

M. G. Leonard Hornick, MS, PhD

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Summary

My objective is to establish a solid career as a scientist and professor at the forefront of biomedical research, specifically focusing on neurological and neurovascular development and pathologies. I have extensive hands-on experience in designing, implementing and analyzing studies devoted to enhancing our understanding of and developing pharmacological treatments for cardiovascular and neurological pathologies such as ischemic stroke, neurodevelopmental disorders, Alzheimer's disease, hemorrhagic shock and pain management. I have considerable experience in writing and editing scientific manuscripts, grants, and protocols. In addition to research, I have international and domestic experience in teaching and training future health professionals and researchers.

Academic Credentials

Aug 2008 – May 2013

Doctor of Philosophy – Bioengineering; University of Illinois at Chicago, Chicago, IL
Thesis: Involvement of Central Endothelin B Receptors in Focal Cerebral Ischemia

Aug 2006 – May 2008

Master of Science – Biomedical Sciences; Northwestern University, Downers Grove, IL
Thesis: Cardiovascular Effects of Endothelin B Receptor Agonist IRL-1620

Aug 1999 – May 2003

Bachelor of Science – Biology; University of Missouri, Columbia, MO
Bachelor of Arts – Russian Studies; University of Missouri, Columbia, MO

Professional Research and Teaching Experience

March 2019 – Present

Assistant Professor of Biological Sciences
College of Pharmacy, Roosevelt University, Schaumburg, IL

- Develop syllabi for core & elective courses, coordinate courses, and lecture Pharmacy students in pathophysiology, microbiology, immunology & pharmacology.
- Mentor, advise and encourage COP students in the role of Faculty Advisor.
- Service & leadership on college & university committees.
- Develop & conduct novel research on cannabinoids in neuronal cell lines (*in progress*).
- Proctoring: 2020 – 16 hours, 2019 – 39 hours
- Courses Taught: (class size ~75)
 - PHAR 512 – Clinical Microbiology & Immunology – 10 hours; Coordinator
 - PHAR 514 – Pathophysiology – 48 hours; Coordinator
 - PHAR 601 – Pharmaceutical Care: Self Care & Nonprescription Therapeutics – 1 hour
 - PHAR 714 – Medicine or Menace: Introduction to Psychedelics (*in progress - elective*); Coordinator
 - PHAR 757 – Principles of Palliative Care – 2 hours (*elective*)

Jan 2014 – March 2019

Senior Research Associate
Chicago College of Pharmacy, Northwestern University, Downers Grove, IL

- Research, write and submit grants for National Institute of Health and American Heart Association funding.
- Design and implement novel research projects, leading projects from concept to publication.
- Co-led and assisted in moving two novel drug candidates from preclinical to clinical phase trials (PMZ-2010: CTRI/2014/06/004647, CTRI/2017/03/008184 and PMZ-1620: CTRI/2016/11/007509, CTRI/2017/11/010654).
- Mentor, train, and supervise students and fellows from Chicago College of Pharmacy, College of Health Sciences, Chicago College of Osteopathic Medicine and Advocate Children's Hospital.
- Courses Taught: (in conjunction with College of Health Sciences – class sizes 30-100)
 - BISCID 0540 – Pathophysiology
 - BISCID 0558 – Literature Review
 - BISCID 0560, 0660, 0661, 0662, 0663 – Laboratory Research for Thesis
 - BSICD 0650 – Journal Club
 - BSICD 0653, 0654 – Seminar in Biomedical Sciences
 - BSICD 0665 – Thesis Proposal
 - BSCID 0680 – Thesis
- Projects Led:
 - Involvement of central endothelin B receptors in focal cerebral ischemia (2008-2019)
 - Endothelin agonists and antagonists in the treatment of Alzheimer's disease (2009-2019)
 - Novel antinociceptive compounds for the treatment of post-operative pain (2012-2019)
 - Alternative treatments for neonatal hypoxia-ischemia (2015-2019)
 - Effect of maternal cannabis use on neonatal brain development (2015-2019)
 - Effect of maternal opioid use on neonatal brain development (2014-2019)
 - Intranasal stimulation of the sphenopalatine ganglia (2014-2016)
 - Effect of maternal alcohol use on neonatal brain development (2014-2015)

