

Curriculum Vitae

NAME

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Summary

Postdoctoral biochemist and neuroscientist with 13 years of experience in academic and government research laboratories. Broad-based interdisciplinary training with particular expertise in protein biochemistry, protein engineering, and biochemical pharmacology. Superb communication skills and extensive publications.

Education

Doctorate of Philosophy in Biochemistry (2001), Texas A&M University, College Station, Texas
Dissertation: "Transplantation of the IIA^{Glc} Effect Between Members of the Sugar Kinase Family of Enzymes"

Bachelors of Arts in Biochemistry and in Biology (1996), University of Pennsylvania, Philadelphia, Pennsylvania

Research Experience

Postdoctoral Fellow (6/03 – present)

Center for Sleep and Respiratory Neurobiology, University of Pennsylvania, Philadelphia, Pennsylvania
Mentors: Drs. Nirinjini Naidoo, Richard J. Ross, Adrian R. Morrison, and Allan I. Pack

- Currently performing hypothesis- and discovery-based experiments to examine the molecular processes underlying normal sleep, prolonged wakefulness, and their relationships to synaptic plasticity.
- Developed a fear conditioning model of post-traumatic stress disorder in rats.
- Streamlined laboratory immunoblotting procedures to increase productivity and reduce antibody expenditures by 50 to 75%.
- Supervised and trained 1 graduate rotation student, 1 undergraduate honor student, and 1 undergraduate student worker.
- Published 1 first author paper and co-authored 1 published paper; preparing 1 first author paper.

Postdoctoral Fellow (12/01 – 5/03)

Center for Neurodegenerative Disease Research, University of Pennsylvania, Philadelphia, Pennsylvania
Mentors: Drs. Virginia M.-Y. Lee and John Q. Trojanowski

- Generated and validated a panel of antibodies for studying the mouse and human ubiquitin ligase Parkin.
- Published 1 first author paper and co-authored 1 published paper.

Graduate Student (5/97 – 11/01)

Biochemistry and Biophysics Department, Texas A&M University, College Station, Texas

Mentor: Dr. Donald W. Pettigrew

- Established a line of research using evolutionary related enzymes to explore structure/function relationships in a family of kinase enzymes.
- Published 2 first author papers and co-authored 2 published papers.
- Supervised and trained 1 graduate rotation student and 3 undergraduate students.
- Taught two semesters of undergraduate introductory biochemistry laboratory.

Undergraduate Research Assistant (9/91 - 8/96)

Department of Psychiatry, University of Pennsylvania, Philadelphia, Pennsylvania

Mentor: Dr. Shanaz M. Tejani-Butt

- Studied the effects of pharmacological agents and perturbation of endocrine systems on monoamine uptake transporter and thyroid hormone receptor levels.
- Co-authored 5 published papers.

Various Offices, Explorer Post 310 - Chemistry and Microbiology Career Post (9/87 - 8/92)

Chesebrough-Pond's USA, Research and Development, Trumbull, Connecticut

Mentor: Mr. Harvey Remz

- Designed and constructed, in a team-based environment, apparatuses for studying crystal growth and emulsion formation in microgravity that were manifest on space shuttle flight STS-47.

Technical Skills

Rodent survival and non-survival surgery, intracranial drug administration, rodent sleep recording and scoring, SDS polyacrylamide gel electrophoresis (SDS-PAGE), isoelectric focusing (IEF), two dimensional polyacrylamide gel electrophoresis (2D-PAGE), agarose gel electrophoresis, Northern blotting, Southern blotting, Western blotting, RNase protein assay, protein expression in bacteria, baculovirus-based protein expression, immunoprecipitation, immunohistochemistry, enzyme linked immunosorbent assay (ELISA), protein purification, enzymatic assays, sedimentation velocity ultracentrifugation, site-directed mutagenesis, polymerase chain reaction (PCR)-based cloning and mutagenesis, monoclonal and polyclonal antibody generation, mammalian and insect cell culture, mammalian cell transfection, ultraviolet/visible spectroscopy, circular dichroism spectroscopy, light and fluorescent microscopy, cell-based assay development, receptor autoradiography, statistical analysis of data, advanced usage of Microsoft Excel, programming in C and Visual Basic.

Grants and Fellowships

NIH Sleep and Sleep Disorders Training Grant Fellow (8/03 - present)

NIH Clinical Research Loan Repayment Program Awardee (7/02 - present)

NIH Age Related Neurodegenerative Disease Training Grant Fellow (12/01 - 6/03)

NIH Chemistry/Biology Interface Training Grant Fellow (9/97 - 8/99)

Honors

Poster Presentation Award, University of Pennsylvania Veterinary School Faculty Retreat (2004)

Gamma Sigma Delta (2000)

Second Place Winner, Biochemistry Graduate Association Research Competition, Texas

A&M University (2000)
Finalist, Biochemistry Graduate Association Research Competition, Texas A&M University (1998)
Faculty for Undergraduate Neuroscience Travel Award Recipient (1995)

Professional Memberships and Affiliations

American Academy of Sleep Medicine (2004 – present)
American Society for Biochemistry and Molecular Biology (1996 - present)
The Protein Society (1997 - present)

Service

Member, Chemistry/Biology Interface Seminar Series Committee (9/00-8/01)
Chair, Biochemistry Graduate Student Travel Grant Committee (9/00-8/01)
Student Representative, Texas A&M Biochemistry Graduate Program Committee (1/99-5/00)
Secretary, Texas A&M Biochemistry Graduate Student Association (1/98-12/99)

Publications

Authors' Names. CRF microinjection into the central nucleus of the amygdala alters REM sleep. *Manuscript in preparation.*

Authors' Names. Rapid eye movement sleep is a highly sensitive index of fear conditioning in rats. *European Journal of Neuroscience.* in press.

