

Robert H. Lipsky, Ph.D.

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Education:

Institution	Degree, year	Major, minor
Cornell University Ithaca, NY	Ph.D., 1983	Genetics, Biochemistry
Medical College of Virginia Richmond, VA	M.Sc., 1979	Microbiology
Virginia Polytechnic Institute and State University Blacksburg, VA	B.Sc., 1977	Biology, Chemistry

Career accomplishments:

Professional Leadership

- Founded a translational neuroscience research program at a hybrid community-academic health system and obtained external funding to ensure sustainability

Productivity

- Internationally recognized molecular biologist with focus on neurogenetics
- Recipient of multiple federal, state, and foundation grant awards
- Prolific grant and research protocol developer
- Translational medicine researcher with solid academic credentials backed by peer-reviewed publications (*h*-index = 50)

Teaching

- Pioneer in teaching translational medical research at the undergraduate level

Areas of expertise:

- Principal investigator on basic and translational research projects in population-based human molecular genetics focused on traumatic brain injury, spinal cord injury, psychiatric genetics including the addictions, neurodegenerative disorders, and stroke (PI at NIH, DoD, American Red Cross, and health care sector)
- Principal investigator on observational and interventional clinical trials in the neurosciences (NIH, DoD, university, and health care industry)

- Provide genomics expertise for developing collaborative basic and translational medicine research projects focused on clinical populations (NIH, DoD, university, and health care industry)
- Identify scientific gaps in biomedical research and developed projects to disrupt the field, including studies on major depression and traumatic brain injury (NIH, DoD)
- Inventor and technical innovator (2 U.S. Patents issued)
- Resourceful scientific innovator in forming collaborative research teams with emphasis on clinical recruitment, data sharing, and biorepository sharing (NIH, DoD, university, and health care industry)
- Expert in writing successful clinical and translational clinical research protocols to capture genetic and epigenetic data
- Expert in writing successful research grants on clinical, translational, and basic neurogenetics (NIH, DoD, industry-sponsored, private foundation awards)
- Provide scientific and technical guidance in cooperative agreements to advance neurogenetics research
- Adept at presenting basic, translational, and clinical research concepts to scientifically diverse audiences
- Successful biomedical research writer and reviewer
- More than 25 years of research experience in human molecular genetics

Research and Professional Experience:

- 2011-present Director of Translational Neuroscience Research, Inova Health System
- 2009-present Professor of Neuroscience, External Faculty, Krasnow Institute for Advanced Study, George Mason University, Fairfax, VA
- 2009-present Professor of Neuroscience, Department of Neurology, School of Medicine, Virginia Commonwealth University, Inova Campus, Falls Church, VA
- 2018-present Adjunct Professor of Neurology, School of Medicine, Uniformed Services University of the Health Sciences, Bethesda, MD
- 2009-2016 Research Professor of Neuroscience, Uniformed Services University of the Health Sciences, Bethesda, MD
- 2009-2011 Professor of Psychiatry, Xinxiang Medical University, Henan, People's Republic of China
- 2008-2011 Director of Neuroscience Research, Department of Neurosciences, Inova Fairfax Hospital, Falls Church, VA
- 2001-2008 Principal Investigator and Acting Chief, Section on Molecular Genetics, National Institute on Alcohol Abuse and Alcoholism, NIH, Bethesda, MD
- 1997-2001 Research Scientist, Henry M. Jackson Foundation for the Advancement of Military Medicine, Rockville, MD
- 1996-1997 Research Assistant Professor of Pathology, Department of Pathology, Uniformed Services University of the Health Sciences, Bethesda, MD
- 1988-1996 Scientist and Principal Investigator, American Red Cross, Rockville, MD
- 1984-1988 Staff Fellow, Laboratory of Molecular Biology, NINCDS, NIH, Bethesda, MD; 1984 Department of Neurology, University of London, UK

1983-1984 Chemist, National Institute of Neurological and Communicative Disorders and Stroke, NIH, Bethesda, MD

Research Statement:

My research interests center on determining the etiology of complex disorders of the brain through an understanding of genetics and its intersection with the patient's environment, namely epigenetic effects. I take a functional approach, applying genetic and epigenetic information from patients that will lead to new treatment approaches and improved targeting of existing therapies. I have initiated and received funding for projects ranging from basic mechanisms of transcriptional control to interventional clinical trials for addiction, dementia, stroke, and trauma.

Research Interests:

Human sequence variation and function. Contribution of genetic variation to complex disorders. Pharmacogenetics and pharmacogenomics, particularly focused on stroke, traumatic brain injury, neurodegenerative disorders, drug addiction, behavior and mood disorders. Differential gene expression. Immobilized RNA, DNA, and protein technologies. Biomarker development. Functional genomics. Epigenetics: including microRNA (miRNA), DNA methylation, and chromatin remodeling mechanisms and signal transduction mechanisms related to neuronal survival and plastic responses.