Feb 2013 – Dec 2014

Research Associate

Chicago College of Pharmacy, Northwestern University, Downers Grove, IL

- Assisted in writing grants for National Institute of Health and Alzheimer's Disease Foundation funding.
- Conducted research projects, analyzed data and prepared manuscripts for publication.
- Trained and supervised students and fellows in proper laboratory techniques.
- Projects Led:
 - Involvement of central endothelin B receptors in focal cerebral ischemia (2008-present)
 - Endothelin agonists and antagonists in the treatment of Alzheimer's disease (2009-present)
 - Novel antinociceptive compounds for the treatment of post-operative pain (2012-present)
 - Effect of maternal opioid use on neonatal brain development (2014-present)
 - Intranasal stimulation of the sphenopalatine ganglia (2014-2016)
 - Effect of maternal alcohol use on neonatal brain development (2014-2015)

June 2008 – Feb 2013

Laboratory Assistant (part time)

Chicago College of Pharmacy, Northwestern University, Downers Grove, IL

- Designed and standardized animal models for stroke, ontological studies, Alzheimer's disease, pain/analgesia, type 2 diabetes and hemorrhagic shock.

- Established, modified and standardized immunofluorescence / immunohistochemistry, *in vivo* optical imaging, Western blotting, and oxidative stress estimation techniques.
- Interpreted and analyzed data, compile research reports and write IACUC protocols.
- Projects Led:
 - Involvement of central endothelin B receptors in focal cerebral ischemia (2008-present)
 - Endothelin agonists and antagonists in the treatment of Alzheimer's disease (2009-present)
 - Novel antinociceptive compounds for the treatment of post-operative pain (2012-present)

June 2003 – July 2005

Community Health Specialist

United States Peace Corps, Yeghegnadzor, Armenia

- Developed syllabus and trained 80 nursing and midwifery students.
- Organized and coordinated GLOW (Girls Leading Our World) women's leadership camps for 180 young Armenian women in conjunction with Armenian NGO's, AED and USAID to promote the involvement of women in their communities as well as the home.
- Courses Taught: (class sizes 25-50)
 - STI/STD/contraception (2 semesters)
 - Nutrition (2 semesters)
 - Healthy living (3 semesters)
 - English medical terminology (4 semesters)

Other Professional Experience

Oct 2006 – July 2008

Pharmacy Technician (Licensed - IL), WellGroup Health Partners, Chicago Heights, IL

Oct 2006 – May 2008

Office Volunteer, Advocate Hospice, Downers Grove, IL

Dec 2005 – Aug 2006

Patient Services Representative II, WellGroup Health Partners, Olympia Fields, IL

Aug 2000 - May 2003

Office Support Staff, Pathology, University Health Care & Clinics, Columbia, MO

Jan 2000 - May 2000

Phlebotomy Volunteer, Harry S Truman VA Hospital, Columbia, MO

Research Skills and Techniques

In vivo techniques – Rats and mice

- Cardiovascular pharmacology (blood pressure, heart rate, pressure-volume, cerebral and renal blood flow, blood gas analysis)
- Middle cerebral artery occlusion
- Cannulation (femoral, carotid, jugular, ventricular)
- Analgesia (tail flick, hot/cold plate, dynamic plantar von Frey)
- Behavioral analysis (water maze learning and memory, locomotor activity, foot fault error, grip test, rota rod)
- Induction of various disease states (cerebral ischemia, neonatal HIE, hemorrhagic shock, diabetes mellitus, Alzheimer's disease)
- Drug administration (intravenous, subcutaneous, oral, intraperitoneal, intracerebroventricular)
- Optical Imaging (BioFLECT system)

In vitro techniques

- Western blotting
- ELISA
- Immunohistochemistry / Immunofluorescence
- Oxidative stress estimation (malondialdehyde, reduced glutathione, superoxide dismutase)
- Spectroscopy (UV-VIS)
- Microscopy (Fluorescent Inverted and Confocal)
- Thromboelastography
- Langendorf isolated tissue
- HPLC

