2009) Bias toward reward in mice with inducible disruption of CREB function within the nucleus accumbens. *J Neurosci*, **29**: 1855-1859.

32. Bychkov ER, Gurevich VV, Joyce JN, Benovic JL, **Gurevich EV** (2008). Arrestins and two receptor kinases are upregulated in Parkinson's disease with dementia. *Neurobiol Aging,* **29**: 379-396.

33. Ahmed MR, Gurevich VV, Dalby KL, Benovic JL and **Gurevich EV** (2008). Haloperidol and clozapine differentially affect the expression of arrestins, receptor kinases, and ERK activation. *J Pharmacol Exp Ther,* **325**: 276-283.

34. Bezard E, Hoang CV, Potts BW, Pioli E, Kim KW, Nadjar A, Qin C, LaHoste GJ, Li Q, Bioulac BH, **Gurevich EV**, Neve RL, Gold SJ (2007) RGS9-2 negatively modulates L-dopa-induced dyskinesia in experimental Parkinson's disease*. J Neurosci,* **27**: 14338-14348.

35. Ahmed MR, Bychkov E, Gurevich VV, Benovic JL, and **Gurevich EV** (2007) Altered expression and subcellular distribution of GRK subtypes in the dopamine-depleted rat basal ganglia in not normalized by L-DOPA treatment. *J Neurochem,* **104**: 1622-1636.

36. Song X, **Gurevich EV**, and Gurevich VV (2007) Cone arrestin binding to JNK3 and Mdm2: conformational preference and localization of interaction sites. *J Neurochem,* **103**: 1053-1062.

37. Bychkov ER, Ahmed MR, Dalby KN, and **Gurevich EV** (2007) Dopamine depletion and subsequent treatment with L-DOPA, but not the long-lived dopamine agonist pergolide, enhances activity of the Akt pathway in the rat striatum. *J Neurochem,* **102:** 699-711.

38. Hanson SM, **Gurevich EV**, Vishnivetskiy SA, Ahmed MR, Song X and Gurevich VV (2007) Each rhodopsin binds its own arrestin. *Proc Nat Acad Sci USA,* **104**: 3125-3128.

39. Song X, Raman D, **Gurevich EV**, Vishnivetskiy SA, and Gurevich VV (2006) 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.

40. Guigoni C, Dovero S, Aubert I, Qin Li, Bioulac BH, Bloch B, **Gurevich EV**, Gross CE and Bezard E (2005). Levodopa-induced dyskinesia in MPTP-treated macaque is not dependent of the extent and pattern of the nigrostrial lesion. *Eur J Neurosci*, **22**: 283-287.

41. Guigoni C, Aubert I, Qin Li, Gurevich VV, Benovic JL, Ferry S, Mach U, Stark H, Leriche L, Hakansson K, Bioulac BH, Gross CE, Sokoloff P, Fisone G, **Gurevich EV**, Bloch B, and

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