



12/7/2022

CURRICULUM VITAE: Robert E. Gross, MD, PhD

Revised: December 7, 2022

Executive Summary: Robert E. Gross, MD, PhD is Professor of Neurosurgery, holds the MBNA/Bowman Endowed Chair in Neurosurgery, and is Vice-Chairman of the Department of Neurosurgery at Emory University, where he has been on the faculty since 2001. He has a co-appointment in Neurology and is program faculty appointments in the Coulter Department of Biomedical Engineering at Emory and Georgia Tech, and the Neuroscience Program of the Graduate Division of Biological and Biomedical Sciences at Emory University. Administrative positions currently held include Director of the Translational Neuroengineering Laboratory, Director of the Emory MD/PhD program, Director of the Emory Neuromodulation and Technology Innovation Center (ENTICE), Director of the Stereotactic, Functional and Epilepsy Surgery division of the Department of Neurosurgery, Director of the Neurosurgery Clinical Research Unit. He previously served President of the American Society for Stereotactic and Functional Neurosurgery and Section Editor of Neurosurgery (journal). He has published more than 270 articles, reviews, comments and book chapters with a H-index of 59, I10-index of 101, having been cited 15,660 times, and has co-edited 2 textbooks. Dr. Gross has current funding of over \$5M from federal sources and foundations (and has been continuously funded from the NIH since 2004) and has received >\$1.5M from industry for clinical trials over the last 5 year. He has or is supervising the doctoral research of 13 PhD students as well as 22 post-residency neurosurgery fellows, 13 post-doctoral research fellows, many neurosurgery and neurology residents, medical students, university students and high school students, not including the 95 MD/PhD students he supervises as Director of the MD/PhD program at Emory. In addition, he is a frequent invited lecturer and course director/co-director. This track record of success reflects his passion for the intersection of clinical neurosurgery and research (translational and clinical), as well as teaching, mentorship, and innovation (reflected in holding 3 US patents).

1. **Name:** Robert E. Gross, MD, PhD
2. **Office Address:** 1365-B Clifton Road, NE
Suite 6200
Atlanta, GA 30322
404/778-3752
3. **E-mail Address:** rgross@emory.edu
4. **Citizenship:** United States
5. **Current Titles and Affiliations:**

Academic

Professor of Neurosurgery (09/2013-present)
Emory University School of Medicine

MBNA/Bowman Endowed Chair in Neurosurgery (2014-present)

Vice Chairman, Department of Neurosurgery
Emory University School of Medicine (3/2021 – present)

Vice Chairman for Research, Department of Neurosurgery
Emory University School of Medicine (2017-2021)

Associate Professor of Neurology
Emory University School of Medicine (09/2008-present)

Program Faculty, Department of Biomedical Engineering
Georgia Institute of Technology (12/2009-present)

Robert E. Gross, M.D., Ph.D.

Faculty, Program in Neuroscience
Graduate Division of Biological and Biomedical Sciences
Emory University Laney Graduate School (01/2007 – present)

Faculty, Center for Neurodegenerative Disease
Emory University School of Medicine (09/2001 – present)

Directorships

Director, Functional, Stereotactic & Epilepsy Surgery Division
Department of Neurosurgery
The Emory Clinic/Emory University School of Medicine (09/2001-present)

Director and Co-Founder, Emory Neuromodulation and Technology Innovation Center Woodruff
Health Science Center, Emory University (02/2013 – present)

Director, Translational Neuroengineering Laboratory
Departments of Neurosurgery and Biomedical Engineering
Emory University School of Medicine/Georgia Institute of Technology (09/2001 – present)

Director and Founder, Neurosurgery Clinical Research Unit, Department of
Neurosurgery, The Emory Clinic/Emory University School of Medicine (2006 –
present)

Director, MD/PhD Program, Emory University School of Medicine (1/2015-present)

Associate Residency Program Director, Department of Neurosurgery
Emory University School of Medicine (2014-3/2021)

Officers

Past President, American Society for Stereotactic and Functional Neurosurgery (2020 –
2022)

President, American Society for Stereotactic and Functional Neurosurgery (2018 – 2020)

Vice-President, American Society for Stereotactic and Functional Neurosurgery (2016 –
2018)

Secretary/Treasurer, American Society for Stereotactic and Functional Neurosurgery (2014
– 2016)

Hospitals

Attending Neurosurgeon, Emory University Hospital, Atlanta, GA (09/2001-present)

Attending Neurosurgeon, Emory University Midtown Hospital, Atlanta, GA (09/2001-present)

Attending Neurosurgeon, Children's Healthcare of Atlanta, Atlanta, GA (09/2001-present)

Attending Neurosurgeon, Grady Memorial Hospital, Atlanta, GA (09/2001-present)

6. Previous Academic and Professional Appointments:

Kings County Hospital Center, Brooklyn, NY
Attending Neurosurgeon (Locum Tenens), 7/1/11 – 7/9/11

Kalispell Regional Medical Center, Kalispell, MT
Attending Neurosurgeon (Locum Tenens), 12/20/2010 – 12/27/2010

St. Vincent Healthcare, Billings, MT
Attending Neurosurgeon (in Locum Tenens), 06/16/14 – 2015

Benefis Health System, Great Falls, MT
Attending Neurosurgeon (in Locum Tenens), 12/26/11 – 2015

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Phoebe Putney Memorial Hospital, Albany, GA
Attending Neurosurgeon (in Locum Tenens), 09/2010 – 2015

Associate Professor of Neurosurgery
Emory University School of Medicine 09/2008-08/2013

Assistant Professor of Neurosurgery and Neurology
Emory University School of Medicine 09/2001-08/2008

Assistant Professor of Neurosurgery
University of Utah School of Medicine, Salt Lake City, UT 09/1998-08/2001

7. Licensures/Boards:

Georgia Medical License #050173, Issued 2001, current
New York Medical License #188904, Issued 1992; Reinstated 6/17/2011, exp. 5/31/2013
Montana Medical License #, Issued 2011, expired.
Ontario Medical License #70816, Issued 1996; expired.
State of Utah Medical License #360298-1205, Issued 1998, expired.

8. Specialty Boards:

American Board of Neurological Surgery, 11/27/02, Certification # 22065; Maintenance of Certification completed, 2012

9. Education:

09/1977 – 06/1981	Bachelor of Science, Neural Science (with honors) Brown University, Providence, Rhode Island
09/1982 – 06/1990	Master of Science, Department of Molecular Pharmacology Sue Golding Graduate Division of Biomedical Science Albert Einstein College of Medicine, Bronx, New York
09/1982 – 06/1990	Doctor of Philosophy, Department of Molecular Pharmacology Sue Golding Graduate Division of Biomedical Science Albert Einstein College of Medicine, Bronx, New York
09/1982 – 06/1990	Doctor of Medicine Albert Einstein College of Medicine, Bronx, New York

10. Postgraduate Training:

07/1990-06/1991	Internship in General Surgery, Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, New York
07/1991-06/1996	Residency in Neurological Surgery, Albert Einstein College of Medicine/Montefiore Medical Center, Bronx, New York
07/1996-06/1998	Fellow in Functional and Stereotactic Neurosurgery, University of Toronto and The Toronto Hospital, Toronto, Ontario, Canada, Supervisors: Andres M. Lozano, MD, PhD and Ronald R. Tasker, MD
06/1997-07/1998	Visiting Fellow in Epilepsy Surgery, Yale University and Yale/New Haven Hospital, New Haven, Connecticut, and Supervisor: Dennis D. Spencer, MD

11. Committee Memberships:

National and International:

2003-2006 *American Society for Stereotactic and Functional Neurosurgery*–

- Board of Directors
- 2003-2006 Committee for establishing consensus guidelines on Deep Brain Stimulation (jointly sponsored by *Movement Disorders Society* and *American Society for Stereotactic and Functional Neurosurgery*)
- 2002-2014 *Congress of Neurological Surgeons*: Ad Hoc Committee on Deep Brain Stimulation
- 2003-2014 *American Epilepsy Society* – Surgical Committee
- 2004-2007 *International Brain Research Organization* - Clinical/Basic Science Link Committee
- 2005-2011 *Movement Disorders Society* – Neurosurgery Liason Committee
- 2006-2008 *American Epilepsy Society* – Scientific Program Committee
- 2007-2010 *Parkinson's Study Group* – Functional Neurosurgery Working Group
- 2008-2009 *Congress of Neurological Surgeons* Research Committee
- 2009-2013 *Movement Disorder Society* – Awards Committee
- 2009-2010 *National Institutes of Neurological Disorders and Stroke* Epilepsy Common Data Elements project – Surgery and Pathology subgroup
- 2009-2010 *National Institutes of Neurological Disorders and Stroke* Parkinson's Disease (PD) Common Data Element (CDE) project – Functional Neurosurgery subgroup
- 2010-2014 *American Society for Stereotactic and Functional Neurosurgery* – Board of Directors (Education committee (Chair); Socioeconomic committee)
- 2011-2015 *American Epilepsy Society*, Treatments Committee, Surgery Workgroup (Chair)
- 2011-2014 Workgroup for Matrix curriculum development for Functional Neurosurgery and Pain (through *American Society for Stereotactic and Functional Neurosurgery*, *Society of Neurological Surgeons*, *American Board of Neurological Surgery*) (Chair)
- 2014-2019 Fellowship Review Committee (Society for Neurological Surgeons), Chair
- 2016-present Research Committee, American Academy of Neurological Surgeons

Institutional:

- 2005-2010 Comprehensive Neuroscience Center, Movement Disorders Committee
- 2007-2010 Institutional Review Board, Committee B-3
- 2006-2011 Parkinson's Disease Center Research Committee
- 2006-present Neurosurgery Clinical Research Board, Department of Neurosurgery (Founder, Chair)
- 2008-2012 MD, PhD Admissions Committee (Emory)
- 2010-present Morris K. Udall Parkinson's Research Center, Executive committee
- 2011-2015 Children's Center for Neuroscience Research, Children's Healthcare of Atlanta and Emory University School of Medicine/Department of Pediatrics, Leadership Team
- 2013 Grady Memorial Hospital, Search committee for Director of Neurosurgery (Michael Frankel, Chair)
- 2012-present Clinical Competency Committee (Chair), Department of Neurosurgery
- 2013-present Program Evaluation Committee (Chair), Department of Neurosurgery
- 2013-present Emory Brain Health Center, Executive Committee
- 2014-2015 Patient Identification Committee, Emory University Hospital
- 2014-present Epilepsy Planning Committee
- 2014-present Emory Bridge-Catalyst Program Committee
- 2016-present Epilepsy Program Director Search Committee
- 2017-present Research Advisory Committee, Woodruff Health Science Center
- 2017-2018 Anesthesiology Chairman Search Committee
- 2018-2019 Emory Synergy Award review committee
- 2018-present Faculty Mentoring Committee, Emory/Georgia Tech Dept. of Biomedical Engineering

Industry:

- 2004-2011 Bayer Schering Pharma, Inc., Study Steering Committee for clinical trial of

- “Safety, tolerability, and efficacy of Spheramine implanted bilaterally into the postcommissural putamen of patients with advanced Parkinson’s Disease”.
- 2008-present Medtronic, Inc. Member of the Stimulation of the Anterior Nucleus of the Thalamus for Epilepsy (SANTE) publication committee.
- 2012-present Neuropace, Inc. Surgical committee to guide training and quality control for implantation of the Responsive Neurostimulation System.
- 2013-2015 Visualase, Inc. Committee to plan prospective trial of stereotactic laser ablation for the treatment of drug-resistant mesial temporal lobe epilepsy.
- 2017-present Medtronic, Inc. Stereotactic Laser Ablation for Temporal Lobe Epilepsy (SLATE) publication committee
- 2016-2018 SanBio, Inc., SB-STRO2 and TBI-01 Clinical Trials Surgical Advisory committee

12. Consulting:

- 1999 Medtronic Neurological, Inc., Minneapolis, MN, DBS-Epilepsy Working Group
- 1999-2001 Sofamor Danek, Inc., Broomfield, CO, Beta-tester for Framelink Stealth Station software.
- 1999-2001 Cognetix, Inc., Salt Lake City, UT, Clinical Safety Monitor: A phase I randomized, double blind, placebo-controlled study to investigate the safety, tolerance and pharmacokinetics of single, escalating intravenous doses of CGX-1007 (Conantokin-G) injection in healthy male and female volunteers.
- 1999-2001 Cognetix, Inc., Salt Lake City, UT, Clinical Safety Monitor: A phase IIA open label dose escalation study to investigate the safety and tolerability of the intrathecal administration of CGX-1007 injection via an implanted SynchroMed® Infusion System for the management of epilepsy.
- 2004-2006 BioNeuronics, Inc., Seattle, WA. Clinical Advisor and Co-founder.
- 2002-2011 Bayer Schering Pharma, Inc., Study Steering Committee for clinical trial of “Safety, tolerability, and efficacy of Spheramine implanted bilaterally into the postcommissural putamen of patients with advanced Parkinson’s Disease”.
- 2005-2016 St. Jude’s Medical Corporation (Advanced Neuromodulation Systems), Plano, TX.
• Data Safety Monitoring Board (Chair) for: C-04-02: Clinical Evaluation of the ANS Totally Implantable Deep Brain Stimulation System for the suppression of tremor in the upper extremities of patients with essential tremor.
• Data Safety Monitoring Board (Chair) for: C-04-01: A Clinical Evaluation of bilateral stimulation of the subthalamic nucleus (STN) using the ANS Totally Implantable Deep Brain Stimulation as an adjunctive treatment for reducing some of the symptoms of advanced, levodopa-responsive Parkinson’s disease that are not adequately controlled with medication.
- 2005-2007 Medrad Inc., Ohio. Neurosurgery Advisory Board for development of system for injection of cell therapy (subsidiary of Bayer Healthcare)
- 2005 AnGes, Inc., Intraatrial injection of HGF plasmid DNA for Parkinson’s Disease
- 2007 Medtronic, Inc., Minneapolis, MN. Edited text material for training of Medtronic staff on deep brain stimulation procedures.
- 2007-2012 Boston Scientific Corporation (Advanced Bionics Corp.), Boston, MA. Clinical advisor on development of a clinical trial protocol to evaluate deep brain stimulation equipment.
- 2008-2016 St. Jude’s Medical Corporation (Advanced Neuromodulation Systems), Plano, TX.
• Data Safety Monitoring Board for multicenter clinical trial of deep brain stimulation for major depressive disorder.
- 2008-2015 GeneGrafts, Inc. Consultant regarding design of clinical trials of implantable cells.
- 2012-2014 Medtronic/Lilly, Inc. Consultant on preclinical development for novel growth factor therapy for Parkinson’s disease.
- 2012-2014 Visualase, Inc. Consultant for instruction of new users by running ½ day cadaver courses at St. Joseph’s Translational Research Institute.
- 2012-2015 Deep Brain Innovations, Inc. Consultant for developing clinical application of new