Software

- PowerLab, Varimex Tracking System, MatLab, GraphPad Prism, NIH ImageJ, EndNote, Nikon NIS Elements, InVivoScope, PeriSoft, PimSoft, MS-Excel, Word, Power Point, Photoshop

Bibliography

1. Gupta, B.*, **Hornick, M.G.***, Briyal, S., Donovan, R., Prazad, P., Gulati, A. *Anti-apoptotic and immunomodulatory effect of CB2 agonist, JWH133, in a neonatal rat model of hypoxic-ischemic encephalopathy*. *Frontiers in Pediatrics*, 2020. 8:65.
*Co-first author
2. Briyal, S., Ranjan, A., **Hornick, M.G.**, Puppala, A., Than, L., Gulati, A. *Anti-apoptotic activity of ETB receptor agonist, IRL-1620, protects neural cells in rats with cerebral ischemia*. *Scientific Reports*, 2019. 9(1):10439.
PMID: 31320660; PMCID: PMC6639304; doi: 10.1038/s41598-019-46203-x
3. Cifuentes, E.*, **Hornick, M.G.***, Havalad, S., Donovan, R., Gulati, A. *Neuroprotective effect of IRL-1620, an endothelin B receptor agonist, on a pediatric rat model of middle cerebral artery occlusion*. *Frontiers in Pediatric Critical Care*, 2018. 6:310.
*Co-first author
PMID: 30406063; PMCID: PMC6206019; doi: 10.3389/fped.2018.00310
4. Gulati, A.*, **Hornick, M.G.***, Briyal, S., Lavhale, M.S. *A novel neuroregenerative approach using ET_B receptor agonist, IRL-1620, to treat CNS disorders*. *Physiological Research*, 2018. 67 (Suppl. 1): S95-113.
*Co-first author
PMID: 29947531; doi: 10.33549/physiolres.933859
5. Amlani, A.*, **Hornick, M.G.***, Cooper, K., Prazad, P., Donovan, R., Gulati, A. *Maternal cannabinoid use alters CB₁ and ET_B receptor expression in the brains of dams but not offspring*. *Developmental Neuroscience*, 2017. 39(6):498-506.
*Co-first author
PMID: 29131068; doi: 10.1159/000480453
6. **Leonard, M.G.**, Gaxiola, A., Sharma, S., Schweig, L., Prazad, P., Gulati, A. *Minocycline increases brain NGF and ET_B receptor expression in neonatal rats with hypoxia ischemia*. *Critical Care Medicine*, 2016. 44:263.
doi: 10.1097/01.ccm.0000509424.87692.ec
7. **Leonard, M.G.**, Cifuentes, E., Havalad, S., Gulati, A. *Effect of IRL-1620, and endothelin-B receptor agonist, on ischemic stroke in a pediatric rat model*. *Critical Care Medicine*, 2016. 44:257.
doi: 10.1097/01.ccm.0000509400.83640.59
8. **Leonard, M.G.**, Jung, S., Andurkar, S., Gulati, A. *Cenithaquin attenuates hyperalgesia and non-evoked guarding in a rat model of postoperative pain primarily through α_{2B} -adrenoreceptors*. *European Journal of Pharmacology*, 2016. 789:81-7.
PMID: 27397429; doi: 10.1016/j.ejphar.2016.07.016