Major Contributions to Science and Medicine:

As an investigator at the HMJ Foundation and later a principal investigator in the NIH intramural research program and most recently at Inova Health System, I determined the roles of genetic factors in predicting clinical outcomes of trauma patients.

As a principal investigator at NIH, I discovered molecular mechanisms that defined how genetic variation modified susceptibility to alcohol and other drug addictions and in treatment response to comorbid disorders such as major depression.

I identified multiple roles of the neurotrophin, BDNF, in neuropsychiatric disorders and in neuroprotective mechanisms following injury.

I pioneered methods of analyzing epigenetic regulators and defined epigenetic mechanisms for regulating activation-dependent genes in neurons.

I pioneered methods for DNA sequence variant detection, leading to the issue of a U.S. patent (U.S. patent no. 7,273,699). Developed a medium-throughput genetic variant discovery and SNP genotyping method.

Grants and Awards:

NIH-R21-NS106480 "Gastrointestinal Microbiome and Stroke Outcomes Network (GEMSTONE), 12/01/18-11/30/2020. (PI: Worrall) Total award: \$468,781. Role: Co-investigator.

VHBRC (Virginia Catalyst); Novel Preventive Treatment Paradigm to Change the Standard of Care for Those Who Recover from Opioid Overdose, 2017-2019. Total award: \$1 MILL. Role: Co-investigator and Site Principal Investigator

Inova Neuroscience Research Foundation (philanthropic award); Exendin-4 as a treatment for patients with Mild Cognitive Impairment, 2015-1016. Total award: \$150,000. Role: Principal Investigator

Navy/BUMED/ONR; Cognitive assessment in active-duty Marines, 2013-2015. total award (directs): \$1.4 MILL. Role: Co-investigator.

“Role of Alpha-7 Nicotinic Acetylcholine Receptor in Recovery from Spinal Cord Injury.” Wings for Life Spinal cord Research Foundation. 07/01/13-12/31/15. \$200,000. Role: Co-Principal Investigator.

“Renin-angiotensin/angiotensin II Receptor Genetic Polymorphisms in Pathophysiology of Ruptured Cerebral Artery Aneurysms and Development of Vasospasm.” The Brain Aneurysm Foundation. 10/01/12-09/30/13. Role: Co-investigator.

“IVIG in Acute Stroke.” CSL Behring Interlaken Research Award in Neuroimmunology 01/01/12-12/31/12. Role: Co-investigator.

Project 12-4 “Functional Characterization of Promoter Polymorphisms of the Human GRIN2B Glutamate Receptor Gene Associated with Altered Memory Functioning in Older Adults.” Virginia Center on Aging, Commonwealth of Virginia Alzheimer’s and Related Disease Research Award Fund 07/01/11-06/30/12. Role: Principal Investigator.

5R01AA015203-07 “Alcohol actions on NMDA receptor gating domains.” NIH, NIAAA 08/01/11-07/31/16. (PI: Peoples) Role: Investigator.

D10-I-AR-J6-828 “An Anti-inflammatory Approach to Diagnosis and Treatment of Combined PTSD and Mild TBI.” Defense Medical Research and Development Program (DMRDP), Department of Defense (DoD) 02/16/10-30/09/15. Role: Co-investigator.

Defense and Veterans Brain Injury Center “Role of Genetic Variation in Recovery Following Traumatic Brain Injury” 05/01/06-04/30/07. Role: co-investigator.

NIH-R43-HL59113 “Prenatal Diagnosis of Inherited Blood Disorders” 08/01/97-01/31/98 (Phase I). This project detected sickle cell mutations using a novel non-invasive approach. Role: Principal Investigator.

NIH-R01-HL46447 “Molecular Biology of the Human CD36 Gene” 02/01/92-01/31/96. The results of this project defined the genomic structure of the *CD36* gene and provided an important link between a common platelet and monocyte glycoprotein deficiency and a mechanism for preventing malarial infection as well as defining its role as a scavenger receptor. Role: Principal Investigator.

U.S. Patent: Methods for detecting nucleic acid sequence variation
U.S. Patent No. 7,273,699. Issued September 25, 2007.

U.S. Patent: Methods for detecting enhanced NMDA receptor function and uses thereof
U.S. Patent No. 10,011,863. Issued July 3, 2018.

Supervisory Experience:

- 2011-present Principal Investigator. Currently supervise one doctoral level scientist, two PhD graduate students, and three B.S. research assistants.
- 2008-2011 Principal Investigator. Supervised three research coordinators, two doctoral level scientists, and an MS graduate student.
- 2001-2008 Principal Investigator. Supervised three postdoctoral fellows, two B.S. level scientists.
- 1998-2001 Principal Investigator. Supervised two postdoctoral fellows, five B.S. research technicians.
- 1988-1997 Principal Investigator. Supervised two postdoctoral fellows, two research technicians, and one graduate student.

Teaching Experience:

Over the course of my research career, I have mentored more than 50 undergraduate, post-graduate, graduate, and post-doctoral students and fellows. I also served on graduate student research committees.