- approaches to deep brain stimulation using altered patterns of stimulation.
- 2013-2015 Neuropace, Inc. Consultant on preparation and presentation at Neurological Devices Panel of the FDA Medical Devices Advisory Committee Meeting (Feb 22, 2013); Serve on surgical advisory committee.
- 2013-2018 National Football League, Unaffiliated Neurotrauma Consultant. Evaluate NFL players on sidelines during games with possible concussions.
- 2013-2015 Translational Testing and Training (T3) Labs, Advisory Board (unpaid).
- 2013-2015 Duke University/International Stem Cell Organization, Key Opinion Leader committee. Advice on developing stem cells for potential clinical trials.
- 2013-2016 Neurastem, Inc. Data Safety Monitoring Board (Chair) for stem cell trial for spinal cord injury.
- 2015-2018 SanBio, Inc. Consulted on design and surgical protocol for randomized double blind trials of mesenchymal stromal cells for stroke and traumatic brain injury
- 2014-present Medtronic, Inc. Consulting for educational activities for laser interstitial thermal therapy (LITT) using the Visualase system.
- 2014-present Medtronic, Inc. Consulting for design of prospective PMA clinical trial of Visualase laser interstitial thermal therapy for advisement on Neuroblate laser interstitial thermal therapy system.
- 2016-2017 Monteris, Inc. Consultant on use and development of laser interstitial thermal therapy.
- 2017-present Zimmer Biomet, Inc. Consultant for educational activities related to stereotactic robotic system.
- 2018-present Boston Scientific Corp., Inc. Consulting on DBS.
- 2018-present Voyager Therapeutics, Inc. Consultant for design of trial of gene therapy for Huntington's disease
- 2018-present St. Jude Medical/Abbott Lab. Consultant on movement disorders DBS and DBS for depression, including FDA activities
- 2018-present Nia Therapeutics, Inc. Scientific advisory committee on design of device and clinical trial for memory restoration
- 2019-present AiM Medical Robotics, Inc. Medical advisory board.
- 2021-2022 CODA Therapeutics, Chemogenetic gene therapy for epilepsy.
- 2021-present NeuroOne, Consultant on radiofrequency ablation electrodes/equipment
- 2021-present Aspen Neuroscience. Consultant for design of human iPS cell trials for Parkinson's disease
- 2022-present Bluerock Therapeutics, Medical advisory board. Cell and gene therapy for Parkinson's disease.
- 2022-present Bayer AG, Medical Advisory board. Cell and gene therapy for Parkinson's disease.

13. Editorial Boards:

- 2006-present *Stereotactic and Functional Neurosurgery*, Associate Editor
- 2009-2014 *Neurosurgery*, Associate Editor, Functional and Stereotactic Surgery
- 2009-2016 *World Neurosurgery*, Global Associate Panel
- 2012-present *PLoS*, Academic Editor
- 2014-2022 *Neurosurgery*, Section Editor, Stereotactic and Functional Neurosurgery
- 2014-2016 *Neuromodulation*, Section Editor, Brain
- 2015-2022 *Frontiers in Surgery*, Associate Editor

14. Manuscript Reviewer:

- 1999-present Movement Disorders
- 1999-present Journal of Neurosurgery
- 2004-present Parkinsonism and Related Disorders
- 2006-present Clinical Neurology and Neurosurgery
- 2006-present Stereotactic and Functional Neurosurgery

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2007-present European Journal of Neurology
2007-present Neurosurgery
2007-present Recent Patents on CNS Drug Discovery
2007-2008 Expert Reviews in Therapeutics
2007-present Clinical Neurophysiology
2007-present Biologics: Targets and Therapy
2007-present Neurotherapeutics
2008-present Neuroscience
2009-present International Journal of Neural Systems
2009-present Brain
2009-present Neurobiology of Disease
2009-present Experimental Neurology
2009-present Molecular Pharmacology
2009-present World Neurosurgery
2010-present Annals of Biomedical Engineering
2010-present European Journal of Neuroscience
2010-present Seizure
2010-present PLoS One
2011-present Neuromodulation
2011-present Epilepsia
2011-present Lancet Neurology
2012-present Neurology
2013-present Brain Stimulation
2013-present JAMA Neurology
2013-present Frontiers in Neural Circuits
2014-present Journal of Neural Engineering
2017-present Scientific Reports
2017-present Epilepsy and Behavior
2017-present Epilepsy Research

15. Grant Review

2010	<i>Emory University Collaborative Center for Parkinson's Disease</i> Environmental Research, Pilot Grant Projects
2011	<i>Atlanta Clinical and Translational Research Institute</i> , Innovative Research Seed Grants in Regenerative Medicine
2011	Children's Center for Neuroscience Research, <i>Children's Healthcare of Atlanta and Emory University School of Medicine</i> , Pilot Grant Award
2012-2018	<i>National Institutes of Health: Bioengineering, Technology, and Surgical Sciences (BTSS)</i> , Surgical Sciences, Biomedical Imaging and Bioengineering IRG, external reviewer
2014-2018	<i>National Institutes of Health: Bioengineering, Technology, and Surgical Sciences (BTSS)</i> , Surgical Sciences, Biomedical Imaging and Bioengineering IRG study section member Surgical Sciences, Biomedical Imaging and Bioengineering IRG, Reviewer
2014	<i>Brain Canada</i> , Brain Canada Multi-Investigator Research Initiative Review Committee

16. Honors and Awards:

1981	Sigma Xi Research Society
1981	Honors in Neural Sciences, Brown University, Providence, RI
1982	Medical Scientist Training Program Scholarship, NIH/NIGMS (5T32GM07288-15)
1995	The Elsberg Award for Excellence in Resident Research, New York Society for Neurosurgery, New York, NY
1996	The Leo M. Davidoff Society Certificate of Distinction, Albert Einstein College of

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- Medicine, Bronx, NY
- 1996 Botterell Fellowship in Neurosurgery, The Toronto Hospital and University of Toronto, Toronto, Ontario, Canada
- 1999 Young Clinician Investigator Award, Neurosurgery Research and Education Foundation of the American Association of Neurological Surgeons
- 2000 Charles Elsberg Fellowship in Neurosurgical Research, New York Academy of Medicine
- 2000 Young Investigator Award, Michael J. Fox Foundation
- 2000 Travel Fellowship, Winter Conference on Brain Research
- 2020 Hojjat Adeli Award for Outstanding Contributions in Neural Systems; \$5000; for most innovative paper published in previous volume/year in International Journal of Neural Systems
- 2022 Excellence in Neuroscience Memorial Award, American Society for Neural Therapy & Repair
- 2022 Medical Student Teaching Award, Society for Neurological Surgeons

17. Society Memberships:

- 1999-present Congress of Neurological Surgeons
- 1993-present Society for Neuroscience
- 1998-present American Medical Association
- 1998-present American Association of Neurological Surgeons
- 1998-present Utah Neurosurgical Society
- 1998-present American Society for Stereotactic and Functional Neurosurgery
(Executive Council, 2004 – 2007)
- 1999-present Utah Medical Association
- 1999-2001 Salt Lake County Medical Society
- 1999-present American Epilepsy Society
- 1999-present Movement Disorders Society
- 1999-present American Society for Neural Transplantation and Repair (Elected Fellow, 2007)
- 2003-present Georgia Neurosurgical Society
- 2008-present Parkinson's Study Group (Functional Neurosurgery Committee)
- 2014-present Biomedical Engineering Society
- 2014-present American Academy of Neurological Surgeons (Elected Fellow)

18. Organization of National or International Conferences:

Sessions as Chair:

- Organizer and Chair of Symposium, "Mechanism of Action of Deep Brain Stimulation, Society for Neuroscience Annual Meeting, Orlando, 2002
- Organizer and Chair of Session, "Neural Transplantation", Cell Transplant Society Annual Meeting of, Atlanta, 2005
- Organizer and Chair, Plenary Session, "Surgical Controversies in Mesial Temporal Lobe Epilepsy", American Epilepsy Society Annual Meeting, Seattle, WA, 2008
- Organizer and Chair, "The Spectrum of Stereotactic and Functional Neurosurgery for Residents and Fellows", American Society for Stereotactic and Functional Neurosurgery Biennial Meeting, San Francisco, CA, June, 2012
- Organizer and Director, "Stereotactic and Functional Neurosurgery Hands On Workshop", Emory University and St. Joseph's Translational Research Institute, Atlanta, GA, November 15-17, 2013
- Organizer and Director, "Stereotactic and Functional Neurosurgery 2nd Annual Hands On Workshop", Emory University and Translational Testing and Teaching Labs, Atlanta, GA,

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November 7-9, 2014

The Center for Surgical Innovation, University of Colorado, Aurora, CO, November 13-15, 2015

Co-director, "Stereotactic and Functional Neurosurgery 3rd Annual Hands on Workshop", The Center for Surgical Innovation, University of Colorado, Aurora, CO, November 3-5, 2016

Co-director, Stereotactic and Functional Neurosurgery 3rd Annual Hands on Workshop", The Center for Surgical Innovation, University of Colorado, Aurora, CO, November 10-12, 2017

19. Research Focus:

(1) Cellular and Gene Therapy for Parkinson's Disease

Elucidation of the role of axon guidance molecules in the development and reconstruction of the nigrostriatal pathway, which degenerates in Parkinson's Disease, and development of gene therapy approaches to improve axon outgrowth for reconstruction. This approach, which encompasses molecular and cellular engineering in combination with neurotransplantation, may be generally useful in reconstructive approaches for many types of nervous system degeneration and injury, including spinal cord injury and stroke. My lab has also recently been developing gene therapy for PD based on countering the protein misfolding response. We have also been applying neuromodulation techniques using bioluminescent-coupled optogenetics (luminopsins) in PD models.

(2) Electrical and Optogenetic Neuromodulation and Closed-Loop Feedback of the Brain for Epilepsy

Development of novel strategies for the treatment of intractable focal epilepsy through the use of microelectrode recording techniques using closed-loop, adaptive algorithms to drive multielectrode microstimulation of brain nuclei involved in seizure modulation. Extension to optogenetic techniques for neuromodulation for epilepsy. Use in non-human primate model of epilepsy. Development of bioluminescent-coupled optogenetics (luminopsins) for epilepsy. Two-photon microscopy of genetically-encoded calcium indicators (GECIs) in acute and chronic epilepsy models to identify novel targets for therapy.

20. Grant Support:

A. Active Support

I. Federally Funded:

Role: PI

Source: NIH (NINDS)

Award Type: R21NS112948

Title: Seizure Engram

Amount: \$429,000

Years: 05/15/2020-10/31/2023

Major Goals: This proposal aims to elucidate neuronal networks within the rodent brain that are involved in generation of epileptic seizures by combining sophisticated genetic tools.

Role: Co-investigator (PI: Daniel Drane, PhD)

Source: NIH (NINDS)

Award Type: R01NS088748

Title: Dissecting the Cognitive Roles of Hippocampus and Other Temporal Lobe Structures in Patients Undergoing Epilepsy Surgery

Amount: \$2,193,400 (total)

Years: 07/01/2020-04/30/2025

Major Goals: We will use advanced neuroimaging techniques to guide surgical practice (i.e., extent and location of ablation/resection) and outcome prediction at the level of the individual patient, while improving our knowledge of the neural circuits underlying cognition.

Role: Co-investigator (PI: Leo Bonilha, MD/PhD)
Source: NIH (NINDS)
Award Type: R01NS110347
Title: Predicting Epilepsy Surgery Outcomes Using Neural Network Architecture
Amount: \$820,675
Years: 06/15/2022-05/31/2024

Major Goals: This project will use individualized mapping of white matter neural networks to better understand the pathophysiology of epilepsy, identify reasons for treatment success, and guide strategies to improve surgical treatment.

Role: PI
Source: NIH (NINDS)
Award Type: R21NS130378
Title: Data-driven optimization for DBS programming in temporal lobe epilepsy
Amount: \$380,724 (total)
Years: 09/01/2022-08/31/2024
Major Goals: To develop a novel machine learning approach for automatically learning the best stimulation setting for each individual patient and validate in an animal model of temporal lobe epilepsy.

Role: PI
Source: NIH (NINDS)
Award Type: R21NS13207
Title: Development and validation of a viral vector for targeted inhibition of DG granule cells
Amount: \$430,375 (total)
Years: 04/01/2023-03/31/2025 (pending; 3% score)
Major Goals: Develop a viral vector to specifically deliver a gene therapy to inhibit the hippocampal granule cells in wild type mice with the goal of developing a novel and translatable gene therapy to stop seizures in patients with drug resistant temporal lobe epilepsy.