9. Devarapalli, M., **Leonard, M.G.**, Briyal, S., Stefanov, G., Puppala, B., Schweig, L., Gulati, A. *Prenatal oxycodone exposure alters CNS endothelin receptor expression in neonatal rats*. Drug Res, 2016. 66(5):246-50.
PMID: 26676852; doi: 10.1055/s-0035-1569279.
10. Gulati, A., **Leonard, M.G.**, Husby, M. *IRL-1620 provides neuroprotection and enhances angiogenesis in diabetic rats with cerebral ischemia*. Critical Care Medicine, 2015. 43 (12):123.
doi: 10.1097/01.ccm.0000474315.07638.c4
11. Husby, M., **Leonard, M.G.**, Gulati, A. *Endothelin B receptor agonist, IRL-1620, is an effective neurovascular remodeling agent in diabetic rats with cerebral ischemia*. Circulation, 2015. 132: Suppl 3 A10198.
12. Bhalla, S., **Leonard, M.G.**, Briyal, S., Gulati, A. *Distinct Alteration in Brain Endothelin A and B Receptor Characteristics Following Focal Cerebral Ischemia in Rats*. Drug Res, 2015. 66(4):189-95.
PMID: 26398673; doi: 10.1055/s-0035-1559779.
13. Briyal, S., Nguyen, C., **Leonard, M.G.**, Gulati, A. *Stimulation of endothelin B receptors by IRL-1620 decreases the progression of Alzheimer's disease*. Neuroscience, 2015. 301:1-11.
PMID: 26022359; doi: 10.1016/j.neuroscience.2015.05.044.
14. **Leonard, M.G.**, Prazad, P., Puppala, B., Gulati, A. *Selective endothelin b receptor stimulation increases vascular endothelial growth factor in the rat brain during postnatal development*. Drug Res, 2015. 65(11):607-13.
PMID: 25806822; doi: 10.1055/s-0034-1398688.
15. Puppala, B., Awana, I., Briyal, S., Mbachu, O., **Leonard, M.G.**, Gulati, A. *Ontogeny of endothelin receptors in the brain, heart and kidneys of neonatal rats*. Brain & Dev, 2015. 37(2):206-15.
PMID: 24815227; doi: 10.1016/j.braindev.2014.04.008.
16. **Leonard, M.G.** and Gulati, A. *Endothelin B receptor agonist, IRL-1620, enhances angiogenesis and neurogenesis following cerebral ischemia in rats*. Brain Res, 2013. 1528: 28-41.
PMID: 23850649; doi:10.1016/j.brainres.2013.07.002.
17. **Leonard, M.G.**, Briyal, S. and Gulati, A. *Endothelin B receptor agonist, IRL-1620, provides long-term neuroprotection in cerebral ischemia in rats*. Brain Res, 2012. 1464: 14–23.
PMID: 22580085; doi:10.1016/j.brainres.2012.05.005.
18. **Leonard, M.G.**, Briyal, S. and Gulati, A. *Endothelin B receptor agonist, IRL-1620, reduces neurological damage following permanent middle cerebral artery occlusion in rats*. Brain Res, 2011. 1420: 48-58.
PMID: 21959172; doi:10.1016/j.brainres.2011.08.075.
19. **Leonard, M.G.** *A review of deep brain stimulation*. UIC Bioengineering Student Journal. 2010; 2(1): 25-30.
20. **Leonard, M.G.** and Gulati, A. *Repeated administration of ETB receptor agonist, IRL-1620, produces tachyphylaxis only to its hypotensive effect*. Pharmacol Res, 2009. 60(5): 402-10.
PMID: 19666119; doi:10.1016/j.phrs.2009.07.015.

Presentations

1. Roosevelt University College of Pharmacy Research Rounds, Schaumburg, IL – 21 November 2019; *Medicine or Menace: Exploring the Interactions between the Endothelin and Endocannabinoid Systems*; **Hornick, M.G.**
2. SCCM Society for Critical Care Medicine Critical Care Conference, Honolulu, HI – 21-25 January 2017; *Effect of IRL-1620, an endothelin-B receptor agonist on ischemic stroke in a pediatric rat model*; **Leonard, M.G.**, Cifuentes, E., Havalad, S., Donovan, R., Gulati, A.
3. SCCM Society for Critical Care Medicine Critical Care Conference, Honolulu, HI – 21-25 January 2017; *Ethanol and oxycodone exposure in utero impairs development of the neonatal rat brain*;

