

Ruben K. Dagda, Ph.D.
University of Nevada
School of Medicine

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EDUCATION and TRAINING

UNDERGRADUATE:

University of Texas at El Paso, **B.S.** in Microbiology 1998

GRADUATE:

University of Texas at El Paso, **M.S.** in Biology, Mentor: Eppie Rael, Ph.D. 2001
Thesis: "Genomic DNA sequencing, biochemical analysis and molecular modeling of rattlesnake venom metalloproteinases in *Crotalus scutulatus scutulatus*".

University of Iowa, **Ph.D.** in Pharmacology, Mentor: Stefan Strack, Ph.D. 2006
Thesis: "Role of PP2A/B β 2 and AKAP121/PKA in regulation of mitochondrial function and neuronal survival".

POST-GRADUATE:

Post-doctoral training, University of Pittsburgh School of Medicine 2006-present
Mentor: Charleen Chu. Role: Training in mitochondrial pathobiology in cell culture and mouse models of Parkinson's disease; high-throughput screening; professional skills including peer review and teaching.

OTHER ADDITIONAL TRAINING:

Nanotechnology in Medicine Workshop (Bio-Trac 32) offered at NIH, 2008
21 lecture/lab hrs. Learned new nanotechnology methods that allowed me to generate nanoreagents used to study the role of cardiolipin in regulating mitochondrial turn-over and degradation.

Mitochondrial Molecular Pathobiology and Pathology Workshop 2009
(Bio-Trac 21) offered at NIH, 21 lecture/lab hrs.
Objectives: Learned various oxygen consumption and cutting edge mitochondrial assays/ techniques that I applied to my specific grant aims during my postdoctoral studies (Grant#: AG030821).

APPOINTMENTS and POSITIONS

| | | | | | |
|-----------------------------------|---------|---------|----------------|--|---------------------------|
| Assistant Professor | 01/2013 | Present | Pharmacology | University of Nevada, Reno | Iain Buxton, PharmD. |
| Research Associate | 10/2010 | 12/2012 | Neuropathology | University of Pittsburgh | Charleen T. Chu, MD. PhD. |
| Postdoctoral Associate/ Fellow | 06/2006 | 10/2010 | Neuropathology | University of Pittsburgh | Charleen T. Chu, MD. PhD. |
| Adjunct Professor | 06/2009 | Present | Biology | Community College of Allegheny College | Esther Waltz. PhD. |
| Graduate Research Assistant | 06/2001 | 05/2006 | Pharmacology | University of Iowa | Stefan Strack, Ph.D. |
| Research Technician | 05/1999 | 06/2001 | Immunology | University of Texas at El Paso | Eppie Rael, Ph.D. |

Individual Grants

1. Pathology Post-doctoral Research Training Program Grant.

“Role of mitochondrial membrane remodeling proteins and kinases in regulating mitochondrial homeostasis in the aging brain” Total support: \$10,000.

PI: Ruben K. Dagda

2010-present

2. Interdisciplinary F32 Training Grant in Neurodegeneration. “Role of phospholipids in regulating neurotoxin induced mitochondrial autophagy”

PI: Ruben K. Dagda Total support: \$100,000 Priority Score:125. Grant#: AG030821

Research accomplishments:

a) Mitochondrial cardiolipin is sensitive to oxidation by Parkinsonian toxins (6-hydroxydopamine and MPP+) in neurons, a biochemical event that precedes mitochondrial autophagy.

b) Genetic models of Parkinson’s Disease were found to recapitulate some of the effects of toxins on mitochondrial autophagy.

Significance: This research has unveiled new neuroprotective mitochondrial protein signaling pathways that are altered in Parkinson’s disease models.

2007-2009

3. NINDS F31 Pre-doctoral Fellowship Grant

“Role of mitochondrial PP2A in neurodegeneration”

PI: Ruben K. Dagda (Grant# NS049659) Total support: \$80,000.

Research accomplishments:

Identified the structure and function of Bbeta2 in regulating mitochondrial dynamics and neuronal survival in hippocampal neurons and neuronal PC12 cells.