Role: PI
Source: NIH (NIGMS)
Award Type: T32 GM142617
Title: Medical Scientist Training Program
Amount: \$1,425,904
Years: 07/01/2022-06/30/2027

Role: PI
Source: Department of Defense
Award Type: DOD PD190093
Title: Role of neuronal activity of dopaminergic neurons in the substantia nigra in neuroprotection during physical exercise.
Amount: \$998,673 (direct)
Years: 09/01/2019-08/31/2023

II. Private Foundation Funded:

Role: PI
Source: Mirowski Foundation
Title: Characterizing the seizure engram

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Award Type: Foundation
Amount: \$500,000
Years: 2018-2023

III. Intramural Funded:

IV. Subawards:

Role: Subcontract PI
Source: NIH/NINDS
Award Type: U01NS113198
Title: Using direct brain stimulation to study cognitive electrophysiology
Amount: \$704,186
Years: 9/15/19 – 6/30/24
Primary: University of Pennsylvania (PI: Michael Kahana, PhD)

Role: Subcontract co-investigator (Site PI: Patricio Riva Posse, MD)
Source: NIH/NIMH
Award Type: Subaward 0255-A446-4609
Title: Electrophysiological Biomarkers to Optimize DBS for Depression
Amount: \$1,417,659
Years: 1/01/2018-12/31/2022
Major Goals: The goal of this project is to refine and optimize deep brain stimulation (DBS) of the subcallosal cingulate white matter for patients with treatment resistant depression.
Primary: Mt. Sinai School of Medicine (PI: Helen Mayberg, MD)

Role: Subcontract PI
Source: NIH/NIMH
Award Type: R01MH104606
Title: The role of place and grid cells in human spatial navigation and memory
Amount: \$130,000 subaward
Years: 9/15/2020-7/31/2025
Major Goals: The proposed research will elucidate the patterns of single-neuron and population brain activity that underlie both human navigation and memory for spatial and non-spatial information.
Primary: Columbia University New York (PI: Josh Jacobs, PhD)

Role: Subcontract co-investigator (Site PI: Daniel Drane, PhD)
Source: NIH/NINDS
Award Type: R01NS124585
Title: Multimodal imaging of memory reorganization in epilepsy from whole brain networks to local neuronal responses
Amount: \$864,159/\$307,422 subaward (total)
Years: 12/15/2021-11/30/2025
Major Goals: This project will investigate how advanced, multimodal neuroimaging can be used to evaluate memory reorganization in patients with epilepsy and to estimate personalized risk for memory decline following different surgical approaches.
Primary: University of California San Diego (PI: Carrie McDonald, PhD)

V. Industry sponsored:

Role: Site PI
Source: Voyager Therapeutics
Award Type: Sponsored trial PD-1102

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Title: PD-1102: An Open-label Safety and Efficacy Study of AAV2-hAADC Administered by MRI
Amount: \$397,409 (total)
Years: 02/27/2017-02/26/2027
Major Goals: Clinical trial of gene therapy for Parkinson's disease

Role: Site Co-investigator (Site PI: S. Factor, MD, Neurology)
Source: Voyager Therapeutics
Award Type: Sponsored trial PD-1105
Title: VY-AADC02: A Randomized, Placebo Surgery Controlled, Double-blinded, Multi-center, Phase 2 Clinical Trial, Evaluating the Efficacy and Safety of VY-AADC02 in Advanced Parkinson's Disease with Motor Fluctuations
Amount: \$642,987
Years: 11/16/2018-11/15/2028
Major Goals: Phase 2 clinical trial

Role: Site PI
Source: Voyager Therapeutics
Award type: Sponsored trial
Title: Open-label safety and efficacy study of AAV2-hAADC administered by MRI - Guided Convective Infusion using a Posterior Trajectory into the Putamen of Participants with Parkinson's Disease with Fluctuating Responses to Levodopa
Amount: \$34,480
Years: 2/27/17-2/26/27

Role: Site PI
Source: Boston Scientific, Inc.
Award type: Sponsored trial
Title: INTREPID: Implantable neurostimulator for the treatment of Parkinson's disease
Amount: \$135,573
Years: 6/12/14 - present

Role: Site PI
Source: Neuropace, Inc. Award
Type: Sponsored trial
Title: Responsive neurostimulator to treat intractable epilepsy: long-term outcome
Amount: \$326,000
Years: 2011 – present

Role: Co-investigator (PI: Charles Epstein, MD)
Source: Medtronic Neurological
Type: Sponsored trial
Title: Stimulation of the anterior nucleus for epilepsy (SANTE)
Period: 2004 – present

Role: PI
Source: Medtronic, Inc.
Award Type: Fellowship
Title: Stereotactic and Functional Neurosurgery Fellowship
Amount: \$25,000
Years: 7/1/22 – 6/30/23

Role: PI
Source: Boston Scientific
Award Type: Fellowship

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Title: Stereotactic and Functional Neurosurgery Fellowship
Amount: \$15,000
Years: 7/1/22 – 6/30/23

Role: PI
Source: Abbott Laboratories
Award Type: Fellowship
Title: Stereotactic and Functional Neurosurgery Fellowship
Amount: \$15,000
Years: 7/1/22 – 6/30/23

B. Completed Support

I. Federally funded

Role: PI (Multi-PI mechanism); Wei, L (PI); Shan, Y (PI)
Source: National Institutes of Health (NINDS)
Award Type: R01 NS085568
Title: Application of optogenetics in iPS cell transplantation therapy for ischemic stroke
Amount: \$1,375,000 (direct)
Years: 10/1/14 – 9/30/19

Role: Co-investigator (PI: Ling Wei, PhD)
Award Type: R21 NS075338
Title: Promoting axonal growth and tissue repair in stem cell therapy after stroke
Source: National institute of Health
Amount: \$275,000
Years: 07/01/2011-06/30/2013

Role: Co-Investigator; Drane, D (PI)
Source: National Institutes of Health (NINDS)
Award Type: R01 NS088748-05
Title: Cognitive Roles of Hippocampus, Other Temporal Lobe Structures
Amount: \$473,375
Years: 07/01/2014-04/30/2019

Role: Co-Investigator; Mayberg, H (PI)
Source: National Institutes of Health (NIMH)
Award Type: 5UH3NS104550
Title: Electrophysiological Biomarkers to Optimize DBS for Depression
Amount: \$1,427,385
Years: 07/01/2017-06/30/2022

Role: Co-Investigator; Riva Posse (PI)
Source: Mt. Sinai School of Medicine
Award Type: Subcontract
Amount: \$494,229
Years: 1/1/2018 – 12/31/2019

Role: Subcontract PI (PI: Joshua Jacobs, PhD, Columbia University)
Source: National Institutes of Health (NINDS)
Award Type: R01MH104606-01A1
Title: The Role of place and grid cells in human spatial navigation and memory
Amount: \$169,767

Robert E. Gross, M.D., Ph.D.

Years: 2016 – 2021 Role: PI
Source: National Institutes of Health (NINDS)
Award Type: R21 NS112740-01 (Gross)
Title: Development of a self-regulated neuroprotective gene therapy for Parkinson's Disease and other synucleinopathies
Amount: \$275,000
Years: 07/01/2019-06/30/2021

Role: Co-Investigator; Berglund, K (PI)
Source: National Science Foundation
Award Type: NSF-CBET-1512826
Title: Ontogenetic Control of Neuronal Activity with Activity Dependent Bioluminescence
Amount: \$365,733
Years: 07/15/2015-06/30/2020

Role: PD, PI (Multi-PI); Gutekunst, CA (PI); Devergnas, A (PI); Mahmoudi, B (PI)
Source: National Institutes of Health (NINDS)
Award Type: UG3 NS100559
Title: Asynchronous distributed multielectrode neuromodulation for epilepsy
Amount: \$3,319,434 (direct)
Years: 9/1/16 – 8/31/21

Role: Co-investigator/Site PI
Source: Department of Defense; Subcontract from Univ. of Pennsylvania (Michael Kahana, PhD, Overall PI)
Award Type: DARPA-BAA-14-08 Broad Agency Announcement Restore Active Memory (RAM)
Title: Memory Enhancement with Modeling, Electrophysiology, and Stimulation (MEMES)
Amount: \$664,929 (Emory site)
Years: 2014 – 2018

Role: PI
Source: National Institutes of Health (NIGMS)
Award Type: T32 GM008169
Title: Medical Scientist Training Program
Amount: \$1,045,533
Years: 7/1/16 – 6/30/17

Role: PI
Source: National Institutes of Health (NINDS)
Award Type: R03 NS091699
Title: C3 Gene therapy for CNS Axon Regeneration
Amount: \$156,000
Years: 3/1/15 – 2/28/17

Role: Subcontract PI (PI: Steve M. Potter, PhD, Georgia Tech)
Source: National Institutes of Health
Award Type: RO1 NS079757
Title: Optogenetic Population Clamp to Study Long-term Plasticity in Vitro
Amount: \$227,600
Years: 07/01/2012 - 06/30/2017

Role: PI
Source: National Institutes of Health (NINDS)
Award Type: R01 NS079268

Robert E. Gross, M.D., Ph.D.

Title: Autonomous Optogenetic Inhibition of Epileptic Activity Using a Bioluminescent Light Source

Amount: \$1,263,868

Years: 4/1/12 – 3/31/16

Role: Subcontract PI (PI: Warren Grill, PhD, Duke University)

Source: National Institutes of Health

Award Type: R01NS079312

Title: Recording Evoked Potentials for Closed-Loop DBS

Amount: \$68,342

Years: 9/1/12 – 8/31/15

Role: Subcontract PI (PI: Warren M. Grill, PhD, Duke University)

Source: National Institutes of Health

Award Type: R01 NS040894-06A1

Title: Temporal Patterns of Deep Brain Stimulation

Amount: \$57,532

Years: 9/1/15 – 8/31/17

Role: Subcontract PI (PI: Warren M. Grill, PhD, Duke University)

Source: National Institutes of Health/Duke University

Award Type: R01

Title: Influence of temporal patterns of deep brain stimulation

Amount: \$101,795

Years: 1/15/09 – 12/31/14

Role: PI

Source: National Institutes of Health

(NINDS) Award Type: R21 NS054809

Title: Distributed microstimulation for epilepsy

Amount: \$275,000 (Direct costs)

Years: 9/2008 – 8/2010

Role: PI

Source: National Institutes of Health, NINDS

Award Type: K08 NS46322

Title: Axon guidance molecules in nigrostriatal regeneration

Amount: \$772,750 (direct costs)

Years: 6/1/04 – 3/31/09

Role: PI

Source: National Institutes of Health, NIEHS (Emory Collaborative Center for Parkinson's Disease Environmental Research)

Award Type: Research Grant

Title: Role of RhoA GTP'ase Signaling in Mediating Microglial Inactivation by PACAP38

Amount: \$25,000

Years: 8/06-7/07

Role: Co-PI (PI: Wendy J. Lombardi, PhD)

Source: National Institute of Neurological Disorders and Stroke

Title: Cortical activity, cognitive and motor function, and DBS

Award Type: RO1

Amount: \$675,000

Year(s): 2002 - 2004

II. Foundation funded

Role: Co-investigator (PI: Helen Mayberg, MD)

Robert E. Gross, M.D., Ph.D.

Source: Dana Foundation
Title: Deep Brain Stimulation for Treatment Resistant Depression
Award Type: Foundation
Years: 2007- 2019

Role: PI
Source: Michael J. Fox Foundation
Title: Neuroprotection of Dopaminergic Substantia Nigra neurons by Luminopsins
Award Type: Foundation
Amount: \$100,000
Years: 2016- 2017

Role: PI
Source: American Epilepsy Society
Title: Construction and disruption of brain-wide network associated with seizure activity
Award Type: Foundation
Amount: \$20,000
Years: 1/2/17 – 1/1/18

Role: PI
Source: Citizens United for Research in Epilepsy (CURE) Innovator Award
Title: Septohippocampal Stimulation for Seizures and Memory
Award Type: Foundation; Innovator
Amount: \$50,000
Years: 1/1/2011 – 12/31/2011

Role: PI
Source: American Epilepsy Society
Title: Optogenetic Neuromodulation of the Medial Septum to Treat Seizures and Memory
Award Type: Foundation
Amount: \$50,000
Years: 1/1/2011 – 12/31/2011

Role: PI (Co-PI: Steve Potter, PhD, Georgia Tech)
Source: Epilepsy Foundation of America
Title: Closed-looped microstimulation with multielectrode arrays to suppress epileptic seizures
Award Type: Foundation
Amount: \$100,000
Year(s): 7/01/07 – 6/30/08; no cost extension to 6/30/09

Role: PI
Source: American Parkinson's Disease Association
Title: Inhibiting Inhibitors of Nigrostriatal Pathway Regeneration with a Novel Lenti-C3 Transferase Vector

Award Type: Foundation
Amount: \$50,000
Year(s): 9/01/06 – 2/28/08

Role: PI
Source: American Parkinson's Disease Association
Title: Inhibiting Inhibitors of Nigrostriatal Pathway Regeneration with a Novel Lenti-C3 Transferase Vector

Award Type: Foundation
Amount: \$50,000
Year(s): 9/01/05 – 8/30/06

Robert E. Gross, M.D., Ph.D.

Role: PI
Source: American Parkinson's Disease Association
Title: Reconstructing Nigrostriatal Pathway in Parkinson's Disease: Inhibitory Role of Rho GTPases
Award Type: Foundation
Amount: \$35,000
Year(s): 9/01/03 – 8/30/04

Role: Sponsor (PI: Michael W. Woodruff)
Source: Neurosurgery Research and Education Foundation of the AANS
Title: Neural restoration after radiation injury
Award Type: Research
Amount: \$70,000
Year(s): 2001 - 2003

Role: PI
Source: Michael J. Fox Foundation
Title: Axonal Guidance Molecules in Neural Transplantation
Award Type: Young Investigator Grant
Amount: \$25,000
Year(s): 2000 - 2001

Role: PI
Source: New York Academy of Medicine
Title: The Role of Netrins in the Generation and Regeneration of the Nigrostriatal Pathway
Award Type: Charles Elsberg Fellowship in Neurosurgical Research
Amount: \$50,000
Year(s): 2000 - 2001

Role: PI
Source: Research Foundation of the American Association of Neurological Surgeons
Title: The Role of Netrins in the Generation and Regeneration of the Nigrostriatal Pathway
Award Type: New York Neurosurgery Course Young Clinician Investigator Award
Amount: \$40,000
Year(s): 1999 - 2000

III. Intramural funded

Role: PI
Source: University Research Committee
Title: Elucidating the temporal dynamics of activating-transcription-factor-4 in the pathophysiology of Parkinson's disease
Award Type: 00085887
Amount: \$30,000
Years: 7/22/2019-7/21/20

Role: PI
Source: University Research Committee (Emory University)
Title: C3 transferase Gene Therapy for Optic Nerve Injury
Award type: Intramural
Amount: \$35,000
Years: 05/01/2014 – 04/30/2015

Role: PI (Project Co-PIs: Ling Wei, PhD, Robert McKeon, PhD, Nicholas Boulis, PhD,

Robert E. Gross, M.D., Ph.D.

Ravi Bellamkonda, PhD, Claire-Anne Gutekunst, PhD)
Source: Georgia Tech/Emory Center for Live Tissue Engineering and the Atlanta Clinical and Translational Science Institute
Title: C3 Transferase Gene Therapy for Improving Regeneration and Recovery following CNS Injury
Award Type: Intramural
Amount: \$200,000
Years: 10/2009 – 5/2011

Role: Co-investigator (PI: Helen Mayberg, MD)
Source: Stanley Foundation
Title: Deep Brain Stimulation for Treatment Resistant Bipolar Disease
Award Type: Foundation
Amount:
Years: 2007 - 2013

Role: Co-investigator (PI: Helen Mayberg, MD)
Source: Woodruff Foundation
Award Type: Foundation
Title: Deep Brain Stimulation for Treatment Resistant Depression
Amount:
Years: 2007 – 2013

Role: Co-PI (Co-PIs: Steve M. Potter, PhD; Dieter Jaeger, PhD)
Source: Emory Neuroscience Center Initiative
Award Type: Institutional Seed Grant
Title: Optical Neural Stimulation to Control Bursting
Amount: \$40,000
Years: 2009 - 2010

Role: Co-PI (Co-PI: Steve Potter, PhD, Georgia Tech)
Source: Coulter Foundation for Translation Research, GA Tech/Emory Dept of Biomedical Engineering
Award Type: Intramural (foundation)
Title: Multi-electrode Microstimulation To Treat Intractable Seizures in A Rat Model of Focal Epilepsy
Amount: \$300,000
Years: 7/2006 – 6/2007; 7/2007 – 6/2008; 7/2008 – 6/2009

Role: PI
Source: University Research Committee (Emory University)
Title: Closed-loop brain microstimulation in a rat model of focal epilepsy
Award Type: Intramural
Amount: \$35,000
Year(s): 2/01/06 – 1/31/07

Role: Co-investigator (PI: Jerrold Vitek, MD, PhD)
Source: National Institute of Health (NINDS)
Title: Deep Brain Stimulation in the Parkinsonian Monkey
Award Type: R01
Amount: \$995,355 (Total Cost Years 1-5)
Year(s): 7/1/99-6/30/02

Role: Co-investigator (PI: Anna L. Brownell, Harvard)
Source: Department of Energy
Title: Novel in vivo imaging techniques for tracking the behavior of subventricular zone neural stem cells (SVZSC) and SVZSC induced functional repair.
Award Type: Program

Robert E. Gross, M.D., Ph.D.