- Gulati, S., Briyal, S., **Leonard, M.G.**, Ansari, M., Devarapalli, M., Schweig, L., Puppala, B., Gulati, A.
4. SCCM Society for Critical Care Medicine Critical Care Conference, Honolulu, HI – 21-25 January 2017; *Minocycline increases brain NGF and ETB receptor expression in neonatal rats with hypoxic ischemia*; **Leonard, M.G.**, Gaxiola, A., Sharma, S., Schweig, L., Prazad, P., Gulati, A.
 5. AHA American Heart Association Scientific Sessions, New Orleans, LA – 12-16 November 2016; *Cenithaquin citrate improves cerebral blood flow and reduces oxidative stress following hemorrhagic shock in rats*; **Leonard, M.G.**, Zhong, Z., Briyal, S., Pais, G., Patel, S., Gulati, A.
 6. ACCP American College of Clinical Pharmacology Annual Meeting, North Bethesda, MD – 25-27 September 2016; *Effect of maternal cannabinoid abuse on CBI, ETB, VEGF and NGF expression in the postnatal rat brain*; Cooper, K., **Leonard, M.G.**, Amlani, A., Prazad, P., Donovan, R., Gulati, A.
 7. ACCP American College of Clinical Pharmacology Annual Meeting, North Bethesda, MD – 25-27 September 2016; *Prenatal exposure to ethanol and oxycodone affects neurogenesis and impairs development of the neonatal rat brain*; Gulati, S., Briyal, S., **Leonard, M.G.**, Ansari, M., Devarapalli, M., Schweig, L., Puppala, B., Gulati, A.
 8. ACCP American College of Clinical Pharmacology Annual Meeting, San Francisco, CA – 27-29 September 2015; *Maternal ethanol and oxycodone exposure delay central nervous system development as determined by endothelin receptor expression in neonatal rat brains*; Briyal, S., **Leonard, M.G.**, Ansari, M., Devarapalli, M., Schweig, L., Puppala, B., Gulati, A.
 9. ACCP American College of Clinical Pharmacology Annual Meeting, San Francisco, CA – 27-29 September 2015; *Endothelin B receptor agonist, IRL-1620, provides neuroprotection and enhances angiogenesis in diabetic rats with cerebral ischemia*; Gulati, A., Husby, M., **Leonard, M.G.**
 10. AHA 2015 Chicago Research Network Symposium, Chicago, IL – 18 September 2015; *Endothelin B receptor agonist, IRL-1620, provides neuroprotection and enhances angiogenesis in diabetic rats with cerebral ischemia*; Gulati, A., Husby, M., **Leonard, M.G.**
 11. ET-14: Fourteenth International Conference on Endothelin, Savannah, GA – 2-5 September 2015; *Endothelin B receptor agonist, IRL-1620, provides neuroprotection and enhances angiogenesis in diabetic rats with cerebral ischemia*; Gulati, A., Husby, M., **Leonard, M.G.**
 12. ET-14: Fourteenth International Conference on Endothelin, Savannah, GA – 2-5 September 2015; *Stimulation of ETB receptors by IRL-1620 modulates the progression of Alzheimer's disease*; Briyal, S., **Leonard, M.G.**, Gulati, A., Nguyen, C., and Shepard, C.
 13. ET-14: Fourteenth International Conference on Endothelin, Savannah, GA – 2-5 September 2015; *Maternal ethanol and oxycodone exposure delay CNS development as determined by endothelin receptor expression in neonatal rat brains*; **Leonard, M.G.**, Briyal, S., Ansari, M., Devarapalli, M., Schweig, L., Puppala, B., Gulati, A.
 14. AAPS Annual Meeting and Exposition, San Diego, CA – 2-6 November 2014; *Antinociceptive activity of cenithaquin in a rat model of post-operative pain*. **Leonard, M.G.**; Jung, S.; Andurkar, S.; Gulati, A.
 15. AAPS Annual Meeting and Exposition, San Diego, CA – 2-6 November 2014; *Stimulation of ETB receptors by IRL-1620 modulates the progression of Alzheimer's disease*. Gulati, A.; Briyal, S.; Nguyen, C.; **Leonard, M.G.**
 16. ACCP American College of Clinical Pharmacology Annual Meeting, Atlanta, GA – 14-16 September 2014; *Selective endothelin-B receptor stimulation enhances vascular endothelial*

