

NIDA Potential Mentor Listing

1. Laura J. Bierut, M.D.

Washington University in St. Louis

School of Medicine

Campus Box 8134

660 South Euclid Avenue

St. Louis, MO 63110

Phone: 314–362–2544

Fax: 314–362–4247

Email: laura@wustl.edu

URL: <http://www.psychiatry.wustl.edu/Faculty/FacultyDetails?ID=352>

Research Interest

I am a physician scientist with significant experience in genetic studies of smoking behaviors, addiction, and other psychiatric and medical illnesses. My research goal is to work to incorporate genetics into clinical care with a focus on how genetic information can change smoking behavior and substance use. I am an active member in the National Institute on Drug Abuse (NIDA) Genetics Consortium, a national group of scientists who are leading NIDA's efforts to understand genetic causes of substance dependence. I also have considerable experience in the management of large, collaborative projects. I have led the Collaborative Genetic Study of Nicotine Dependence (COGEND) for the past 9 years. I am a national co-principal investigator of the Collaborative Study on the Genetics of Alcoholism (COGA), which involves long-term follow-up assessments and is currently in year 25. As part of COGEND and COGA, thousands of research subjects have been successfully recruited and interviewed and have submitted blood samples for genetic analysis. As one of 14 investigators who has received funding through the National Human Genome Research Institute's Genes, Environment and Health Initiative, I led the effort to understand the interplay of genes and environment in the development of addiction. These datasets, along with data generated by collaborators around the world, lay the foundation for my studies.

2. Elissa Chesler, Ph.D.

The Jackson Laboratory

600 Main Street

Bar Harbor, ME 04609

Phone: 207–288–6453

Fax: 207–288–6150

Email: elissa.chesler@jax.org

URL: http://research.jax.org/faculty/elissa_chesler.html

Research Interest

My research emphasizes the integration of genetic, genomic, and phenomic resources to improve the ways in which behavioral traits in mice are associated with complex underlying genetics and genomics. I integrate genetic and genomic findings in model organisms including

the laboratory mouse with data on human behavioral disorders using novel computational tools and approaches developed in my laboratory. We devise ways to ensure that mouse models are relevant to the human clinical state to achieve greater precision in identifying the genetic, environmental, and life history contributions that shape behavior. To this end, my laboratory has developed the Ontological Discovery Environment (<http://ontologicaldiscovery.org>), which allows users to integrate phenotype-centered gene sets across species, tissues, and experimental platforms. This publicly available tool uses combinatorial algorithms to infer the latent ontology of behavior from the sets of genes and phenotypes developed using large empirical datasets.

3. Congwu Du, Ph.D.

Department of Biomedical Engineering
State University of New York at Stony Brook
Life Science Building, Room 002
Stony Brook, NY 11794-5281
Phone: 631-632-5480 or 631-632-5481
Emails: congwu.du@stonybrook.edu; congwu@bnl.gov
URL: http://bme.sunysb.edu/people/faculty/fac_core.html

Research Interest

Cocaine affects both cerebral blood vessels and neurons in the brain. Imaging technologies such as functional magnetic resonance imaging (MRI), positron emission tomography (PET), optical microscopy, and near-infrared imaging have been used to assess the acute and chronic effects of cocaine. However, the mechanisms underlying cocaine's neurotoxic effects are still not fully understood, partially due to the technical limitations of current techniques to differentiate vascular from neuronal effects at sufficiently high temporal and spatial resolutions. To solve this problem, we have developed cutting-edge optical/fluorescence imaging techniques that permit simultaneous detection of cerebral blood flow (e.g., capillary flows), blood volume, and tissue oxygenation, as well as intracellular calcium *in vivo* and over a large field of view. We apply these methods to separate the vascular versus the neuronal effects of the brain in response to a stimulant (e.g., cocaine) and thus to explore the insights of brain functional changes induced by a drug of abuse.

4. Marta Filizola, Ph.D.

Icahn School of Medicine at Mount Sinai
Icahn Medical Institute Building, Room 16-20F
1425 Madison Avenue, Box 1677
New York, NY 10029-6574
Phone: 212-659-8690
Fax: 212-849-2456
Email: marta.filizola@mssm.edu
MSSM URL: <http://www.mssm.edu/profiles/marta-filizola>
LinkedIn URL: <http://www.linkedin.com/pub/marta-filizola/15/376/b08/>
Lab URL: <http://www.filizolalab.org>

Research Interest

Our laboratory uses a variety of computational structural biology tools, including molecular modeling, bioinformatics, chemoinformatics, simulation, and rational drug design approaches, to achieve a detailed mechanistic understanding of signal transduction processes mediated by G protein-coupled receptors involved in drug abuse, with a special emphasis on opioid receptors.

The recent availability of high-resolution crystal structures of all opioid receptor subtypes offers an unprecedented opportunity to discover novel chemotypes selectively targeting these proteins that might eventually be developed into more efficacious therapeutics. We are actively working toward this goal, with a special focus on the rational design of allosteric modulators.