Amount: \$432,251
Year(s): 9/01/02 – 8/31/03

Role: Co-investigator (PI: Jerrold L. Vitek, MD, PhD)
Source: National Institutes of Health
Title: Deep Brain Stimulation in the Parkinson's Disease
Award Type: R01
Amount: \$4,457,174 (Total Cost Years 1-5)
Year(s): 6/1/99-5/31/04

Role: Co-investigator (PI: Mahlon DeLong, MD)
Source: NIH NINDS
Title: Therapeutic Role of Subthalamic Nucleus Inactivation (Project #3 of Grant # 520030)
Award Type: P50
Amount: \$1,419,440 (Total Cost Years 1-5)
Year(s): 9/30/98-5/31/04
Total Project: \$7,549,830 (Years 1-5)

Role: Co-investigator (PI: Klaus Mewes, PhD)
Source: National Institutes of Health
Title: Advanced Methods for Microelectrode-Guided Neurosurgery
Award Type: R01 NS 40548
Year(s): 9/14/2000-5/31/04

Role: Co-investigator (PI: Jerrold L. Vitek, MD, PhD)
Source: National Institutes of Health, NINDS
Title: STOP-PD: STN or globus pallidus deep brain stimulation for PD
Award Type: R01
Years: 2001 - 2006

Role: Co-investigator (Site PIs: Thomas Henry, MD; Charles Epstein, MD)
Source: National Institutes of Health, NINDS
Title: Early resective surgery in the treatment of epilepsy (ERSET)
Award Type: R01 Clinical trial
Years: 2004 – 2009

IV. Industry-sponsored

Role: Site PI
Source: Sunovion Pharmaceuticals, Inc
Award type: Sponsored clinical trial
Title: A double-blind, controlled phase 2b study of the safety and efficacy of Modified Stem Cells (SB623) in Patients with Chronic Motor Deficit from Ischemic Stroke
Amount: \$206,946
Years: 2/2013-2/2021

Role: Site PI
Source: INC Research
Award type: Sponsored trial
Title: TBI-01: Double-Blind, Controlled Phase 2 Study of the Safety and Efficacy of Modified Stem Cells (SB623) in Patients with Chronic Motor Deficit from Traumatic Brain Injury (TBI)
Amount: \$185,350
Years: 4/18/16 – 4/18/21

Role: PI

Robert E. Gross, M.D., Ph.D.

Source: MRI Interventions, Inc.
Award type: Sponsored research grant
Title: Economic evaluation of laser ablation procedures performed with the Clearpoint system
Amount: \$25,000
Years: 9/15/15 – 9/15/18

Role: Site PI
Source: SanBio, Inc.
Award Type: Sponsored trial
Title: Phase 1/2A study of safety of modified stromal cells (SB623) in ischemic stroke patients
Amount: \$15,224
Years: 2/8/13 – 2/7/17

Role: PI
Source: Medtronic, Inc.
Award Type: Fellowship
Title: Stereotactic and Functional Neurosurgery Fellowship
Amount: \$100,000
Years: 7/1/13 – 6/30/17

Role: PI
Source: Visualase, Inc.
Award Type: Sponsored trial
Title: MR-guided laser ablation of lesions in epilepsy
Amount: \$100,181
Years: 8/2011 – 8/2015

Role: Site PI
Source: Neuropace, Inc.
Award Type: Sponsored trial
Title: Responsive neurostimulator to treat intractable epilepsy
Amount: \$59,534
Years: 5/2008 – 6/2011

Role: Site PI
Source: Schering/Titan Pharmaceuticals
Title: Study of the safety, tolerability, and effectiveness of Spheramine® implanted bilaterally into the postcommissural putamen of patients with advanced Parkinson's Disease
Award Type: Sponsored
Trial Amount: \$973,700
Year(s): 2002 - 2009

Role: PI
Source: Integra Neuroscience
Type: Research Contract
Title: Accuracy of Frame and Frameless Stereotactic Techniques
Amount: \$10,000
Period: 2006 - 2008

Role: Site PI
Source: Northstar Neuroscience, Inc.
Type: Research Contract
Title: A feasibility study (V0139)- Safety and efficacy of cortical stimulation in patients with hemiplegic stroke
Period: 12/31/03-12/31/07

Role: Site PI (Co-PI: W. Jost Michelsen, MD)
Source: Sanofi Winthrop Pharmaceuticals, Inc.
Title: Multicenter study of the safety and efficacy of PEG-superoxide dismutase in closed head injury
Award Type: Sponsored
Trial Amount: \$105,000
Year(s): 1994 – 1996

21. Clinical Service Contributions:

Director of Functional and Stereotactic Neurosurgery Division (2001 – present)

Director of Epilepsy Surgery (2001 – present)

Founder and Director, Department of Neurosurgery Clinical Research Unit (2006 – present)

Functional, Stereotactic and Epilepsy Surgery:

- Movement disorders: Deep brain stimulation for Parkinson's disease, tremor, dystonia and Tourette's syndrome; Pallidotomy; Thalamotomy
- Adult epilepsy: Amygdalo-hippocampectomy, intracranial electrode monitoring, cortical resections, corpus callosotomy, hemispherotomy, multiple subpial transection, deep brain stimulation, cortical and hippocampal stimulation; vagus nerve stimulation, stereotactic laser ablation
- Pediatric epilepsy: Intracranial monitoring, cortical resections, corpus callosotomy, multiple subpial resection, hemispherotomy, vagus nerve stimulation
- Pain: Deep brain stimulation, motor cortex stimulation; spinal cord stimulation.
- Psychiatric disorders: Cingulotomy for obsessive-compulsive disorder; Deep brain stimulation for major depression
- Spasticity and stroke: Intrathecal drug pump implantation for spasticity; motor cortex stimulation for stroke rehabilitation

22. Formal Teaching

A. Medical Student Teaching

Clinical Research Correlation course lecturer, 2006 – present

B. Graduate Doctoral Program:

Lecturer, "The Surgical Neurology of Movement Control", Course in Movement Control, Emory University, April, 2005.

Lecturer, Translational research in Neurosciences, Introduction to Neuroscience, Georgia Tech, 2009, 2010, 2011.

Lecturer, "Translational Research at the Nexus of Functional Neurosurgery, Bioengineering, and Industry", Conversations with Clinicians Series organized by the Bioengineering and Biosciences Unified Graduate Students (BBUGS) Research Committee, Invited lecture, 1/21/2010.

Lecturer, "Mesial temporal lobe epilepsy: surgical treatments old and new", Systems Pathophysiology course, Biomedical engineering/bioengineering graduate program, 2013-2017.

Mentor, Neuroscience Grants class (1BS543), 2017

Lecturer, "Surgical Approaches to Disorders of Brain Systems", Systems Pathophysiology course, Biomedical engineering/bioengineering graduate program, 3/20/2018

Lecturer, "Engineering Neurotechnology for the Surgical Treatment of Epilepsy: A Surgeon-Scientist-Non-Engineer's Perspective", Georgia Tech/Neuro Seminar Series, 10/29/2018

C. Residency Program

Emory University Neurosurgery Case Conference (2001 – present):

3 – 4/year for 1 ½ hours; Formal case conference on Functional and Epilepsy Surgery with Emory University Neurosurgery Residency Program residents (~14)

Emory Clinic Epilepsy Surgery Case Conference (2001 – present):

Weekly 1 ½ hour teaching case conference; Neurology residents and fellows, nurses. Meet with residents, fellows, nurses and faculty for weekly case presentations and discussions of patients for epilepsy surgery

Emory University Neurosurgery Resident Teaching Conference (2002-2003; 2005 – 2006; 2012 - present): 1 hour/week; Assisted in curriculum planning and supervised clinical teaching conference for ~ 12 neurosurgery residents

University of Utah Neurosurgery Resident Teaching Conference (1998 – 2001):

1 hour/week; supervised curriculum planning and clinical and basic science teaching conference for ~12 neurosurgery residents

University of Utah Epilepsy Surgery Case Conference (1998 –2001):

Weekly 1 ½ hour teaching case conference; Neurology residents and fellows, nurses. Met with residents, fellows, nurses and faculty for weekly case presentations and discussions of patients for epilepsy surgery

23. Supervisory Teaching

A. Doctoral (PhD) and Masters students directly supervised:

1) Doctoral research mentor:

Sina Dabiri, PhD candidate, Joint Program in Biomedical Engineering, Emory University/ Georgia Institute of Technology, 2/2021 - present

Henry Skelton, PhD candidate, Joint Program in Biomedical Engineering, Emory University/Georgia Institute of Technology, 7/1/2019 - present

Eric Cole, PhD candidate, Joint Program in Biomedical Engineering, Emory University/Georgia Institute of Technology, April, 2019 - present

Matt Stern, MD/PhD candidate, Program in Neuroscience, Emory University, 2017 - present

Mohammad Sendi, PhD candidate, Joint Program in Biomedical Engineering, Emory University/ Georgia Institute of Technology, 2017 – 2022. Present position: post-doctoral fellowship, Johns Hopkins University.

Sang-Eon Park, PhD (defended 10/2019), Program of Bioengineering, Dept. of Electrical & Computer Engineering, Georgia Institute of Technology, 2016- 2019; presently post-doctoral fellow, South Korea.

Angel Santiago Lopez, PhD (defended 12/2020), Program in Bioengineering, Dept. of Chemical Engineering, Georgia Institute of Technology, 2016-2020; presently Research Scientist, Amgen, California.

Mark Connolly, PhD (defended 4/2021), Joint Program in Biomedical Engineering, Emory University/Georgia Institute of Technology, 2014-2021; presently post-doctoral fellow, Dept. of Neurology, Emory University, Atlanta, GA

Myles McCrary, MD candidate, PhD (defended 4/22/2019), Program in Biomedical Engineering, Emory University/Georgia Tech (PhD Co-advisor with Ling Wei, MD), 2015-2019

Jack Tung, PhD (defended 12/2015), Joint Program in Biomedical Engineering, Georgia Health Sciences University/Georgia Institute of Technology (PhD supervisor, 2010 – 2015).

Robert E. Gross, M.D., Ph.D.

Presently Resident in Laboratory Medicine, Stanford University, Palo Alto, CA.

Nealen Laxpati, MD, PhD (defended 7/6/2014), Joint Program in Biomedical Engineering, Emory University/Georgia Institute of Technology, PhD Supervisor, 2009-2014. Presently: Resident in Neurosurgery, Emory School of Medicine, Atlanta, GA.

Sharanya Desai, PhD (defended 11/1/2013), Program in Bioengineering, Dept. of Biomedical Engineering, Georgia Institute of Technology (PhD Co-supervisor with Steve Potter, PhD, Georgia Tech, 2008-2013). Presently: Senior scientist, Neuropace, Inc, Mountainview, CA.

John Rolston, MD, PhD (2009), Program in Neuroscience, Emory University (PhD Co-supervisor, 2005-2009; co-supervisor: Steve Potter, PhD, Georgia Tech). Presently: Assistant Professor in Neurosurgery, University of Utah Clinical Neurosciences Center, 2016-present.

2) Masters Research Mentor:

Razan R. Faraj, MD (anticipated), MSCR (anticipated), Masters of Science in Clinical Research, Emory University, 5/1/2020 – present.

Lucas Phillip, MD, MPH, Masters of Public Health in Epidemiology, Rollins School of Public Health, Emory University, 2016-2018. Current position: Resident in Neurosurgery, Jefferson Medical College, Philadelphia, PA

Zuhui Wang, MS, Bioengineering Program, Georgia Tech, 2016-2018. Current position: PhD Program in Biosciences, Peking University, Beijing, PRC.

Ajulu Kachikwulu Akobundu, MPH, Masters of Public Health in Health Policy and Management, Rollins School of Public Health, Emory University, 2016 – 2017.

3) Dissertation committee:

Jenny Isaacs, MD (anticipated), PhD candidate, Program in Neuroscience, Emory University (Thesis committee, 2022 – present)

Felipe Giuste, MD (anticipated), PhD candidate, Program in Biomedical Engineering, Emory University/Georgia Tech (Thesis committee, 2021-present)

Mohib Tora, MD (anticipated), PhD, Program in Biomedical Engineering, Emory University/Georgia Tech (Thesis committee, 2017-2021)

Michael Bolus, PhD, Program in Biomedical Engineering, Emory University/Georgia Tech (Thesis committee, 2013-2020)

Nusaiba Baker, MD (anticipated), PhD, Program in Biomedical Engineering, Emory University/Georgia Tech (Thesis committee, 2019-2020)

Vineet Tiruvadi, MD (anticipated), PhD, Program in Biomedical Engineering, Emory University/Georgia Tech (Thesis committee, 2012-2019)

James Zhang, MD, PhD, Program in Biomedical Engineering, Emory University/Georgia Tech (Thesis committee, 2013-2017)

David Brandman, MD, PhD, Graduate Neuroscience Program, Brown University (Thesis committee external reviewer, 2017)

Scott Cordova, MD, PhD, Graduate Program in Molecular and Systems Pharmacology, Graduate Division of Biological and Biomedical Sciences, Emory University (Thesis committee, 2014 – 2016)

Daniel Millard, PhD, Program in Biomedical Engineering, Georgia Tech (Thesis committee, 2012 – 2014)

David Bass, MD, PhD, Neuroscience Program, Graduate Division of Biological and Biomedical Sciences, Emory University (Thesis committee, 2010 – 2014)

Stacie Gutowski, PhD, Program in Biomedical Engineering, Georgia Tech (Thesis committee,

Robert E. Gross, M.D., Ph.D.

2010 – 2014)

Kiseung Choi, PhD, Neuroscience Program, Graduate Division of Biological and Biomedical Sciences, Emory University (Thesis committee, 2010 – 2014).