- growth factor during postnatal development of the rat brain*; Abstract 2000385; Gulati, A.; **Leonard, M.G.**; Prazad, P.; Puppala, B.
17. ACCP American College of Clinical Pharmacology Annual Meeting, Atlanta, GA – 14-16 September 2014; *Stimulation of ETB receptors by IRL-1620 modulates the progression of Alzheimer's disease*; Abstract 2000369; Gulati, A.; Briyal, S.; Nguyen, C.; **Leonard, M.G.**
 18. ACCP American College of Clinical Pharmacology Annual Meeting, Atlanta, GA – 14-16 September 2014; *Cenchaquin produces dose-dependent antinociception in a rat model of post-operative pain*; Abstract 2000421; **Leonard, M.G.**, Jung, S.; Andurkar, S.; Gulati, A.
 19. WCP 2014 17th World Congress of Basic and Clinical Pharmacology, Cape Town, South Africa – 13-18 July 2014; *ETB receptor mediated angiogenesis and neurogenesis in the ischemic brain*; **Leonard, M.G.**; Briyal, S.; Gulati, A.
 20. PAS Pediatric Academic Societies and Asian Society for Pediatric Research, Vancouver, Canada – 3-6 May 2014; *Ontogeny of endothelin receptors in the brain, heart, and kidneys of neonatal rats at different postnatal ages*; Puppala, B., Awana, I., Briyal, S., Mbachu, O., **Leonard, M.G.**, Gulati, A.
 21. AAPS Annual Meeting and Exposition, San Antonio, TX – 10-14 November 2013; *Delayed increase in density and affinity of ETB receptors in the CNS of rats following cerebral ischemia*; Bhalla, S.; **Leonard, M.G.**; Briyal, S.; Gulati, A.
 22. ACCP American College of Clinical Pharmacology Annual Meeting, Bethesda, MD – 22-24 September 2013; *Alteration in the brain ETB receptor binding characteristics following cerebral ischemia*; Abstract 1708258; Bhalla, S.; **Leonard, M.G.**, Briyal, S.; Gulati, A.
 23. ACCP American College of Clinical Pharmacology Annual Meeting, Bethesda, MD – 22-24 September 2013; *Endothelin B receptor agonist, IRL-1620, enhances angiogenesis and neurogenesis following cerebral ischemia in rats*; Abstract 1710526; **Leonard, M.G.**, Gulati, A.
 24. AHA 2013 Chicago Research Network Symposium, Maywood, IL – 20 September 2013; *Endothelin B receptor agonist, IRL-1620, enhances angiogenesis and neurogenesis following cerebral ischemia in rats*; **Leonard, M.G.**, Gulati, A.
 25. ET-13: Thirteenth International Conference on Endothelin, Tokyo, Japan – 8-11 September 2013; *Endothelin B receptor agonist, IRL-1620, enhances neurovascular remodeling following cerebral ischemia in rats*; **Leonard, M.G.**, Gulati, A.
 26. SCCM Annual Congress of the Society of Critical Care Medicine, San Juan, Puerto Rico – 19-23 January 2013; *IRL-1620, ETB receptor agonist provides neuroprotection and promotes angiogenesis following cerebral ischemia in rats*; Abstract 6160; **Leonard, M.G.**, Gulati, A.
 27. ACCP American College of Clinical Pharmacology Annual Meeting, San Diego, CA - 23-25 September 2012; *IRL-1620, an Endothelin B receptor agonist, provides long-term neuroprotection following cerebral ischemia in rats*; Abstract 1394590; **Leonard, M.G.**, Briyal, S., Gulati, A.
 28. ET-12: Twelfth International Conference on Endothelin, Cambridge, England – 11-14 September 2011; *Endothelin B agonist, IRL-1620, reduces neurological damage following cerebral ischemia in rats*; **Leonard, M.G.**, Briyal, S., Gulati, A.
 29. AAPS Annual Meeting and Exposition, Los Angeles, CA – 8 November 2009; *Endothelin modulates cardiovascular effects of clonidine and cenchaquin*; Lavhale, M., Parikh, N., **Leonard, M.G.**, Gulati, A.
 30. ET-11: APS International Conference on Endothelin, Montreal, Canada – 9 September 2009; *Modulation of cardiovascular effects of clonidine and cenchaquin by endothelin*; Lavhale, M., Parikh, N., **Leonard, M.G.**, Gulati, A.
 31. IXth World Conference on Clinical Pharmacology and Therapeutics, Quebec City, Canada – 29 July 2008; *ET_B receptor agonist, IRL-1620, increases cerebral blood perfusion in rats*; **Leonard, M.G.**, Gulati, A.
 32. IXth World Conference on Clinical Pharmacology and Therapeutics, Quebec City, Canada – 29 July 2008; *Repeated administration of ET_B receptor agonist, IRL-1620, produces tachyphylaxis only to its hypotensive effect*; **Leonard, M.G.**, Gulati, A.