5. Alexandros Makriyannis, Ph.D.

Center for Drug Discovery
Northeastern University
360 Huntington Avenue, 116 Mugar Hall
Boston, MA 02115
Phone: 617-373-2273
Fax: 617-373-7493
Email: a.makriyannis@neu.edu
URL: <http://www.cdd.neu.edu/director.html>

Research Interest

Our work focuses on computational work aimed at drug discovery. Currently, our target-based discovery projects involve studying the drug target (enzyme, G protein-coupled receptor [GPCR]) and designing novel ligands that modulate these functional proteins. Our multidisciplinary program combines chemical, biochemical, and biophysical approaches, which are being complemented by computational work. Two projects are currently in place. (1) In our recently funded grant DA3801, we are working with esterases that are involved in the catalytic deactivation of endocannabinoids. We have cloned and expressed four enzymes, which include fatty acid amide hydrolase, monoacylglycerol lipase, ABHD6, and N-acylethanolamine-hydrolyzing acid amidase. We would like to utilize computational methods to complement our experimental structural biology results and assist drug discovery efforts. (2) A project on the design and discovery of modulators to the CB1 and CB2 cannabinoid receptors is funded by a NIDA grant. We are using similar experimental and computational approaches as above to study these two GPCRs, as well as their interactions with novel ligands developed and synthesized in our laboratory.

6. Scott Saccone, Ph.D.

Washington University School of Medicine
Department of Psychiatry, Box 8134
660 South Euclid Avenue
Saint Louis, MO 63110-1093
Phone: 314-286-2581
Fax: 314-286-2577
Email: ssaccone@wustl.edu
URL: <https://saclab.atlassian.net/wiki/x/A4Dc>

Research Interest

We have a biodata management project that is part of a NIDA contract in review. The research is on developing methods for integrating whole-genome genetic datasets, such as genome-wide association studies, with public genomic databases for functional interpretation. We will be developing web applications for exploring, integrating, and querying whole-genomic datasets and applying these to the NIDA genetic repository (<http://nidagenetics.org>).

7. Yavin Shaham, Ph.D.

National Institute on Drug Abuse
Intramural Research Program
Behavioral Neuroscience Branch
251 Bayview Boulevard
Baltimore, MD 20124
Phone: 410-740-2723
Fax: 443-740-2827
Email: yshaham@intra.nida.nih.gov
URL: <http://irp.drugabuse.gov/bnrb.php>

Research Interest

Our group investigates neuronal mechanisms of relapse to heroin, alcohol, methamphetamine, and palatable food, as assessed in rat models developed in our laboratory. Current and future projects include (1) role of epigenetic mechanisms in incubation of methamphetamine craving, (2) role of forebrain projections to lateral hypothalamus in context-induced relapse to alcohol after punishment-imposed abstinence, (3) role of glutamatergic projections to nucleus accumbens in context-induced reinstatement of heroin seeking after extinction, (4) brain mechanisms of context- and cue-induced reinstatement of food seeking in female rats, and (5) brain mechanisms of incubation of drug craving after choice-based long-term voluntary abstinence. Our experimental approaches include traditional neurobiological, neuropharmacological, and neuroanatomical methods, in combination with newer Daun02 inactivation and optogenetic-, designer receptors exclusively activated by designer drugs-, and fluorescence activated cell sorting-based methods.

8. Sanjay Shete, Ph.D.

The University of Texas
MD Anderson Cancer Center
Department of Biostatistics, Unit 1411
1400 Pressler Drive, FCT4.6002
P.O. Box 301402
Houston, TX 77030
Phone: 713-745-2483
Fax: 713-563-4243
Email: sshete@mdanderson.org
URL: http://faculty.mdanderson.org/Sanjay_Shete/Default.asp?SNID=523310892

Research Interest

Our projects involve statistical modeling of genetic data to elucidate genetic contributions to smoking-related phenotypes and risk prediction models for smoking cessation using data from (1) dbGaP (particularly SAGE, Study of Addiction: Genetics and Environment); (2) a Cancer Prevention Research Institute of Texas-funded grant titled "Using Deep Sequencing Technology To Study Genes and Behavioral Phenotypes Related to Smoking Cessation, Negative Affect, and Nicotine Withdrawal (Principal Investigator [PI] Cinciripini and Co-PI Shete); and (3) smoking experimentation in Mexican American youth data on 1,300 longitudinally followed kids (with genetic data on select candidate genes).

9. Dardo G. Tomasi, Ph.D.

National Institute on Alcohol Abuse and Alcoholism
National Institutes of Health
Building 10, Room B2L304
10 Center Drive
Bethesda, MD 20814
Phone: 301-496-1589
Fax: 301-496-5568
Email: dardo.tomasi@nih.gov

Research Interest

Along the years my work has shifted from nuclear and astroparticle physics to MRI gradient coil design, functional MRI, and PET imaging. Recently, I developed, functional connectivity density mapping, an ultra-fast graph theory method to compute short- and long-range functional connectivity maps from “resting-state” echo-planar imaging time series, which when used in large public image databases revealed pronounced gender and aging effects on the brain’s functional architecture. Currently, my interest is in data analysis and computational neuroscience to assess the dynamics and energetics of brain functional connectivity. I use these sophisticated computational methods to assess normal brain function as well as the effect of neuropsychiatric disorders such as drug/alcohol addiction in the brain.