Osama Mohamed, PhD, Neuroscience Program, Graduate Division of Biological and Biomedical Sciences, Emory University (Thesis committee: 2008 - 2012)

Michelle Kuykendal, PhD, Program in Biomedical Engineering, Georgia Tech (Thesis committee, 2011 – 2012)

Anna Orr, PhD, Graduate Program in Molecular and Systems Pharmacology, Graduate Division of Biological and Biomedical Sciences, Emory University (Thesis Committee; 2004-2009)

B. Post-doctoral fellows directly supervised:

Ashley Raghu, MBChB (Medicine), D. Phil, Post-doctoral research fellow, Emory University (2022-present)

Thomas Eggers, PhD, Post-doctoral research fellow, Emory University (2020-present)

Adam Dickey, MD, PhD, Post-doctoral Research Fellow, Emory University (7/1/2019-2021). Co-mentor with Nigel Pedersen, MD, Dept. of Neurology (primary mentor). Translational Neurology T32 award recipient. Current position: Asst Professor of Neurology, Emory University, Atlanta, GA

Cory Inman, PhD, Post-doctoral Research Fellow, Emory University (2014-2019). Current position: Asst. Professor of Psychology, University of Utah, Salt Lake City, UT

Alejandra Fernandez, PhD, Post-doctoral Research Fellow, Emory University (10/1/2014-12/31/2022); Current position: Assistant Professor, Texas Tech University, Houston, TX

Abdul Wahab, PhD, Post-doctoral Research Fellow, Emory University (3/2016 – 8/2016); pursuing career in pharmacy.

Ken Berglund, PhD, Research Associate (3/2014 – 9/2016); Current position: Assistant Professor, Dept. of Neurosurgery, Emory University

Babak Mahmoudi, PhD, Post-doctoral Research Fellow, then Research Associate (5/2013 – 2016), Current position: Assistant Professor, Dept. of Biomedical Informatics, Emory University

Otis Smart, PhD, Post-doctoral Research Fellow (2008 - 2015); Current position: Data Scientist, The Weather Company (IBM), Atlanta, GA

Li Su, PhD, Post-doctoral Research Fellow (11/2008 – 5/2011); Current position: commercial photographer

Qi Mei, PhD, Post-doctoral Research Fellow (2003 – 2006); Current position: unknown

Zeguan Ren, MD, PhD, Post-doctoral Research Fellow (2001 – 2005); Current position: Assistant Professor of Neurosurgery, University of South Florida, Tampa, FL

Lincoln Jimenez, MD, Research Specialist (2002 – 2005); Current position: Attending Neurosurgeon, Mayfield Brain & Spine Institute, Cincinnati, OH

C. Visiting Faculty:

Francine Norflus, PhD, Associate Professor, Clayton State University, supported by ASCB; Summer, 2012

D. Residency program supervision:

Emory University Hospital Neurosurgery Attending Round (2005 – present): Met 2 – 4 hours/month with 3 – 5 residents on the EUH neurosurgery service for bedside teaching rounds

Emory University Hospital Operating Room Teaching (2001 – present): 3 – 5 times/week;

Robert E. Gross, M.D., Ph.D.

Supervised and taught neurosurgery residents in the operating room and while rounding with residents on patients on the ward

University of Utah Hospital Operating Room Teaching (1998 – 2001): 3 – 5 times/week; Supervised and taught neurosurgery residents in the operating room and while rounding with residents on patients on the ward

Neurosurgery resident research supervision:

Chadd Funk, MD, PhD, Neurosurgery Resident (Emory: 2022-present)
Neal Laxpati, MD, PhD, Neurosurgery Resident (Emory: 2017-present)
James Malcolm, MD, PhD, Neurosurgery Resident (Emory: 2019-2022)
David Jay McCracken, MD, Neurosurgery Resident (Emory; 2013-2017)
Marshall Smith-Cain, MD, Neurosurgery Resident (Emory; 6/2008 – 2009)
David Laborde, MD, Neurosurgery Resident (Emory; 2006 – 2011)
Emil Pastrena, MD, Neurosurgery Resident (Univ. Puerto Rico; 1/2008 – 6/2008)
Vinender Chhabra, MD, Neurosurgery Resident (Emory; 2006 – present)
Luis Tumialan, MD, Neurosurgery Resident (Emory; 2006 – 2008)
Ganesh Rao, MD, Neurosurgery Resident (Univ. of Utah; 1999 – 2001)
Michael Woodruff, MD, Neurosurgery Resident (Univ. of Utah; 1999 – 2000)

Neurology resident supervision:

Adam Dickey, MD, PhD; PGY1 clinical elective (Emory; 2015)

E. Functional neurosurgery fellowship supervision:

Andrew Yang, MD, Emory, 7/1/2022 – present

Peter Rozman, MD, Emory, 7/1/2022 – present

Jimmy Yang, MD, Emory, 7/1/2021 – 7/31/2022: Current position: Assistant Professor of Neurosurgery, Indiana University School of Medicine, Indianapolis, IN

Jessica Shields, MD, PhD, Emory, 7/1/2021 – 7/31/2022; Current position: Attending neurosurgeon, Desert Care Network, Palm Springs, CA

Jonathan Lau, MD, PhD, Emory, 7/1/2020-7/31/2021, Current position: Assistant Professor of Neurosurgery, Western University School of Medicine, London, Ontario, Canada.

David Brandman, MD, PhD, Emory, 7/1/2020-7/31/2021, Current position: Assistant Professor of Neurosurgery, University of California, Davis.

Neal Laxpati, MD, PhD, Enfolded fellow, Emory, 7/1/2020- 6/30/2021, Current position: Neurosurgery Chief Resident

Kunal Gupta, MD, PhD, Emory, 7/1/19-7/31/2020, Current position: Assistant Professor of Neurosurgery, Indiana University School of Medicine, Indianapolis, IN

Hilarie Tomasiewicz, MD, PhD, Emory, 7/1/19-7/31/2020, Current position: Wellstar Health System, Marietta, GA

Bartosz Grobelney, MD, Emory, 7/1/18-7/31/19, Current position: Saint Luke's Health System, Kansas City, MO

Matthew Mian, Emory, 7/1/18-7/31/19, Current position: Attending surgeon, Swedish Medical Center, Denver, CO

Nicole Bentley, Emory, 7/1/17-7/31/18, Current position: Assistant Professor of Neurosurgery, University of Alabama at Birmingham, Birmingham, AL

Paul Koch, MD, Emory, 7/1/17-7/31/18, Current position: Assistant Professor of Neurosurgery, Medical College of Virginia, VA

Yarema B. Bezchlibnyk, MD, Emory, 7/1/16-7/31/17, Current position: Assistant Professor

Robert E. Gross, M.D., Ph.D.

of Neurosurgery, University of South Florida, Tampa, FL

Jennifer Cheng, MD, Emory, 7/1/16-7/31/17, Current position: Assistant Professor of Neurosurgery, University of Kansas, Kansas City, KA

Mark Witcher, MD, Emory, 7/1/15-7/31/16, Current position: Assistant Professor of Neurosurgery, Virginia Institute of Technology/Carilion School of Medicine, Roanoke, VA

Jonathan Riley, MD, Emory, 7/1/14 – 6/30/15, Current position: Assistant Professor of Neurosurgery, University of Buffalo, Buffalo, NY

David Lozada, MD, Emory, 7/1/13 – 6/30/14. Current position: Assistant Professor of Neurosurgery, University of Puerto Rico, San Juan, PR.

Willard S. Kasoff, MD, MPH, Emory, 7/1/12 – 7/31/13. Current position: Associate Professor of Neurosurgery, Temple University, Philadelphia, PA

Jon T. Willie, MD, PhD, Emory, 7/1/11 – 6/30/12. Current position: Associate Professor of Neurosurgery, Washington University at St. Louis School of Medicine, St. Louis, MO

Jaliya Lokuketagoda, MD, Emory, 1/5/09 – 6/30/11. Present position: Deceased

Darlene Lobel, MD, Emory, 1/1/2006 – 6/30/2006. Present position: Mayo Consulting, Jacksonville, FL.

F. Medical student (and M.D.) supervision

EUSOM Sophomore Medical Student Elective in Neurosurgery Preceptorships:

Organized and supervised elective experience in general neurosurgery; met with student each week for teaching and to monitor progress:

Nealen Laxpati (2016)

Rafi Haque (2015)

Maggie McDougal (September – December, 2012)

Michael LaRiviere (September – December, 2012)

Nathan C. Rowland (Spring, 2008)

Berkeley Bate (January – February 2006)

Michael L. Campbell (January – April 2006)

Matthew Tate (Spring, 2004)

EUSOM M1 Mentor/Student Program (2004 – 2008): Participated in mentoring program for M1 students; met with student periodically throughout the year

Aaron Goodman (2006 – 2008)

R. Timothy Owens (2005 – 2009)

Berkeley Bate (2004 – 2008)

Other Emory SOM Medical Student Mentorship (ad hoc):

Alex Greven (M3-M5) (2019-present)

J. Tanner McMahon (M2-4) (2014-2021)

Miller Douglas (2020-2021)

Matthew Stern (M1,2 medical student) (2013-2015)

Patrick Mulligan (M3,4 medical student) (2012-2013)

W. Caleb Rutledge (M2-4 medical student) (2009-2012)

Geoffrey Stricsek (M2-4 medical student) (2009-2012)

Osama N. Kashlan (M2 medical student) (2009-

Robert E. Gross, M.D., Ph.D.

2010)
C. Nate Rowland (2008 – 2009)
Michael Campbell (2005 – 2008)

EUSOM Medical Student Summer Research Program (2004 – 2007): 8 – 10 weeks/year, 12 hours/week; Designed research projects and supervised research for medical students; supervised poster/seminar presentation at end of summer. Program discontinued in 2007 with new curriculum.

Chinedu Okpukpara (2007)
Aaron Goodman (2007)
Kevin Pharris (2007)
Zwade Marshall (2007)
Edward Sung (2006) (Winner: Best poster)
R. Timothy Owens (2006)
Sumir Patel (2006)
Prashant Shankar (2006)
Erin Manning (2006)
Berkeley Bate (2005)
Amir Ahmadian (2005)
Charlotte Kvasnovsky (2005)

EUSOM Discovery Program: supervised medical students for 5 months of research during 3-4th year

J. Tanner McMahon (M2-4) (2014-2021)
Lucas Phillip (2016-2018)
Michael LaRiviere (2014-2015)
Maggie McDougal (2013-2014)
Kristen Burgess (2010)
Geoffrey Stricsek (2011)

Other (non-EUSOM) medical students supervised:

Dayton Grogan (Medical College of Georgia at Augusta University; 2020-2021)
Rohan Gupta (Medical College of Georgia at Augusta University; 2016-2018)
Chantelle Young (Morehouse School of Medicine; 2015-2016)
Will Wagstaff (University of Virginia; Summer 2014 – 2016)
Amir Ahmadian (Medical College of Georgia; 2004 – 2008)
Samuel Osei-Bonsu (University of Miami; 6/2009 – 8/2009)
Amir Ahmadian (Medical College of Georgia; 2004-2008)

Post-graduate MD supervision (volunteers)

Adil Haleem, MD (Pakistan); 2010 – 2011
Saint Okonma, MD (Nigeria); 2010 – 2011
Suprija Ramesha, MD (India); 7/2017-2020 (employed as Research Asst.); Presently resident in neurology.
Zhilija (Zach) Liang, MD (Medical College of Georgia; 4/2019 – 2020); Presently resident in psychiatry.

G. Teacher Supervision

Amanda Lockhart (Decatur HS teacher): Summer 2014 (ION Program participant)

H. Undergraduate Research and Post-Baccalaureate Supervision

Jack Swanson	Emory University; 1/2019 – present
Nwamaka Ijeh	Emory; 9/2019-present
Zarif Rahman	GT ECE; October 2019-present
Haley Folsom	9/2019-present
Adam Kashlan	GT Neuroscience; summer 2019
Stephanie Sanchez	Agnes Scott College; 2018,
Kaustubh Gopal	Emory University; 2018 – 2019
Alex Nazarri	Emory University; 2016 – 2019; Honors student: awarded Highest Honors
Jocelyn Ortiz	Michigan University; 2018 – 2019 (SURE student)
Layan Ibrahim	9/2018-present; SIRE student
Mihir Ghetiya	Emory; 2017-2019; Supervisor of Honors Thesis, awarded High
Sabina Iqbal	Druid Hills High, then Emory; 2018 – present
Sayed Ali Zaidi	Emory; 2015 as high school student-present; supported by Comp Neuroscience Training Grant Honors; continued as post-baccalaureate, 2019-2020
Mario Espinoza-Palacios	Emory; Summer 2017 – May/2018
Preksha Kukreja	Georgia Tech; 2017-2019; PURE award recipient
Esperance Mugabekazi	Agnes Scott College; 2017
Omer Ashmaig	Emory; 2015-2019; SIRE and SURE program participant
Reice Robinson	Mercer; 2014 (as high school student) – 2018
Anushka Saxena	2016 – 2018, Gwinnett School of Mathematics, Science, and Technology; Carnegie Mellon University
Manuel Hazim	Post-baccalaureate, Masters; 2018-2019
Kevin Ding	Emory; 2014-2017; SURE award recipient; Honors student: awarded Highest Honors
Chris McDanial	Univ of Georgia; Summer 2014
Sarah Syrop	Brown; Summer 2014
Yu Na Oh	Georgia Tech; 2014-2015
Bahar Rahepar	Georgia Tech; 2014-2015; supported by Comp Neurosci Training Grant
Aida Risman	Emory; 2013 – 2015
David Nguyen	Georgia State Univ; 2013 – 2015; BRAIN network program
Sarah Greene	Emory; 2013-2014
Fung Hung Shiu	Georgia Tech; 2012-2017
Alex Wang	post-baccalaureate; 2012-2014
Megha Chiruvella	Emory; 2011-2015
Iordan Potchileev	Emory; 2011-2014
Elena Hogenesh	Emory; 2010-2014; supported by SURE
Jonathan Decker	Emory; 2010-2013; supported by SIRE
Gloria Phuong Le	Clayton State University; Summer, 2012; supported by ASCB
Alex Harrison	Spelman; 2012
Naira Taylor	Spelman; 2011-2012; supported by BRAIN Network
Sammy Neumann	Emory; 2011-2012
Jaskaran Rakkar	Georgia Tech; Summer, 2009-2011
Natali Kahlil	Emory; Summer, 2010 with Dr. E. Torre
Argo Dalapati	Georgia Tech; Summer 2010 – 2012
Amit Parekh	Georgia Tech; Summer 2010-2012; supported by PURE
Chantal Christian	Emory College; Summer, 2010; SURE participant
Taylor Jay	MIT; Summer, 2010
Christopher Hrvoj	University of Southern California; Summer, 2010; BRAIN participant; Poster contest winner