Grants and Research Support

- Advocate Health and Hospitals Corporation
 - Title: Mentor and train pediatric critical care medicine and neonatal-perinatal medicine fellows in scholarly activity
 - Role: Senior Research Associate
 - Duration: 1 Jan. 2018 – 31 Dec. 2019
 - Status: Funded; \$170,000
- James R. & Helen D. Russell Institute for Research & Innovation (with Advocate Health Care)
 - Title: The use of CB2 receptor agonist in neuroprotection after hypoxic ischemic injury in rat pups
 - Role: Key personnel
 - Duration: 25 Apr. 2017 – 25 Apr. 2019
 - Status: Funded; \$24,327
- Advocate Health and Hospitals Corporation
 - Title: Mentor and train pediatric critical care medicine and neonatal-perinatal medicine fellows in scholarly activity
 - Role: Senior Research Associate
 - Duration: 1 Jan. 2017 – 31 Dec. 2017
 - Status: Funded; \$63,036
- James R. & Helen D. Russell Institute for Research & Innovation (with Advocate Health Care)
 - Title: The use of hypothermia and S100b to promote neurogenesis after hypoxic brain injury
 - Role: Key personnel
 - Duration: 25 Apr. 2016 – 25 Apr. 2018
 - Status: Funded; \$23,302
- James R. & Helen D. Russell Institute for Research & Innovation (with Advocate Health Care)
 - Title: Effect of oxycodone exposure on central nervous system protein expression in the neonatal rat brain
 - Role: Key personnel
 - Duration: 25 Apr. 2016 – 25 Apr. 2018
 - Status: Funded; \$16,324
- Advocate Health and Hospitals Corporation
 - Title: Mentor and train pediatric critical care medicine and neonatal-perinatal medicine fellows in scholarly activity
 - Role: Senior Research Associate
 - Duration: 1 Jan. 2016 – 31 Dec. 2016
 - Status: Funded; \$61,200
- James R. & Helen D. Russell Institute for Research & Innovation (with Advocate Health Care)
 - Title: Effect of IRL-1620, an endothelin B agonist, on stroke in a young rat model
 - Role: Key personnel
 - Duration: 1 Dec. 2015 – 1 Dec. 2017
 - Status: Funded; \$11,649
- Midwestern University Chicago College of Pharmacy
 - Title: Influence of aging on the neuroprotective and neuroregenerative efficacy of IRL-1620 following cerebral ischemia
 - Role: Principle Investigator
 - Duration: 14 Oct. 2015 – 30 June 2016
 - Status: Funded; \$4,000