This research was published in JBC in 2005.

Significance: This research opens the possibility of developing new therapies to delay neuronal degeneration induced by stroke and neurodegenerative diseases (Parkinson’s disease) by developing small peptides that block the N-terminal domain of Bbeta2.

2004 - 2006

Institutional Training Support

- 1. UNSOM Faculty Development Fund Ruben K. Dagda (PI)** 2013-2014
Funds will be used for the purchase of patient-derived fibroblasts and postmortem Parkinson's disease tissue to correlate in vitro findings on mitochondrial PKA to a human patient population.
- 2. University of Nevada School of Medicine, NIH COBRE: GM 103554-02** 2013- 2016
Dagda (Project leader) von Bartheld, Chris (PI) NIH/NIGMS.
Cell Biology of Signaling Across Membranes: *Role of reversible phosphorylation in modulating mitochondrial function, turnover and dendritic remodeling in neurons.*
- The major goals of the project are to characterize: 1) the prosurvival signaling pathway regulated by PINK1 and mitochondrially localized PKA in neurons, 2) discover the mechanisms by which reversible phosphorylation mediated by PP2A and PKA regulate mitochondrial turnover, 3) develop new nanoreagents that can elicit the activity of mitochondrial PKA to reverse cell death and mitochondrial dysfunction as evidenced in neurodegenerative diseases, 4) gain an understanding of how normal aging in the brain leads to mitochondrial dysfunction *in vivo* using rodent models of aging.
- 3. University of Pittsburgh T32 Training Grant in Biology of Psychiatric Diseases** 2007
(Dr. Zigmond, Director of program) (Awarded but declined due to overlap)
Proposed Research Goals: Proposed to elucidate whether morphological and functional alterations of mitochondria, synaptic cleft structure and autophagy are observed in *postmortem* human brain tissue of patients affected by neuropsychiatric disorders (Schizophrenia).
- Significance: Finding an association of morphological and functional alterations of mitochondrial and synaptic cleft structure will be critical for increasing our understanding and pathophysiology of neuropsychiatric disorders.
- 4. University of Pittsburgh's T32 Training Grant in Childhood Neurodevelopmental and Neurodegenerative Disease** (Dr. Schor, Director of program) NS07495 2006-2007

PUBLICATIONS

Peer-reviewed Research articles

- Dagda, R. K.**, Gasanov, S., Zhang, B., Welch, W., Rael, E. D. (2014). Molecular Models of the Mojave Rattlesnake (*Crotalus scutulatus scutulatus*) Venom Metalloproteinases Reveal a Structural Basis for Differences in Hemorrhagic Activities. *Journal of Biological Physics* (in-press).
- Dagda, R.K.**, Pien, I, Wang, R, JianHui, Z., Wang, K., Callio, T., Das Banerjee, T., Dagda, R.Y., Chu, C.T. (2013) Beyond the mitochondrion: cytosolic PTEN induced Kinase 1(PINK1) remodels dendrites through PKA. *J. Neurochem*, doi: 10.1111/jnc.12494.
- Kamga, K., Mo, L., **Dagda, R.K.**, Murillo, D., Geary, L., Corey, C., Zhakirov, S., Croix, C., Maniar, S., Sullivan S., Beer-Stolz, D., Chu, C., Khoo, N., Shiva, (2013) S. Nitrite Activates Protein Kinase A in Normoxia to Promote Mitochondrial Fusion and Confer Delayed Tolerance to Ischemia/Reperfusion. *Cardiovascular Research*, 1;101(1):57-68. doi: 10.1093/cvr/cvt224.2013
- Dagda, R.K.**, Thalhauser, R.M., Dagda, R., Gage, G., and Marzullo, T. (2013) Using crickets to teach the principles of neurophysiology. *J. Undergrad. Neuro. Edu.*, Oct 15;12(1):A66-74.
- Chu, C.T., Ji, J., **Dagda, R.K.**, Jiang, J.F., Tyurina, Y.Y, Kapralov, A.A., Tyurin, V.T., Yanamala, N., Shrivastava, I.H., Mohammadyani, D., Wang, K., Zhu, J., Klein-Seetharaman, J., Balasubramanian, K., Amoscato, A., Borisenko, G. Huang, Z., Gusdon, A.M., Cheikhi, A., Steer, E.K., Wang, R., Baty, C., Watkins, S., Bahar, I., Bayir, H., and Kagan V.E. (2013) Cardiolipin

externalization to the outer membrane act as an elimination signal for mitophagy in mammalian cells. *Nature Cell Biology*.