- 2012-2015 Co-founded, organized, and taught an upper-level undergraduate research internship course in clinical and translational neuroscience: Biol 495, George Mason University.
- 2009-2015 Lectured in a graduate seminar course, George Mason University.
- 2007-2015 Invited lecturer for graduate neuroscience program, Uniformed Services University for the Health Sciences.
- 1988-1997 Lectured graduate level classes in molecular and cellular biology, George Washington University.

Other Professional Experience:

National and international positions and service:

- 2015-2017 Research study section member, Rehabilitation Research and Development Program, U.S. Department of Veterans Affairs
- 2013-present Scientific reviewer for journals *Neuron*, *Journal of Alzheimer's Disease*, and *Genes, Brain, and Behavior*
- 2013-2015 Editorial board member, *Experimental Biology and Medicine*
- 2012-2017 Scientific reviewer and study section member, Small Projects in Rehabilitation Research (SPiRE) Program, Department of Veterans Affairs
- 2009-2012 Editorial board member, journal *CNS and Neurological Disorders-Drug Targets*
- 2008 Editorial board member, *Neuropsychopharmacology Journal*
- 2007-2013 Scientific reviewer for the Medical Research Council, U.K.

- 2007 Scientific reviewer for the Genome Canada Project
- 2006-2014 Section editor and editorial board member, journal *Amino Acids*.
- 2006-present Scientific reviewer for the journals *Annals of Neurology*, *Brain Research*, *Clinical Chemistry*, *Psychopharmacology*, *the Journal of Neuroscience*, and *Trends in Neurosciences*.
- 2005-present Scientific reviewer for the journals *Alcohol*, *the American Journal of Medical Genetics*, *Biological Psychiatry*, and *the Archives of General Psychiatry*.
- 2004-present Scientific reviewer for the U.S. Army.
- 2002-present Scientific reviewer for the journal *Neuropsychopharmacology*.
- 2001-present Scientific reviewer for the *Journal of Neurochemistry*.
- 2004 Scientific reviewer for the journals *Trends in Neurosciences*, *Psychiatry Research*, and *NeuroReport*.
- 2000-2004 Scientific reviewer for the journal *Clinical Chemistry*.
- 1998 Senior Editor, *Journal of the National Cancer Institute*.
- 1992-1994 Scientific reviewer for NIAID, NIDDK, and the U.S. Army. Served on scientific study sections for NHLBI, NIAID, and NIDDK.
- 1992-1995 Scientific reviewer for *The Journal of Biological Chemistry* and the journal *Blood*.

Local positions and service:

- 2018-present Scientific advisory board member for Virginia Clinical and Translational Science Award (CTSA) from the NIH.
- 2016-present Inova Health System IRB committee member (term 2018-2020).
- 2009-present Chief, Inova-GMU Neuroscience Translational Research (INTR) Laboratory
- 2002-2004 Scientific advisor and member of the Board of Directors, Brain Injury Association of Maryland.
- 2001-2008 Technology transfer advisor, NIAAA, NIH.
- 1996-1997 Consultant to a biotechnology company on a project to produce gene-specific, region-specific, and chromosome-specific probes for genetic screening using *in situ* hybridization. Produced chromosome and chromosome arm-specific genomic and cDNA libraries. Directed two M.Sc. level scientists.

Clinical Trials:

“Novel Preventive Treatment Paradigm to Change the Standard of Care for Those Who Recover from Opioid Overdose.” (2017-2019). Sponsor: Virginia Catalyst

“IVIG in Acute Stroke.” CSL Behring Interlaken Research Award (2012-2013). Co-investigator on pilot study for treating acute ischemic stroke. Sponsor: CSL Behring.

INTREPID-2566: A Randomized, Double-Blind, Placebo-Controlled, Dose-Escalation Study of NNZ-2566 in Patients with Traumatic Brain Injury (TBI) (2010-2012). Co-investigator on pharmacotherapy study for treating traumatic brain injury. Sponsor: DoD and industry (Neuren Pharmaceuticals).

SAMMPRIS: Stenting and Aggressive Medical Management for Preventing Recurrent Stroke in Intracranial Stenosis (2009). Co-investigator on study of stenting and aggressive medical management trials for preventing recurrent stroke in intracranial stenosis. Sponsor: NIH and industry (Boston Scientific).

STAR*D: Sequenced Treatment to Relieve Depression (2004-2008). Co-investigator on genetic ancillary study involving pharmacologic treatment response and adverse events. Sponsor: NIH.

Accreditations:

NIH Office of Human Subjects Research Certification for the Protection of Human Research Subjects

NIH Office of Radiation Safety: Authorized User License

Professional Organizations:

American Chemical Society (elected member)

The American Society for Biochemistry and Molecular Biology (elected member)

American Society of Human Genetics

The Society for Neuroscience

The American Association for the Advancement of Science

Publications

PubMed (selected from a total of more than 200):

<http://www.ncbi.nlm.nih.gov/sites/myncbi/1d1Fywcbwhhk/bibliography/43092790/public/?sort=date&direction=descending>