- James R. & Helen D. Russell Institute for Research & Innovation (with Advocate Health Care)
 - Title: The effect of hypothermia and minocycline on brain endothelin receptors, VEGF and NGF of rat pups with post-hypoxic brain injury
 - Role: Key personnel
 - Duration: 27 Apr. 2015 – 27 Apr. 2017
 - Status: Funded; \$22,637.64
- Advocate Health and Hospitals Corporation
 - Title: Mentor, train and assist pediatric critical care medicine and neonatal-perinatal medicine fellows in scholarly activity
 - Role: Senior Research Associate
 - Duration: 1 Jan. 2015 – 31 Dec. 2015
 - Status: Funded; \$89,360
- James R. & Helen D. Russell Institute for Research & Innovation (with Advocate Health Care)
 - Title: Prenatal cannabis exposure: Effect on endothelin B receptors and expression of neuronal and vascular growth factors in the developing postnatal brain of rats
 - Role: Key personnel
 - Duration: 28 Oct. 2014 – 28 Oct. 2016
 - Status: Funded; \$15,000
- Tian Medical, Inc.
 - Title: Regulation of blood brain barrier by sphenopalatine ganglion
 - Role: Senior Research Associate
 - Duration: 3 Feb. 2014 – 2 Feb. 2016
 - Status: Funded; \$75,926
- Advocate Health and Hospitals Corporation
 - Title: Mentor, train and assist pediatric critical care medicine and neonatal-perinatal medicine fellows in scholarly activity
 - Role: Senior Research Associate
 - Duration: 1 Jan. 2014 – 31 Dec. 2014
 - Status: Funded; \$59,360
- Advocate Health and Hospitals Corporation
 - Title: Mentor, train and assist pediatric critical care medicine and neonatal-perinatal medicine fellows in scholarly activity
 - Role: Research Associate
 - Duration: 1 Jan. 2013 – 31 Dec. 2013
 - Status: Funded; \$81,000
- Sangart, Inc.
 - Title: MP4OX in cerebral ischemia
 - Role: Research Associate
 - Duration: 11 Mar. 2013 – 10 Mar. 2015
 - Status: Funded; \$5,000
- Alzheimer's Drug Discovery Foundation
 - Title: Nanocarrier formulation of ETB receptor agonist, IRL-1620, for the treatment of Alzheimer's Disease
 - Role: Research Associate
 - Duration: 1 June 2012 – 31 July 2014
 - Status: Funded; \$96,694
- Novo Nordisk, Inc.
 - Title: Effect of liraglutide on oxidative stress and apoptosis in the brain of rats with focal cerebral ischemia
 - Role: Research Associate

- Duration: 1 May 2012 until completion
 - Status: Funded; \$53,191
- Advocate Health and Hospitals Corporation
 - Title: Mentor, train and assist pediatric critical care medicine and neonatal-perinatal medicine fellows in scholarly activity
 - Role: Research Associate
 - Duration: 1 Jan. 2012 – 31 Dec. 2012
 - Status: Funded; \$54,000
- Novo Nordisk, Inc.
 - Title: Effect of liraglutide on permanent middle cerebral artery occlusion stroke model in normal and diabetic rats
 - Role: Research Associate
 - Duration: 22 Nov. 2010 until completion
 - Status: Funded; \$46,618

Honors and Awards

- Sept 2013 - 3rd Place Poster Award - AHA 2013 Chicago Research Network Symposium, Maywood, IL
- Sept 2013 - Young Investigator Award – Thirteenth International Conference on Endothelin, Tokyo, Japan
- Sept 2011 - Young Investigator Award – Twelfth International Conference on Endothelin, Cambridge, England
- May 2008 - MBS Program Research Award – Midwestern University, Downers Grove, IL

Professional Memberships

- 2019 – present – AACP American Association of Colleges of Pharmacy member
- 2015 – 2019 - AHA American Heart Association member
- 2014 - 2016 - AAPS American Association of Pharmaceutical Scientists member

Committees

- 2019 – present – College Council (Vice Chair), College of Pharmacy, Roosevelt University
- 2019 – present – Progression & Graduation Committee, College of Pharmacy, Roosevelt University
- 2019 – present – Curriculum Committee, College of Pharmacy, Roosevelt University
- 2019 – present – Institutional Review Board (Alternate), Roosevelt University
- 2019 – present – Planning & Budget Committee, Roosevelt University
- 2015 – 2017 - Research Committee, Midwestern University
- 2014 – 2015 - Staff Development Committee, Midwestern University

Volunteering

- 2015 – present – Reviewer for *Peptides* Elsevier
- 2015 – 2016 - Society for Orphaned Armenian Relief (S.O.A.R.) – Chicago Chapter; Board Member

Other Interests/Hobbies

- Drawing, Travel, Ballroom Dance, Reading, Ingress