6. **Dagda, R.K.**, Gasanov, S., De LaOIII, Y., Lieb, C. and Rael, E. (2013) Genetic Basis for Variation of Metalloproteinase-Associated Biochemical Activity in Venom of the Mojave Rattlesnake (*Crotalus scutulatus scutulatus*). Volume 2013, Article ID 251474, 11 pages
7. **Dagda, R.K.**, Gusdon, A., Pien, I., Strack, S., Green, S., Li, C., Van Houten, B. Cherra III, S.J. and Chu, C.T. (2011) Mitochondrially localized PKA reverses mitochondrial pathology and dysfunction in cellular models of Parkinson's disease. *Cell Death and Diff.*, PMID:21637291. **Note:** Named one of the top 10 most cited articles of the month of September in Cell Death and Differentiation.
8. Merrill, R.A. [‡], **Dagda, R.K.** [‡] Cribbs, J.T., Dickey, A., Green, S.H. Usachev, Y.M., and Strack, S. (2011) Mechanism of neuroprotective mitochondrial remodeling by PKA/AKAP1 *PLOS Biology* **9**(4) [‡]: authors contributed equally. PMID: 21526200.
9. **Dagda, R.K.**, Sultana, T., and Lyons-Weiler, J. (2010) Evaluation of the consensus of four peptide identification algorithms for tandem mass spectrometry proteomics. *J Proteomics Bioinform.* **5** (3):39-47. PMID:20589340.
10. **Dagda, R.K.**, Cherra III, S. J, Kulich, S.M., Tandon, A , Chu, Park, D., and Chu, C.T. (2009) Loss of PINK1 function promotes autophagy through effects on fission in neurons. *J. Biol Chem.* **284** (20):13843-55, PMID: 19279012. **Note:** This manuscript was named as "Must Read" by the Faculty of 1000 Biology with an impact factor of 6.0.
11. **Dagda, R.K.**, Merrill, R. A., Cribbs, J.T., Chen, Y., Hell, J., Usachev, Y., and Strack S (2008) The spinocerebellar ataxia 12 gene product and protein phosphatase 2A Regulatory subunit Bbeta2 antagonizes neuronal survival by promoting mitochondrial fission. *J. Biol Chem.* **283**(52):36241-8, PMID: 18940801
12. **Dagda, R.K.**, Zhu, J., Kulich, S.M., and Chu, C.T. (2008) Mitochondrially localized ERK regulates mitophagy and autophagic cell stress. *Autophagy.* **4** (6): 770-82, PMID: 18594198.
13. **Dagda, R.K.**, Barwacz C. A., Cribbs, J.T., and Strack S. (2005) Unfolding-Resistant Translocase Targeting: A novel mechanism for outer mitochondrial membrane localization exemplified by the B β 2 regulatory subunit of protein phosphatase 2A. *J. Biol Chem.* **280**: 27375-27382. PMID: 15923182.
14. **Dagda, R.K.**, Zaucha, J.A., Wadzinski, B.E., and Strack, S. (2003) A developmentally regulated, neuron specific splice variant of the variable subunit B β targets protein phosphatase 2A to mitochondria and modulates apoptosis. *J. Biol. Chem.*, **278**:24976-24985. PMID: 12716901.
15. Strack, S., Ruediger, R., Walter, G., **Dagda, R.K.**, Barwacz, C.A., and Cribbs, J.T. (2002) Protein Phosphatase 2A Holoenzyme Assembly: Identification of contacts between B-family regulatory and scaffolding A subunits. *J. Biol. Chem.* **277**: 20750-20755. PMID: 11929880
16. Wooldridge, B.J., Pineda, G., Banuelas-Ornelas, J.J., **Dagda, R.K.**, Gasanov, S.E., Rael, E.D., and Lieb, C.S. (2001) Mojave rattlesnakes (*Crotalus scutulatus scutulatus*) lacking the acidic subunit DNA sequence lack Mojave toxin in their venom. *Comp. Biochem. & Physiol: Part B. Biochem. & Mol. Biol.* **130**:169-179. PMID: 11544087