Temitope Adeyeye	Post baccalaureate Research Education Program; 2010 –2011
Saihari Dukapati	Georgia Tech; Summer 2010 –2013
Carson Vansonford	Emory; August, 2009 –2010
David Ahn	Emory; 2009 –2010
Shivani Jain	Emory; 2009 –2010
Paul Collins	Morehouse College; August, 2009 –2010
Melissa McDonald	Georgia Tech; Summer, 2009 -2010
Saira Ahmed	Georgia Tech; Summer, 2009
Gauthami Penakalapati	Georgia Tech; Summer, 2009
William Melton	University of Georgia; Summer, 2009
Ashwin Rammaya	Emory University; Summer, 2008 and Honors research, 2008–09 Supervisor of Honors thesis, awarded Highest Honors
Eric Stewart	Emory University; Summer, 2008 and Honors research, 2008-09 (Supervisor of Honors thesis; awarded High Honors)
Olga Lauer	Emory University; Summer, 2008 and Honors research, 2008-09) (Honors committee member; Awarded Highest Honors)
Samantha Russel	Georgia Tech; 2008-2009
Andrew Iwanicki	Emory University, Work-study; 2006–2009
Chino Aneke	Spelmann College; SURE participant, 6/07–9/07
Whitney Cesari	Post-baccalaureate; Georgetown University, Summer, 2007
Brad Wallace	Baylor University, Wako; Summers, 2006-2008
Bethany Kondiles	Lawrence College; Summer, 2006
Lisa Catalano	Providence College; SURE participant; Summer, 2005
Brooke Ficke	Duke University; Summers, 2004, 2005
Emily Lu	Harvard University, Summer, 2004
Sheena Bossie	Virginia Commonwealth University; Summer, 2005

I. High School Student Research Supervision

Dinara Jones	Druid Hills High School, 2019-present
Elizabeth Lazarus	North Atlanta High School, 2019-present
Maria Baez	Decatur High School, Summer/2018
Allison Stillman	Byram Hills High School, Armonk, NY, 2017-present
Makenna Pierce	Druid Hills High School, 2017 –2018
Maeve Konouck	Druid Hills High School, 2017 –2018
Trinity Davies	Druid Hills High School, 2017 –2018
Grant Derdeyn-Blackwell	Druid Hills High School, 2018
Harris Rothaermel	South Forsyth High School; Summer/2017
Avinash Sivakumar	Atlanta, GA; 2016-2017
Fana Meles	Chamblee High School; Summer/2016-June/2017
Christine Liu	Atlanta, GA; 2016
Sayed Ali Zaidi	Atlanta, GA; Summer 2015; continued as Emory undergraduate
Elizabeth Reice Robinson	OLA High School; Summer 2014
Eve Altman	Lakeside High School; Summer, 2012
Caitlyn Van Hess	Rockdale County Magnet HS Research Program; Summer, 2010
Drew Cutshaw	Westminster High School, Summer, 2010
Melissa Klein	Westminster High School, Summer, 2010
Lian Peters	Marietta, GA; 9/2008 –12/2008
Patricia Davis	Conyers, GA; June, 2008 –2009
Katie Dugan	Conyers, GA; June, 2006 –April, 2007

24. Invited Presentations: Grand Rounds, Medical School, Graduate School and Undergraduate Lectures

1. Invited seminar faculty, "Deep brain stimulation: Turn on, tune in, find out." Winter Conference on Brain Research, Breckenridge, CO, January, 2000.
2. Invited Speaker, "Genes and Stem Cells", Emory University Center for Ethics Annual Faculty Seminar, Emory University, Atlanta, GA, 2002.
3. Invited Speaker, "Update on Surgical Treatment of Movement Disorders", Gainesville Medical Center Grand Rounds, Gainesville, GA, October 1, 2003.
4. Invited Speaker, "My life as a neurosurgeon-neuroscientist", Medical Scientist Training Program, Albert Einstein College of Medicine, Bronx, NY, December 23, 2003.
5. Invited Speaker, "Neural Stimulation for the Control of Epileptic Seizures", Quantitative Neuroscience/Neural Engineering Seminar, University of Florida, Gainesville FL, August 2004.
6. Grand Rounds, "Neural stimulation for the control of epileptic seizures", Department of Neurosurgery, Emory University, Atlanta, GA, October, 2004.
7. Invited Speaker, "The Surgical Neurology of Movement Control", Course in Movement Control, Emory University, Atlanta, GA, April, 2005.
8. Grand Rounds, "Axon regeneration in the Central Nervous System", Department of Neurosurgery, Emory University, Atlanta, GA, February, 2007.
9. Grand Rounds, "Surgical Treatment of Parkinson's Disease and Other Movement Disorders", Department of Medicine, Northside Hospital, Atlanta, GA, April 26, 2007.
10. Grand Rounds, "Surgical Treatment of Parkinson's Disease and Other Movement Disorders", Department of Neurosurgery, Emory University, Atlanta, GA, June 14, 2007.
11. Grand Rounds, "Surgical Treatment of Parkinson's Disease and Other Movement Disorders", Department of Medicine, Mercer University School of Medicine, Macon, GA, October, 2007
12. Grand Rounds, "Surgical Treatment of Movement Disorders", University of Puerto Rico, Departments of Neurosurgery and Neurology, January, 2008.
13. Invited Speaker, "Networks, Neurostimulation and Neurosurgery", The Undergraduate Society for Biomedical Research, University of Georgia, April, 2008.
14. Invited Speaker, "The role of functional neurosurgery in traumatic brain injury", Shepard Center for Rehabilitation, Piedmont Hospital, Atlanta, GA, March, 2008.
15. Grand Rounds, "DBS for Parkinson's Disease: New Mechanisms, New Targets", Department of Neurosurgery, Emory University, Atlanta, GA, July 24, 2008.
16. Invited Speaker, "Generating and regenerating the nigrostriatal pathway: from semaphorins to C3 transferase", Frontier in Neuroscience seminar series, Program in Neuroscience, Emory University, Atlanta, GA, January 23, 2009.
17. Grand Rounds, "The Spectrum of Functional Neurosurgery", Center for Neuroscience Invited Lecture, University of Alabama, Birmingham, AL, May 9, 2009
18. Invited Lecturer, "Translational research in Neurosciences", Introduction to Neuroscience, Georgia Tech, Atlanta, GA, November, 2009.
19. Invited Lecture, "Translational Research at the Nexus of Functional Neurosurgery, Bioengineering, and Industry", Conversations with Clinicians Series organized by the Bioengineering and Biosciences Unified Graduate Students (BBUGS) Research Committee, Georgia Tech, Atlanta, GA, January 21, 2010
20. Grand Rounds, "Targeting the Axon for Reconstruction of the CNS in Parkinson's Disease *et cetera*", Department of Neurosurgery, Stanford University, Palo Alto, CA, June 18, 2010

21. Grand Rounds, "Axon Regeneration Gene Therapy in the CNS for Parkinson Disease and Beyond", Emory University, Atlanta, GA, August 18, 2010
22. Invited Lecture, "Improving Axon Regeneration with C3 Transferase Gene Therapy", Georgia Tech Emory Center (GTEC) Institute for Regenerative Medicine, Atlanta, GA, September 10, 2011
23. Grand Rounds, "Subgenual Cingulate Deep Brain Stimulation for Depression", Beijing Functional Neurosurgery Institute, Beijing, China, September 19, 2011
24. Invited Lecture, "Clinical, Translational and Basic Science Research in Functional Neurosurgery: A Case Study, Introductory Neuroscience Course, Georgia Tech, November 21, 2011
25. Invited Lecture, "Functional Neurosurgery: The Nexus of Neuroscience and Biomedical Engineering", The Neuroscience Club at Georgia Tech, March 1, 2012
26. Neurosurgery Resident Didactic Series, "DBS for Parkinson's disease, Dystonia and Essential Tremor", Department of Neurosurgery, Emory University, Atlanta, GA, May 27, 2012
27. Invited Lecture, "Electrical and optogenetic neuromodulation of septohippocampal oscillations for the treatment of epilepsy", Applied Physiology Brown Bag Lunchtime Seminar Series, Georgia Institute of Technology, Atlanta, GA, March 27, 2013
28. Grand Rounds, "Electrical and optogenetic neuromodulation of septohippocampal oscillations for the treatment of epilepsy", Department of Neurosurgery, Weill Cornell Medical College, New York, NY, April 15, 2013
29. Grand Rounds, "Will you be using a laser? Stereotactic laser ablation in the surgical treatment of epilepsy", Department of Neurosurgery, Emory University, Atlanta, GA, October 17, 2013
30. Grand Rounds, "Stereotactic laser ablation in the surgical treatment of epilepsy", Epilepsy Program, Case Western Reserve University, Cleveland, OH, October 28, 2013
31. Grand Rounds, "Stereotactic laser ablation in the surgical treatment of epilepsy", Department of Neurology, Emory University, Atlanta, GA, November 8, 2013
32. Systems Neurophysiology Course, "Technology and the Evolution of Surgical Treatment of Mesial Temporal Lobe Epilepsy", Georgia Tech/Emory BME/BE Program, Atlanta, GA, November 12, 2013
33. Neurosurgery Didactic Series, "Functional Neuroanatomy for Residents", Department of Neurosurgery, Emory University, Atlanta, GA, February 27, 2014
34. Systems Neurophysiology Course, "Technology and the Evolution of Surgical Treatment of Mesial Temporal Lobe Epilepsy", Georgia Tech/Emory BME/BE Program, Atlanta, GA, November 13, 2014
35. Grand Rounds, "Minimally Invasive Surgery for Epilepsy in the MR Environment: A Tale of Two Technologies", Ohio State University, Columbus, OH, January 15, 2015
36. Combined Ground Rounds, "Neural Networks, Brain Stimulation & Epilepsy", Emory Brain Health Center, Emory University, Atlanta, GA, June 25, 2015
37. Grand Rounds, "Good to Great: Novel & Network Approaches to Neuromodulation", Department of Neurosurgery, Emory University, Atlanta, GA, March 10, 2016
38. Invited Lecture, "Beyond Deep Brain Stimulation for Epilepsy: Engineering With Electrical, Optogenetic and Lumigenetic Approaches", Frontiers in Neuroscience Lecture Series, Graduate Program in Neuroscience, Emory University, Atlanta, GA, September 2, 2016
39. Grand Rounds, "Visualase Laser Ablation", Houston Methodist Specialty Physicians Group, Houston, TX, November 11, 2016

Robert E. Gross, M.D., Ph.D.

40. Invited Lecture, "MD/PhD Program and Research in Dept. of Medicine", Department of Medicine Research Day, Emory University, Atlanta, GA, December 6, 2016
41. Invited Lecture, "Neurorestorative Brain Surgery for Disorders Of Function", Center for Visual and Neurocognitive Rehabilitation, Atlanta VA Medical Center, Atlanta, GA, January 4, 2017.
42. Grand Rounds, "Case Reviews and Advancements in Minimally Invasive Surgery for Epilepsy", Department of Neurosurgery, Northwestern University, Atlanta, GA, June 13, 2017.
43. Grand Rounds, "Advancements in the Surgical Treatment of Epilepsy: Thermal Ablation", Department of Neurosurgery, Emory University, Atlanta, GA, June 22, 2017
44. Grand Rounds, "StereoEEG in Epilepsy Surgery", Ochsner University, LA (delivered by Webex), September 29, 2017
45. Grand Rounds, "Minimally Invasive Approaches for Epilepsy Surgery", Department of Neurology, Emory University, Atlanta, GA, October 19, 2017
46. Grand Rounds, "Minimally Invasive Approaches for Epilepsy Surgery", Department of Neurosurgery, Rush University Medical Center, Chicago, IL, November 17, 2017
47. Combined Grand Rounds, "Minimally Invasive Approaches to Epilepsy Surgery", Barrow Neurological Institute, Phoenix, AZ, January 5, 2018
48. Grand Rounds, "Engineering Advances in Epilepsy Surgery with *Electricity and Light*", Department of Neurosurgery, Stanford University, March 2, 2018
49. Grand Rounds, "Functional Neurosurgery for Psychiatric Disorders: State of the Science", Department of Psychiatry, Emory University, April 25, 2018
50. Invited Lecture, "Engineering Neurotechnology for the Surgical Treatment of Epilepsy: A Surgeon-Scientist-Non-Engineer's Perspective", Georgia Tech/Neuro Seminar Series, October 29, 2018
51. Grand Rounds, "Emory Neuromodulation & Technology Innovation Center (ENTICe) & Neural Engineering Center (NEC): *Five-year progress report*. Department of Neurology, Emory University, November 9, 2018
52. Invited Lecture, "Advancing Epilepsy Neuromodulation by Translating Back and Forth", Epilepsy Focus Dinner, Children's Healthcare of Atlanta and Emory University, April 10, 2019
53. Invited Lecture, "Progress on surgical intervention for temporal lobe epilepsy", Sanbo Brain Hospital, Capital Medical University, Beijing, PRC, May 20, 2019
54. Invited Lecture, "MR guided-Laser Ablation for Focal Epilepsy", Institut de Neurosciences des Systèmes, UMR INSERM 1106, Aix-Marseille Université, Marseille, FR, May 13, 2019
55. Mary Ann Lee Memorial Lecture, "*Less is More*", *More or Less: Minimally Invasive Epilepsy Surgery*", University of Calgary Epilepsy Symposium, Calgary, Alberta, CA, October 18, 2019

25. Invited Presentations at Regional and National Meetings (CME)

1. Seminar Faculty, "Pallidal Surgery for Dystonia", Movement Disorders Surgery Course, American Association of Neurological Surgeons Annual Meeting, Philadelphia, PA, 2002.
2. Course Faculty, "Neuropsychological Issues in Movement Disorder Surgery", Cleveland Clinic Foundation Advanced Stereotactic and Functional Neurosurgery Symposium (CME), Charleston SC, 2002.
3. Course Faculty, "Electrophysiological mapping for movement disorder surgery", Practical Course 05: Functional Neurosurgery, Congress of Neurological Surgeons Annual Meeting (CME), San Diego, CA, 2003.