Authors' Names. (2005) A rodent model of sleep disturbances in posttraumatic stress disorder: The role of context following fear conditioning. *Biological Psychiatry.* **57**(3):268-77.

Authors' Names. (2003) Novel monoclonal antibodies demonstrate biochemical variation of brain Parkin with age. *Journal of Biological Chemistry.* **278**(48): 48120-8.

Authors' Names. (2003) Ubiquitination of alpha-synuclein is not required for formation of pathological inclusions in alpha- synucleinopathies. *American Journal of Pathology.* **163**(1): 91-100.

Authors' Names. (2002) Transplanting allosteric control of enzyme activity by protein-protein interactions: Coupling a regulatory site to the conserved catalytic core. *Proceedings of the National Academy of Sciences.* **99**(17):11115-11120.

Authors' Names. (2001) IIA^{Glc} allosteric control of *Escherichia coli* glycerol kinase: binding site cooperative transitions and cation-promoted association by Zinc(II). *Biochemistry.* **40**(47):14302-8.

Authors' Names. (2001) Reverse genetics of *Escherichia coli* glycerol kinase allosteric regulation and glucose control of glycerol utilization *in vivo.* *Journal of Bacteriology.* **183**(11):3336-44.

Authors' Names. (2001) Subcloning, expression, purification, and characterization of *Haemophilus influenzae* glycerol kinase. *Protein Expression and Purification.* **22**(1):52-9.

Authors' Names. (1999) Lithium administration affects gene expression of thyroid hormone receptors in rat brain. *Life Sciences*. **64**(20):1793-1802.

Authors' Names. (1999) Differential expression of thyroid hormone receptor isoforms by thyroid hormone and lithium in rat GH3 and B103 cells. *Biological Psychiatry*. **45**(8):1004-1012.

Authors' Names. (1998) Reserpine modulates serotonin transporter mRNA levels in the rat brain. *Life Sciences*, **64**(1):63-68.

Authors' Names. (1995) Acute depletion of serotonin down-regulates serotonin transporter mRNA in raphe neurons. *Brain Research*. **688**(1-2):209-212.

Authors' Names. (1995) Altered serotonin transporter sites in Alzheimer's disease raphe and hippocampus. *NeuroReport*. **6**(8):1207-1210.

Abstracts and Presentations

Authors' Names. (2004) Contextual and cued shock training increase rapid eye movement sleep by different mechanisms. Society for Neuroscience, San Diego.

Authors' Names. (2004) Sleep and (post-traumatic) stress, *invited talk*: University of Pennsylvania Veterinary School Faculty Retreat, American College, Bryn Mawr, PA.

Authors' Names. (2004) The role of context in differential sleep architecture changes following footshock. University of Pennsylvania Veterinary School Faculty Retreat, American College, Bryn Mawr, PA.

Authors' Names. (2004) The role of context in differential sleep architecture changes following footshock. Associated Professional Sleep Societies, Philadelphia.

Authors' Names. (2004) Opposite effects of two shock training regimens on rapid eye movement sleep in rats. Associated Professional Sleep Societies 18th Annual Meeting, Philadelphia.

Authors' Names. (2003) Ubiquitination of alpha-synuclein is not required for formation of pathological inclusions in alpha-synucleinopathies. The Ubiquitin Family Meeting, Cold Spring Harbor, NY.

Authors' Names. (2000) Conversion of a IIA^{Glc} unresponsive glycerol kinase to an inhibitable form. *invited talk*: Center for Advanced Biomolecular Research Symposium, Nov. 18, College Station, Texas.

Authors' Names. (2000) Receptors and molecular studies. 2nd. International Congress on Hormones, Brain and Neuropsychopharmacology, Rhodes, Greece.

Authors' Names. (2000) Allosterism in the bacterial sugar kinase family: Attempted rational design. ASBMB, Boston.

Authors' Names. (1999) Molecular evolution of allosteric regulation of glycerol kinase. The Protein Society, Boston.

Authors' Names. (1999) Allosteric control mechanisms of glycerol kinase from *Escherichia coli* in vitro and in vivo. ASBMB/DBC-ACS, San Francisco.

Authors' Names. (1998) Buried and solvent-exposed salt bridges in regulatory protein-protein interactions. The Protein Society, San Diego.

Authors' Names. (1998) Carbohydrate metabolism in *Escherichia coli*: Induced fit in the molecular mechanism of inducer exclusion? ASBMB, Washington DC.

Authors' Names. (1997), Carbohydrate metabolism in *Escherichia coli*: Induced fit in the molecular mechanism of inducer exclusion? Lost Pines Molecular Biology Conference, MDACCS.

Authors' Names. (1995) Thyroid hormone receptor alpha2 mRNA levels are increased in the hypothalamus of adult hypothyroid rats. Society for Neuroscience, San Diego.

Authors' Names. (1995) Effects of lithium on gene expression of thyroid hormone receptors in rat brain. Society for Neuroscience, San Diego.

Authors' Names. (1994) Status of serotonin transporter sites in the hippocampus and dorsal raphe nucleus. Institute of Aging, Conference on Aging, Philadelphia.

Authors' Names. (1994) Expression of thyroid hormone receptors in GH3 and B103 cells. Society for Neuroscience, Miami.