Reviews

1. **Dagda RK**, Das Banerjee T, Janda E. (2013) How Parkinsonian toxins dysregulate the autophagy machinery. *Int J Mol Sci.* Nov 8;14(11):22163-89. doi: 10.3390/ijms141122163.
2. **Dagda, R.K.** and Chu, C.T. (2009) Mitochondrial quality control: insights on how Parkinson's disease related genes PINK1, Parkin, and Omi/HtrA2 interact to maintain mitochondrial homeostasis, *Journal of Bioenergetics and Biomembranes*, **41**(6):473-9.

3. Cherra III, S., **Dagda, R.K.** and Chu, C.T. (2009) Autophagy and Neurodegeneration: Survival at a cost? *Neuropathology and Applied Neurobiology*, **36**(2):125-32
4. Cherra, SJ 3rd, **Dagda, RK**, Tandon, A, and Chu,CT.(2009) Mitochondrial autophagy as a compensatory response to PINK1 deficiency. *Autophagy*. **5**(8): 1213-4.
5. **Dagda, R.K.**, Zhu, J., and Chu, C.T. (2009) Mitochondrial Kinases in Parkinson's Disease: Converging Insights from Neurotoxin and Genetic Models, *Mitochondrion* **9**(5):289-98.
6. Chu, C.T., Zhu, J., **Dagda, R.K.** (2007) Beclin 1-Independent Pathway of Damage-Induced Mitophagy and Autophagic Stress: Implications for Neurodegeneration and Cell Death. *Autophagy*. **3**(6): 663-6. PMID: 17622797.

Research Methods Book Chapters

1. Zhu, J., **Dagda, R.K.** and Chu C.T. (2011) Monitoring Mitophagy in Neuronal Cell Cultures *Meth. Mol. Bio.*, **793**:325-39.
2. Chu, C.T., Plowey, E.D., **Dagda, R.K.**, Hickey, R.W. , Cherra III, S.J., and Clark ,(2009) R.S. Autophagy in Neurite Injury and Neurodegeneration: in vitro and in vivo models. *Meth. Enzymol*: 453:217-49, PMID: 19216909

Other Book Chapters

1. **Dagda, R.K.** (2012) Nanoparticles Show Great Promise in Treating Cancer. *Perspectives on Diseases and Disorders: Lymphoma*. 1: 68-73.

Published abstracts

1. Dagda, R.K., Gusdon, A., and Chu, CT. "Role of Distinct Subcellular Pools of PINK1 on Mitochondrial Function, Neuronal Morphology and Survival", 2013 Society for Free Radical Biology and Medicine Conference, San Antonio, TX, November 21-24. Awarded a *Seahorse Biosciences Award* (\$750.00)
2. Dagda, R. K., Gordon Research Conference on Mechanisms of Cellular Toxicity, Academic, Conference, "Regulation of Mitophagy by Serine/Theronine Kinases and Cardiolipin at the Outer Mitochondrial Membrane: Implications for Mitochondrial Diseases", Gordon Research Both Invited and Accepted Conference. (August15, 2013)
3. Dagda, R.K., Pien, I., and Chu, C.T. The role of different subcellular pools of PINK1 in mitochondrial function and neurite remodeling in neurons. Poster presentation, November 12-16, 2011, Society for Neuroscience conference, Washington, DC.
4. Dagda, R.K., Pien, I., Gusdon, A., Cherra III, S. J, Green, S, Strack, S., and Chu, C.T. Mitochondrial localized protein kinase A reverses mitochondrial pathology and dysfunction in cellular models of Parkinson's disease. Poster presentation delivered during the postdoctoral professional networking event at the SACNAS meeting, September 30- October 3, 2010, Anaheim, CA.
5. Dagda, R.K., Pien, I., Gusdon, A., Cherra III, S. J, Green, S, Strack, S., and Chu, C.T. Mitochondrial localized protein kinase A reverses mitochondrial pathology and dysfunction in cellular models of Parkinson's disease. Oral Presentation in the category of mitochondrial medicine at the American Society for Investigative Pathology, FASEB Conference, April 23- April 28, 2010, Anaheim, CA.
6. Dagda, R.K., Cherra III, S. J, Green, S, Strack, S., and Chu, C.T. PKA prevents mitochondrial pathology induced by loss of PINK1 function. Society for Neuroscience Conference, October 17-21, 2009, Chicago, IL.