4. Course Faculty, "Surgery for Dystonia", Practical Course 05: Functional Neurosurgery, Congress of Neurological Surgeons Annual Meeting (CME), San Diego, CA, 2003.
5. Course Faculty, "Cell and Gene Therapy for Parkinson's Disease", Practical Course 05: Functional Neurosurgery, Congress of Neurological Surgeons Annual Meeting (CME), San Diego, CA, 2003.
6. Seminar Faculty, Epilepsy Surgery: "The Impact of New Advances and Novel Approaches." Congress of Neurological Surgeons Annual Meeting (CME), San Diego, 2003.
7. Invited Speaker, "The Role of Neuroablation", Controversies in Neurosurgery, Congress of Neurological Surgeons Annual Meeting (CME), Denver, 2003.
8. Symposium Faculty, "The Role of Surgery in the Management of Adult Epilepsy", Emory Epilepsy Symposium (CME), Atlanta, GA, April, 2004.
9. Invited Speaker, "Neuromodulation: Current Therapies, Clinical Trials, and Future Applications". Southern Neurosurgical Society (CME), Key West, FL, March 4, 2005.
10. Symposium Faculty, "Neuromodulation for Epilepsy: Past, Present and Future", Emory Epilepsy Symposium (CME), Atlanta, GA, April, 2005.
11. Course Faculty, "Technical Approach to VIM Deep Brain Stimulation" in Movement Disorder Surgery: Techniques, Decision Making, Complication Avoidance and Management." American Association of Neurological Surgeons Annual Meeting (CME), April 23, 2005.
12. Course Faculty: "Outcome of DBS for Tremor" in Movement Disorder Surgery: Techniques, Decision Making, Complication Avoidance and Management. American Association of Neurological Surgeons Annual Meeting (CME), April 23, 2005.
13. Course Faculty: "Setting up a Functional Neurosurgery Practice", in Movement Disorder Surgery: Techniques, Decision Making, Complication Avoidance and Management. American Association of Neurological Surgeons Annual Meeting (CME), April 23, 2005.
14. Course Faculty, "When is intracranial monitoring indicated in mesial temporal lobe epilepsy?", Lunchtime seminar, Congress of Neurological Surgeons Annual Meeting (CME), October, 2005.
15. Course Faculty, "The Complicated GPi Patient", in Movement Disorders Course, American Association of Neurological Surgeons Annual Meeting (CME), April, 2006.
16. Course Faculty, "Surgery for Parkinson's Disease", Practical Course 22: Functional Neurosurgery: Movement Disorders, Psychiatric and other Emerging Applications, Congress of Neurological Surgeons Annual Meeting (CME), Boston, October, 2006.
17. Symposium Faculty, "Neuromodulation for Epilepsy", Emory Epilepsy Symposium (CME), Atlanta, GA, February, 2007
18. Discussant for Section of Stereotactic and Functional Neurosurgery scientific session, American Association of Neurological Surgeons Annual Meeting (CME), Washington D.C., April, 2007 ("Understanding Microelectrode Recording Risk in DBS", Elias et al.)
19. Course Faculty, "Accuracy of DBS Implantation", Course #014: Movement Disorder Surgery: Techniques, Decision Making, Complication Avoidance and Management, American Association of Neurological Surgeons Annual Meeting (CME), Washington D.C., April, 2007
20. Invited discussant, Section of Stereotactic and Functional Neurosurgery scientific session, American Association of Neurological Surgeons Annual Meeting (CME), Chicago, IL,

- April, 2008 (“Medically Intractable Temporal Lobe Epilepsy in Patients with Normal 1.5T MRI: Surgical Outcome in twenty-four consecutive patients”)
21. Invited Speaker, “DBS for Parkinson’s Disease: New Targets”, Opening Symposium, 12th Annual Meeting of the Movement Disorders Society, Chicago, IL, June 23, 2008.
 22. Course Faculty, “Deep brain stimulation of Area 25 for treatment-resistant depression”, Practical Course 35: Functional Neurosurgery, Congress of Neurological Surgeons Annual Meeting (CME), Orlando, FL, September, 2008.
 23. Course Faculty, “Deep brain stimulation: New targets and applications”, Practical Course 35: Functional Neurosurgery, Congress of Neurological Surgeons Annual Meeting (CME), Orlando, FL, September, 2008.
 24. Course Faculty, “Case Presentation: Post-traumatic tremor”, Practical Course 35: Functional Neurosurgery, Congress of Neurological Surgeons Annual Meeting (CME), Orlando, FL, September, 2008.
 25. Invited Faculty, ““Deep brain stimulation of Area 25 for treatment-resistant depression”, Luncheon seminar M13: Psychosurgery, Congress of Neurological Surgeons Annual Meeting (CME), Orlando, FL, September, 2008.
 26. Invited Faculty, “Debate: Stereotactic radiosurgery can cure epilepsy: Con,” World Society for Stereotactic and Functional Neurosurgery Quadrennial Meeting, Toronto, CA, May, 2009.
 27. Invited Faculty, “Surgical Treatment of Parkinson’s Disease”, 6th Annual Advances in Managing Diseases of the CNS: Multiple Sclerosis and Parkinson’s Disease (CME), Savannah, GA, November, 2007
 28. Invited Faculty, “Indications and Outcome of DBS for Parkinson’s Disease”, Practical Course 32: Update: Movement Disorders Surgery, Congress of Neurological Surgeons Annual Meeting (CME), New Orleans, 2009.
 29. Invited Faculty, “Surgery for Psychiatric Diseases”, Luncheon Seminar M15: Congress of Neurological Surgeons Annual Meeting (CME), New Orleans, October, 2009.
 30. Invited Faculty, “Debate: Planning Extent of Resection: The benefits of small targeted resections vs. large extensive resections.” Annual Course: Selecting Patients for Epilepsy Surgery, American Epilepsy Society Annual Meeting (CME), Boston, December, 2009.
 31. Invited Faculty, “DBS for Parkinson’s disease, Essential Tremor and Dystonia: Indications and Outcomes, Neuromodulation Symposium, Congress of Neurological Surgeons Annual Meeting, October, 2010
 32. Invited Faculty, “Dystonia: Rationale for neuromodulation of the cerebellum and other targets,” North American Neuromodulation Society 13th Annual Meeting, Las Vegas, NV, December 3, 2010.
 33. Invited Lecture, “Functional neuroanatomy of movement disorders”, American Association for Neurological Surgeons Annual Meeting, Denver, CO, April 13, 2011
 34. Invited Lecture, “Cell and gene therapy for Parkinson’s disease: miracle or mirage?” Nathan Rifkinson Society annual meeting, San Juan, Puerto Rico, March 26, 2011
 35. Invited Faculty, “Surgical Management and Device Implantation”, 3rd Annual Emory Epilepsy Symposium (CME), Atlanta, GA, November 11, 2011
 36. Invited Faculty, “DBS for Depression: Targets and Trials”, MO8 Seminar: Incorporating Psychosurgery into Your Neurosurgical Practice, Congress of Neurological Surgeons Annual Meeting, Chicago, IL, October, 2012
 37. Invited Lecture, “Neuromodulation for Depression”, Stereotactic and Functional Section, Congress of Neurological Surgeons Annual Meeting, Chicago, IL, October 9, 2012

38. Invited Lecture, "Emory Functional and Stereotactic Neurosurgery Program", Society for Neurological Surgeons Annual Meeting, Atlanta, GA, May 19, 2012
39. Invited Lecture, "Ablation vs. stimulation in movement and psychiatric disorders: stimulation", Neurosurgical Face-Off, American Association of Neurological Surgeons Annual Meeting, New Orleans, LA, May 1, 2013
40. Invited Lecture, "Stimulation of anterior nucleus of thalamus for epilepsy: results related to region of onset and prior surgical treatment", World Society for Stereotactic and Functional Neurosurgery, Tokyo, Japan, May 28, 2013
41. Invited Lecture, "Neuromodulation for depression", International Neuromodulation Society 11th World Congress, Berlin, Germany, June 11, 2013
42. Invited Lecture, "Responsive neurostimulation for the treatment of epilepsy", International Neuromodulation Society 11th World Congress, Berlin, Germany, June 12, 2013
43. Invited Lecture, "Advances in Epilepsy", 90th Anniversary of Neurosurgery in Canada Symposium, Toronto, Ontario, Canada, October 27, 2013
44. Invited Lecture, "DBS and closed-loop control for epilepsy", Symposium: Neuromodulation 2013: What Every Neurosurgeon Needs to Know, Congress of Neurological Surgeons Annual Meeting, San Francisco, CA, October 20, 2013.
45. Invited Lecture, "Optogenetic neuromodulation for epilepsy", Stereotactic and Functional Neurosurgery Scientific Session, Congress of Neurological Surgeons Annual Meeting, San Francisco, CA, October 22, 2013
46. Invited Lecture, "Stimulation for epilepsy: DBS, RNS, VNS", American Association for Neurological Surgery Annual Meeting, San Francisco, April 8, 2014
47. Course Faculty, "Laser ablation in the surgical treatment of epilepsy", Pre-meeting course: Epilepsy Basics, American Society for Stereotactic and Functional Neurosurgery Biennial Meeting, Washington D.C., May 31, 2014
48. Course Faculty, "StereoEEG: Indications, procedures, results", Pre-meeting course: Epilepsy Basics, American Society for Stereotactic and Functional Neurosurgery Biennial Meeting, Washington D.C., May 31, 2014
49. Invited Lecture, "Laser ablation for epilepsy", American Society for Stereotactic and Functional Neurosurgery Biennial Meeting, Washington D.C., June 2, 2014
50. Invited Lecture, "Hot Topics Epilepsy Updates: Thermal Ablation", American Epilepsy Society, 5th Annual Biennial North American Epilepsy Regional Conference, Seattle, WA, December 5 – 9, 2014.
51. Seminar faculty, "Breakfast Seminar 307: Innovations in Epilepsy Surgery", American Association of Neurological Surgeons, Washington, D.C., May 6, 2015
52. Invited Lecture, "DBS for Psychiatric Disorders", Rounds on the Greens, Sea Island, Georgia, October 14-16, 2016
53. Invited Lecture, "Added Value of Stimulation of Deep Brain Stimulation for Epilepsy", American Clinical Neurophysiology Society Annual Meeting, Phoenix, AZ, February 11, 2017
54. Invited Lecture, "Making Epilepsy Surgery Great: Engineering New Approaches with Light And Electricity ...and Genes", Dartmouth Epilepsy Retreat, Stowe, VT, March 18, 2017
55. Invited Lecture, "RNS System Overview & Surgical Technique", NeuroPace Advanced Users Symposium, March 29, 2017
56. Invited Lecture, "The Emory [RNS] Experience", NeuroPace Advanced Users Symposium, March 29, 2017

57. Invited Lecture, "Stereotactic Laser Ablation Surgery", Lesioning Workshop, 17th Quadrennial Meeting of the World Society for Stereotactic and Functional Neurosurgery, Berlin, Germany, June 26, 2017
58. Invited Lecture, "Begin with the End in Mind" Minimally Invasive Approaches to Epilepsy Surgery, Neurosurgery Update 2017, University of California, San Francisco, Silverado Resort, August 4, 2017
59. Course Faculty, "Role of Laser Therapy for Epilepsy", Practical Course 33: Laser Ablation Surgery: Opportunities, Indications, Technique and Outcome, Congress of Neurological Surgeons Annual Meeting, Boston, MA, October 8, 2017
60. Seminar Faculty, "Minimally Invasive Epilepsy Surgery", Lunchtime seminar M08: Minimally Invasive Epilepsy Surgery, Congress of Neurological Surgeons Annual Meeting, Boston, MA, October 9, 2017
61. Invited Lecture, "Minimally Invasive Lesioning: Laser, Radiofrequency and HiFU", SYM1: Functional Neurosurgery Update, Congress of Neurological Surgeons Annual Meeting, Boston, MA, October 9, 2017
62. Seminar Faculty, "Minimally Invasive Approaches to Epilepsy Surgery Using Laser Interstitial Thermal Therapy (LITT)", New Innovations in Epilepsy Surgery Breakfast Seminar, American Association of Neurological Surgeons Annual Scientific Meeting, New Orleans, LA, April 30, 2018
63. Invited Lecture, "Deep brain stimulation for epilepsies: Are we targeting the right structures?", Southern Epilepsy and EEG Society Annual Meeting, Austin, TX, March 22, 2018
64. Invited Lecture, "Asynchronous Distributed Multi-Electrode Stimulation for Epilepsy", Annual Meeting of the American Society for Stereotactic and Functional Neurosurgery, Denver, CO, June 3, 2018
65. Invited Lecture, "Impact of Minimally Invasive Approaches on the Epilepsy Surgery Workflow and Decision Tree", Children's Healthcare of Atlanta StereoEEG Symposium, September 22, 2018
66. Invited Lecture, "Stereo-EEG and Ablative Surgical Treatment", StereoEEG Special Interest Group, American Epilepsy Society Annual Meeting, New Orleans, LA, November 30, 2018
67. Invited Lecture, "Deep brain stimulation for generalized epilepsies", Intractable Generalized Epilepsies Special Interest Group, American Epilepsy Society Annual Meeting, New Orleans, LA, December 1, 2018
68. Invited Lecture, "Laser Interstitial Thermal Therapy (LITT) for the Treatment of Epilepsy, 2019 Annual Meeting and Courses, American Clinical Neurophysiology Society, Las Vegas, NV, February 5, 2019
69. Symposium Faculty, "Robotic assistance for RNS and DBS", Robotics Symposium, American Association of Neurological Surgeons Annual Scientific Meeting, San Diego, April 13, 2019
70. Seminar Faculty, "Stereotactic Laser Ablation for Temporal Lobe Epilepsy (SLATE)", DIN4: Update, Advances in LITT, Congress of Neurological Surgeons Annual Meeting, San Francisco, CA, October 22, 2019
71. Invited Lecture, "Clinical Trials, Ethics, and Stem Cells: Are RCTS Necessary to Validate a Novel Therapy? Introduction and Discussion/Synopsis", Congress of Neurological Surgeons Annual Meeting, San Francisco, CA, October 22, 2019
72. Seminar Faculty, "Clinical Trials in Ablative Epilepsy Surgery", Lunchtime Seminar W27: Clinical Trials in Epilepsy Surgery, Congress of Neurological Surgeons Annual Meeting, San Francisco, CA, October 23, 2019