7. Dagda, R.K., Cherra III, S. J, Kulich, S.M. , Tandon, A , Chu, C.T. PINK1 modulates mitochondrial morphology and autophagy in 6-OHDA-injured SH-SY5Y cells. Society for Neuroscience Conference, November 15-19, 2008, Washington D.C.
8. Dagda, R.K., Kulich, S.M., Chu, C.T. PINK1 suppresses 6-OHDA-mediated autophagic stress in the neuroblastoma SH-SY5Y cell line. FASEB ASIP Conference, April 5- 9, 2008, San Diego, CA.
9. Dagda R. K., Zhu J.H., Kulich S.M., Chu C.T. ERK2 translocates to mitochondria during neurodegeneration to promote mitochondrial autophagy. FASEB ASIP Conference, Washington D.C., April 28-May 2, 2007.
10. Dagda R. K., Zhu J.H., Kulich S.M., Chu C.T. Kinase regulation of autophagic stress during injury- induced mitophagy and neuronal cell death. FASEB Autophagy Meeting April 16-21, 2007, Monterrey, CA.
11. Dagda, R.K., Usachev, Y., Strack, S. Dynamic regulation of mitochondrial morphology, calcium buffering, and neuronal survival by a neuron-specific protein phosphatase 2A holoenzyme. Society for Neuroscience Conference, November 12 -16, 2005, Washington, D.C.
12. Dagda, R.K., Strack, S. Dynamic regulation of mitochondrial morphology and neuronal survival by a neuron-specific protein phosphatase 2A holoenzyme. SACNAS Conference, September 29-October 2, 2005, Denver, CO.
13. Dagda, R.K., Barwacz, C., Cribbs, T., and Strack, S. Outer mitochondrial membrane targeting and apoptosis induction by a neuronal protein phosphatase 2A regulatory subunit. FASEB Phosphatase Conference, July 17-22, 2004, Snowmass CO.
14. Dagda, R.K., Zaucha, J. A., Wadzinski, B. E. and Strack, S. A developmentally regulated, neuron- specific splice variant of the variable subunit B β targets protein phosphatase 2A to mitochondria and modulates apoptosis. Society for Neuroscience Conference, November 8-12, 2003, New Orleans, LA.
15. Dagda, R.K., Barwacz, C.A., and Cribbs, Strack, S. Protein Phosphatase 2A Holoenzyme Assembly: Identification of contacts between B-family regulatory and scaffolding A subunits. FASEB Conference, ASBMB, April 24-27, 2001, New Orleans, Louisiana.
16. Dagda, R.K., Gasanov, S. and Rael, E. Cloning and sequencing of three metalloproteinase cDNAs from *Crotalus molossus molossus* (Northern Blacktailed Rattlesnake). SACNAS Conference, October 12-15, 2000, Atlanta, Georgia.
17. Dagda, R. K., Gasanov, S. R. and Rael, E. Natural toxins can be directed against cancer. 7th Biennial Symposium on Minorities, the Medically Underserved and Cancer, February 9-13, 2000, Washington

TEACHING AND TRAINING EXPERIENCE

University of Nevada School of Medicine

1. CMPP710: Molecular Pharmacology

- Course director: Normand Leblanc, Department of Pharmacology *Fall of 2013*
- 6 students
- I delivered two lectures on the principles of neurodegeneration and provided a comprehensive overview on therapies for treating neurodegenerative diseases, major clinical depression and Schizophrenia.
- Taught two interactive 2.5hr. lectures on mitochondrial structure/function to graduate students (4.0 hrs. total)

- Wrote exam lecture questions and assigned research papers for students to read and present a summary of the findings of the manuscript in front of faculty.

2. BIOL 475/675: Undergraduate Neurobiology

Fall of 2013

Course director: Grant Mastick, Department of Biology

- 60 students
- Course covers the basic fundamentals and principles of neuroscience to undergraduate students
- Taught 1.5 hr. lecture on neurodegenerative diseases (4.0 hrs. total) as a guest lecturer

3. CMB710: Molecular Cell Biology,

Spring of 2013

-Course director: Grant Mastick, Department of Biology

- 22 students
- Course covers the basic fundamentals and principles of cell biology for Cell Molecular Biology graduate students
- Taught two interactive 2hr. lectures on mitochondrial structure/function to graduate students (4.0 hrs. total)
- Assigned research manuscripts and reviews to study and graded assignments

Community College of Allegheny County (CCAC)

1. BIO175: Principles of Microbiology (90 lecture/ lab hours)

Spring of 2011

- 17 students
- Developed course syllabus, prepared lectures, designed exams, prepared reagents and designed experiments for the laboratory component of the course. In addition, I prepared study guides, tutored struggling students outside the classroom and administered review sessions to students during final examination week.
- Topics taught ranged from microbial ultrastructure, biochemistry, physiology, pathogenesis and a major overview of the relevant infectious human diseases.

2. BIO161: Human Anatomy and Physiology 1 (90 lecture/lab hours)

Fall of 2010 and 2011

- 22-24 students.
- Developed course syllabus and prepared lectures and exams.
- Topics taught ranged from the skeletal system, muscular system, types of synovial joints and the endocrine system and an overview of the male and female reproductive systems.
- Lab: designed and prepared several electrophysiology experiments to study action potentials in small invertebrate animals for the lab section using simple bioamplifiers.

Student Opinion Survey of Instructor's performance: 4.2 out of a scale of 5.0

3. BIO162: Human Anatomy and Physiology 2 (90 lecture/lab hours)

Summer of 2010

- 24 students
- Developed course syllabus, prepared lectures and exams.
- Topics taught ranged from respiratory physiology, cardiac physiology, the urinary system and an overview of the male and female reproductive systems.

4. BIO103: Introduction to Human Biology (72 hours)

Spring of 2010

- 28 students
- Developed course syllabus, prepared lectures and exams.
- Topics taught ranged from basic biochemistry, cellular ultrastructure, and an overview of the body plan, organization and the major human organ systems. In addition, I prepared study guides, tutored struggling students outside the classroom and administered review sessions to groups of

students during final examination week.

Student Opinion Survey of Instructor's performance: 4.0 out of a scale of 5.0

5. **BIO110: Introduction to Biology (28 lectures or 74 lecture hours),** Fall of 2009
- 22 students
 - Developed course syllabus, prepared lectures, exams, and prepared reagents and designed experiments for the laboratory component of the course. In addition, I prepared study guides, tutored students outside the classroom and administered review sessions to groups of students during final examination week.
 - Topics taught ranged from cellular ultrastructure, principles of oxidative phosphorylation to membrane transport.

Student Opinion Survey of Instructor's performance: 4.0 out of a scale of 5.0

University of Pittsburgh

6. **MSCMP 2740: Molecular Pathobiology:** 2007
- Graduate level course
- Served as neurodegeneration module leader, organized curriculum, delivered lectures and supervised a team taught module of four instructors.
 - 15 graduate students
 - Mitochondrial dysfunction in Parkinson's Disease (2.0 lecture hours)
 - Supervised the review of several research papers at the end of the module (2 hrs)

University of Iowa

7. **071:120 Principles of Pharmacology: Drugs, their nature, action** 2005
- Undergraduate course
 - Help to review and prepare questions for an exam
 - Team-taught; taught 2 lectures during the semester on the topics of "Inhalants and Cannabinoids"
 - 90 undergraduate students

Research Mentoring and Service

Supervised the research projects of the following undergraduate/ graduate students:

- | | | | |
|-------------------|------|--|---------------|
| 1. Danielle Hu, | | University of Pittsburgh | 2011- present |
| 2. Irene Piene, | BS | University of Pittsburgh | 2008- present |
| 3. Chris Fung, | BS | University of Pittsburgh | Summer 2007 |
| 4. Nick Bateman, | BS | Graduate student in biomedical sciences, University of Pittsburgh | Fall of 2006 |
| 5. Raul Dagda, | MS | Technician, University of Texas Tech | 2006- 2008 |
| 6. Jason Ulrich, | BS | Pharmacology, University of Iowa, | Fall of 2005 |
| 7. Vaibhavi Shah, | MS | Pharmacology, University of Iowa | Fall of 2002 |
| 8. Chris Barwacz, | DDS | Pharmacology, University of Iowa | 2002- 2006 |
| 9. Jim Denker, | B.S. | Pharmacology, University of Iowa | Fall of 2004 |

External Graduate Committee Service:

- Served on a graduate committee as an external reviewer for Raul Dagda's MS student's thesis defense titled "The effects of acute stress on transcriptional expression of 5'-Ectonucleotidase and 5-HTT2A receptor in amygdala and cortex of rat brain".
Department at the University of Juarez in Chihuahua, MX 10/22/07-10/24/07.

MEMBERSHIPS in PROFESSIONAL and SCIENTIFIC SOCIETIES

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|---|---------------|
| Society for Laboratory Automation and Screening | 2013-present |
| International Society for Neurochemistry | 2013-present |
| American Society for Biochemistry and Molecular Biology | 2013-present |
| Annual Biomedical Research Conference for Minority Students | 2013-present |
| University of Pittsburgh Postdoctoral Association (Marketing Officer) | 2010- present |
| SACNAS active member | 2001- present |
| Society for Neuroscience | 2002- present |
| American Society for Investigative Pathology | 2006- present |
| American Society for Microbiology | 1999- 2001 |
| Golden Key National Honor Society | 1996- 2000 |

HONORS and AWARDS

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| EarthSky TV Interview on Scientific Research and Recognition | 2013 |
| Seahorse Young Investigator Travel Award | 2013 |
| ABCRMS Judge's Travel Award | 2013 |
| Gordon Research Conference Guest Lecturer Award | 2013 |
| SACNAS Mentor Travel Award | 2012 |
| Honorable mention for outstanding poster presentation at the University of Pittsburgh Pathology Retreat | 2011 |
| SACNAS Travel Award | 2010 |
| FASEB/ASIP Minority Travel Award | 2010 |
| Weil Award for Best Paper on Experimental Neuropathology, at the 83rd Annual Meeting of the American Association of Neuropathologists, Washington D.C. | 2007 |
| ASIP Minority Travel Award | 2006 |
| MARC FASEB Minority Travel Conference Poster Presentation Award | 2006 |
| SACNAS Minority Travel Award | 2005 |
| FASEB Phosphatase Conference Poster Award | 2004 |
| NINDS 2004 Grant Writing Workshop Travel Award | 2004 |
| ASBMB Minority Travel Award | 2001 |
| Best Biological Sciences Master's Thesis Award (UT-El Paso) | 2001 |
| SACNAS Minority Travel Award | 2000 |
| Intercultural Cancer Council Travel Award | 2000 |
| SACNAS Minority Travel Award | 1999 |
| UT-Houston Health Science Center research internship award | 1997 |
| Texas Department of Education Merit Scholarship | 1995 |

Invited Lectures and Seminar Presentations

1. "Regulation of Mitophagy by Serine/Threonine Kinases and Cardiolipin at the Outer Mitochondrial Membrane: Implications for Mitochondrial Diseases", Gordon Research Conference on Mechanisms of Cellular Toxicity, Andover Academy, NH, Session Chair: Alvaro Puga, (University of Cincinnati), 08/15/ 2013.
2. "So you want to be a pharmacologist: career advice and insight from a Pharmacology Assistant Professor", University of Nevada, Reno. 02/20/2013, Hosted by: Michelle Ngo, Prepharmacy UNR President.
3. "PINK1 regulates mitochondrial autophagy through effects on fission in neurons" , University of Pittsburgh Postdoctoral Association (UPPDA) Postdoctoral Lunch Live presentation series at the University of Pittsburgh. 11/20/2008
4. "ERK2 regulates mitophagy and autophagic stress during PD induced injury" at the Institute of Basic Sciences, Department of Basic Sciences, The University of Juarez in Chihuahua, MX. on 10/24/2007. Hosted by: Dr. Alejandro Martinez Martinez, Professor of Biomedical Sciences.
5. "Regulation of Mitochondrial Morphology and Neuronal Survival by Protein Phosphatase 2A (PP2A)" , Oxidative Stress, Aging, and Disease (OSAD) seminar at the University of Pittsburgh in PA on 12/16/2005. Hosted by: Dr. Charleen Chu
6. Presented a seminar on neurobiology at the Basic Sciences Department at the University of Juarez in Chihuahua, MX. on 04/14/2005. Hosted by: Dr. Esparza, Chairman of the Institute of Basic Sciences, Department of Basic Sciences.
7. "Harnessing the Power of Social Internet Tools to Enhance Your Career", Scientific Management and Leadership course at the University of Pittsburgh Health Sciences, March 25, 2010. Career development seminar team taught by Dr. **Ruben Dagda** and by Dr. Jennifer Woodward, Associate Professor of Surgery and Immunology at the University of Pittsburgh.
8. "Reversible phosphorylation at the outer mitochondrial membrane regulates mitochondrial function and neuronal survival" North Carolina State University, Department of Molecular Biomedical Sciences, hosted by: Dr. Chris McGahan, 03/30/2011.

Professional Service and Other Activities

1. Served as the Marketing Officer for the University of Pittsburgh Postdoctoral Association for a one year term appointment during 2011. My role was to manage and oversee monthly research seminar series called "Postdoctoral Lunch Live!", performed all communications with the postdoctoral community and networked with faculty and leaders of the community and the University of Pittsburgh in order to advance the mission of the organization.
2. Served as a science fair judge for the microbiology/health/medicine category for high school seniors at the 2010 Pittsburgh Regional Technology Science Fair, March 26, 2010, Pittsburgh, PA.
3. Served as a team leader, assisted graduate and undergraduate students, and served as a table host during the Career Development Workshop at the Science 2011 Conference, Pittsburgh, PA.
4. With the support of the Society for Neuroscience, I directed a "Brain Awareness" workshop and interacted with twenty-two 4th graders at Young Scholars of Western Pennsylvania Charter School, March 16, 2012, Pittsburgh, PA. During this workshop, I taught 4th graders the structure and function of the different regions of the brain, reviewed the parts of the neuron and how neurons consolidate networks.
5. With the support of the Society for Neuroscience Nevada Chapter, I directed a "Brain Awareness" workshop at the Terry Lee Wells Discovery Museum. During this workshop, I interacted with 4th and 5th grade children and performed demonstrations of human brain tissue, plastic brain models, the Spikerbox to study action potentials in crickets and showed H&E slides of brain tissue. March 18, 2013, host: Sarah Gobbs Hill, marketing director.

6. Have served as an ad-hoc reviewer for the following journals:

1. PLOS biology
 2. Neurobiology of Aging
 3. Autophagy
 4. Neurobiology of Disease
 5. Journal of Environmental and Occupational Science
7. I have developed five widely used Image J. algorithms that allow for semi-automated computer aided quantification of neuritic morphology, mitochondrial morphology, quantification of autophagosomes shape and number and colocalization of cell organelles. Macros have been published at the Image J website:
<http://www.imagejdocu.tudor.lu/>.