26. Organization and Presentations in CME Courses as *Chairman or Moderator*

1. Organizer and Chair of Symposium, "Mechanism of Action of Deep Brain Stimulation, Soc. for Neuroscience Annual Meeting (CME), Orlando, FL, 2002
2. Course Director, "Electrophysiological Monitoring for Movement Disorders", Practical Course 05: Functional Neurosurgery: Stimulation, Augmentation and Destruction, Congress of Neurological Surgeons, Annual Meeting (CME), Denver, CO, 2003.
3. Organizer and Chair of Session, "Neural Transplantation", Cell Transplant Society Annual Meeting (CME), Atlanta, 2005
4. Session Moderator, Movement Disorders Surgery, American Society for Stereotactic and Functional Neurosurgery Bi-Annual Meeting, Cleveland, OH, June, 2006.
5. Seminar Moderator, Current Concepts in the Neurosurgical Treatment of Epilepsy (W48), Congress of Neurological Surgeons, San Diego, CA, September, 2007
6. Seminar Moderator, Lunchtime Seminar T28: Surgical Treatment of Movement Disorders, Congress of Neurological Surgeons Annual Meeting (CME), San Diego, CA, September, 2007.
7. Moderator, Movement Disorders Surgery II, American Society for Stereotactic and Functional Neurosurgery Bi-annual Meeting, Vancouver, BC, June 2, 2008.
8. Seminar Moderator, Lunchtime Seminar T28: Surgical Treatment of Movements Disorders, Congress of Neurological Surgeons Annual Meeting (CME), Orlando, FL, September, 2008.
9. Organizer and Chair, Plenary Session II, "Surgical Controversies in the Treatment of Mesial Temporal Lobe Epilepsy", American Epilepsy Society Annual Meeting (CME), Seattle, WA, December, 2008.
10. Introduction: "Introduction: Surgical variables affecting outcome in MTLE", Plenary Session II: Surgical Controversies in the Treatment of Mesial Temporal Lobe Epilepsy, American Epilepsy Society Annual Meeting, Seattle, WA, December, 2008.
11. Session Moderator, Movement Disorders Surgery, World Society for Stereotactic and Functional Neurosurgery Quadrennial Meeting (CME), Toronto, CA, May, 2009.
12. Co-Director, Practical Course 32: Update: Movement Disorders Surgery, Congress of Neurological Surgeons Annual Meeting (CME), New Orleans, October, 2009.
13. Moderator, CNS Neurosurgical Forum: Stereotactic and Functional Neurosurgery, Congress of Neurological Surgeons Annual Meeting (CME), New Orleans, October, 2009.
14. Moderator, "Anterior temporal lobectomy versus selective amygdalohippocampectomy: Is there an advantage in seizure or neuropsychological outcome?", IML Clinical Science Session: Section on Stereotactic and Functional Neurosurgery. Congress of Neurological Surgeons Annual Meeting (CME), New Orleans, October, 2009.
15. Moderator, Epilepsy Surgery, Annual Meeting of American Society for Stereotactic and Functional Neurosurgery, New York City, June, 2010.
16. Program Chair, Georgia Neurosurgical Society Fall Meeting, Atlanta, GA, November, 2010.
17. Moderator and session organizer, "Brain stimulation and mechanisms of neurostimulation, North American Neuromodulation Society 13th Annual Meeting, Las Vegas, NV, December 3, 2010.
18. Director, Practical Course 18, "Deep brain stimulation: Indications and emerging indications", Congress of Neurological Surgeons Annual Meeting (CME), Washington,

D.C., October, 2011

19. Moderator, Luncheon Seminar W45, "Comprehensive management strategies for the treatment of movement disorders", Congress of Neurological Surgeons Annual Meeting (CME), Washington, D.C., October, 2011
20. Organizer and Director, Workshop: "The Spectrum of Stereotactic and Functional Neurosurgery for Residents and Fellows", American Association for Stereotactic and Functional Neurosurgery Annual Meeting, San Francisco, CA, June 3, 2012
21. Director, Practical Course 19: Deep Brain Stimulation: Indications and Emerging Applications (CME), Congress of Neurological Surgeons Annual Meeting, Chicago, IL, October, 2012
22. Moderator, Expert panel, Skills Workshop, "Intracranial Electrode Studies: How Do You Choose a Technique for Optimum Location?" American Epilepsy Society Annual Meeting, San Diego, September 4, 2012
23. Course Director and Organizer, "Stereotactic and Functional Neurosurgery Hands-On Workshop" (CME), Emory University and St. Joseph's Translational Research Institute, Atlanta, GA, November 15 – 17, 2013
24. Moderator, Lunchtime Seminar: "W33: update on movement disorders: Novel targets, Indications, and approaches", Congress of Neurological Surgeons Annual Meeting, San Francisco, CA, October 23, 2013
25. Course Director and Organizer, "Epilepsy Basics", American Society for Stereotactic and Functional Neurosurgery Biennial Meeting, Washington D.C., May 31, 2014
26. Director / Moderator, "Laser Ablation Surgery: Indications, Techniques, and Pitfalls", Congress of Neurological Surgeons Annual Meeting (CME), September 27, 2015
27. Director / Moderator, "Biological Neuromodulation: Gene and Stem-Cell Therapies", Congress of Neurological Surgeons Annual Meeting (CME), September 28, 2015
28. Director / Moderator, "Stereotactic and Functional Neurosurgery Oral Presentations", Congress of Neurological Surgeons Annual Meeting (CME), September 28, 2015
29. Director / Moderator, "The Role of LITT (Laser-Induced Thermal Therapy) in Epilepsy", Congress of Neurological Surgeons Annual Meeting (CME), September 29, 2015

26. Other Invited Educational Lectures (non-CME)

1. Faculty, "Focus on Innovative Theory & Technique for Activa Therapy", Medtronic, September 2005.
2. Invited Speaker, "Lesioning for Dystonia", Dystonia Medical Research Foundation: Surgical Approaches for Dystonia, Atlanta, GA, October 2005.
3. Invited Speaker, "Program in Functional Neurosurgery at Emory", Case Manager's conference, Atlanta, GA, February 11, 2006.
4. Invited Speaker, Second International Workshop on Seizure Prediction, NIH, Bethesda MA, April 2006.
5. Invited Speaker, "Surgical and Hardware Complications of Deep Brain Stimulation", Movement Disorders Society 10th International Congress of Parkinson's Disease and Movement Disorders (CME), Kyoto, Japan, October 31, 2006.
6. Invited consultant, Spheramine □ Phase 3 Protocol Review Meeting I, Bayer Healthcare/Pharmaceuticals, Berlin, September, 2007
7. Invited Moderator, Spheramine □ U.S. Advisory Board Meeting, and lecture Surgical Delivery of Spheramine", Bayer Healthcare/ Pharmaceuticals, New York City, November

17, 2007

8. Invited consultant, Spheramine Phase 3 Protocol Review Meeting II, Bayer Healthcare/Pharmaceuticals, Amsterdam, December 18, 2007
9. Invited Moderator, Spheramine \square European Advisory Board Meeting, and lecture "Surgical Delivery of Spheramine", Bayer Healthcare/ Pharmaceuticals, Barcelona, February 3, 2008
10. Invited Speaker, "Distributed microstimulation for epilepsy", CIMIT Epilepsy Innovation Summit, Boston, MA, May, 2008.
11. Invited Speaker, "Fixing your brain with deep brain stimulation", Case Managers Society of America Conference, Atlanta, GA, October 11, 2008.
12. Invited Speaker, "Distributed open- and closed-loop microstimulation for epilepsy", Integra Neuroscience meeting on Intraoperative Electroocortigraphy, Napa Valley, CA, November 10, 2008.
13. Invited Faculty, "Ablative therapies for the treatment of Parkinson's Disease", DBS Consensus Conference, New York, NY, April 1-2, 2009.
14. Invited Lecture, "Filling-In-The-Blanks: Therapeutic Stimulation of the Nervous System for Disorders Involving Abnormal Burst Firing." Dynamics of Bursting Activity of Neurons, Neuroscience Institute, Georgia State University, Atlanta, GA, April 16/17, 2010.
15. Invited Lecture, "Cerebellar Stimulation for Dystonia", Annual Meeting of the Tyler's Hope Foundation for a Dystonia Cure, Gainesville, FL, August 10, 2010
16. Invited Lecture, "Determining the optimal extent of resection in epilepsy", 7th Brazilian Congress on Brain, Behavior and Emotion, Gramado, Brazil, June 17, 2011
17. Invited Lecture, "Vagus nerve stimulation for the treatment of drop attacks", 7th Brazilian Congress on Brain, Behavior and Emotion, Gramado, Brazil, June 17, 2011
18. Invited Lecture, "Don't throw the baby out with the bathwater: The state of pivotal clinical trials in functional neurosurgery", 7th Brazilian Congress on Brain, Behavior and Emotion, Gramado, Brazil, June 18, 2011
19. Invited Lecture, "Closed loop feedback control schemes via multi-microelectrode recording and stimulation for the treatment of epilepsy: Animal studies", 9th Academic Conference of Chinese Stereotactic and Functional Neurosurgery (ACCSFN), Beijing, China, September 17-18, 2011
20. Invited Lecture, "Deep Brain Stimulation for Essential Tremor", International Essential Tremor Foundation Symposium, Atlanta, GA, October 14, 2011
21. Invited Lecture, "DBS vs. Ablation in Dystonia: Is DBS Always Better?", 5th International Dystonia Symposium, Barcelona, Spain, October 21, 2011
22. Invited Faculty, "Surgical Issues and Experience in Parkinson's Disease", Surgical Treatment of Movement Disorders: DBS and Beyond? Movement Disorders Society: Pan-American Division, Buenos Aires, Argentina, November 4-5, 2011
23. Invited Faculty, "The Role of Ablative Therapies in Movement Disorders Surgery", Surgical Treatment of Movement Disorders: DBS and Beyond? Movement Disorders Society: Pan-American Division, Buenos Aires, Argentina, November 4-5, 2011
24. Invited Lecture, "Bench to Bedside: Improving Axon Regeneration of the Nigrostriatal Pathway with Gene Therapy; A Novel Approach to Optogenetic Activation, Emory University Movement Disorders Retreat, Atlanta, GA, March 3, 2012
25. Invited Lecture, "Multimicroelectrode electrical neuromodulation at theta frequency for suppression of mesial temporal lobe epilepsy in hippocampal rat model", Antiepileptic

- Drug and Device Trials XII, Turnberry Isle Hotel, Miami, FL, May 17, 2013
26. Invited Lecture, “New targets and technology in deep brain stimulation for Parkinson’s disease”, Morris K. Udall Center Seminar Series, Emory University, Atlanta, GA, November 14, 2013
 27. Invited Lecture, “MRI-guided laser amygdalohippocampotomy”, 5th Annual Swedish Neuroscience Institute Brain Anatomy with Neurosurgical Applications Course for Residents and Fellows, Seattle, WA, March 21, 2014
 28. Invited Lecture, “Surgery for Dystonia”, Dystonia Patient Support Group, Gainesville, GA, April 12, 2014
 29. Invited Lecture, “Clearpoint and Visualase: A Marriage Made at Mars”, Visualase Users Group Meeting, Washington, D.C., June 2, 2014,
 30. Invited Lecture, “Optogenetic Strategies for Epilepsy”, Breakout Session, International Neuromodulation Society, 12th World Congress, Toronto, CA, June 8, 2015
 31. Invited Lecture, “Surgery for Parkinson’s Disease”, Stereotactic and Functional Neurosurgery Course, University of Colorado and American Society for Stereotactic and Functional Neurosurgery, University of Colorado, Aurora, CO, November 13, 2015
 32. Invited Lecture, “The FDA and Epilepsy Surgery”, Emory Institutional Review Board Annual Retreat, Emory University, Atlanta, GA, March 31, 2017
 33. Invited Lecture, “Distributed Network Control with High Density Neuromodulation Technology for the Treatment of Intractable Epilepsy, Deep Brain Stimulation Think Tank V, Atlanta, GA, May 19, 2017
 34. Invited Lecture, “Outcome for Responsive Neurostimulation System in Refractory Epilepsy”, International Neuromodulation Society Interim Meeting, Rio De Janeiro, Brazil, August 9, 2018
 35. Invited Lecture, “Optimized temporal pattern of brain stimulation designed by computational evolution”, International Neuromodulation Society Interim Meeting, Rio De Janeiro, Brazil, August 10, 2018
 36. Invited Lecture, “Comparison of lead accuracy and outcome for MRI- vs. MER-guided DBS implantation for Parkinson’s disease”, International Neuromodulation Society Interim Meeting, Rio De Janeiro, Brazil, August 9, 2018
 37. Invited Lecture, “Setup and Procedure of MRI-guided Laser Interstitial Thermal Ablation”, 3rd International Conference on SEEG and Brain Mapping for Epilepsy, Shanghai, PRC, August 31, 2018
 38. Invited Lecture, “Stereotactic Laser Ablation for Temporal and Extratemporal Epilepsies”, 3rd International Conference on SEEG and Brain Mapping for Epilepsy, Shanghai, PRC, August 31, 2018
 39. Invited Lecture, “Laser Interstitial Thermal Therapy (LITT) for the Treatment of Epilepsy, 23rd Meeting of the European Society for Stereotactic and Functional Neurosurgery, Edinburgh, Scotland, September 26, 2018
 40. Invited Lecture, “Surgical Treatment Options and Patient Selection for Drug-Resistant Epilepsy”, Medtronic Symposium, 23rd Meeting of the European Society for Stereotactic and Functional Neurosurgery, Edinburgh, Scotland, September 26, 2018
 41. Invited Lecture, “Devices and new technologies for treating epilepsy – a Neurosurgeon’s Perspective”, Epilepsy: Advanced Technology for Clinicians, Neuroscience School of Advanced Studies, Venice, IT, October 5 – 10, 2018
 42. Invited Lecture, “Neurosurgery Sees the Light”, Biomedical Engineering Society Annual Meeting, Atlanta, GA, October 19, 2018

43. Invited Lecture, "Anatomy & MR Imaging of Anterior Nucleus of Thalamus", Medtronic Center of Excellence Symposium, Phoenix, AZ, November 2, 2018
44. Invited Lecture, "Luminopsins", Neuromodulation: The Science 2018, Cleveland, OH, November 5, 2018
45. Invited Lecture, "Safety considerations for MR-guided LITT of the medial temporal lobe", Medtronic Visualase Advanced Users Forum, Scottsdale, AZ, February 21, 2019
46. Invited Lecture, "New Era of Neuromodulation for Epilepsy: LITT and RNS and DBS", The 2nd Chinese Association Against Epilepsy Academic Conference on Neuromodulation, Tianjin, PRC, May 19, 2019
47. Invited Lecture, "Optogenetic Approaches for Controlling Seizure Activity", 12th International Epilepsy Colloquium, Lyon, France, May 28, 2019
48. Invited Lecture, "MR guided-Laser Ablation for Epilepsy", Neurosurgery Day, 54th Canadian Neurological Sciences Federation Congress, Montreal, Quebec, CA, June 18, 2019
49. Invited Lecture, "MR guided-Laser Ablation for Epilepsy: Clinical experience", Medtronic-sponsored Lunch and Learn, 54th Canadian Neurological Sciences Federation Congress, Montreal, Quebec, CA, June 18, 2019
50. Invited Lecture, "Multi-disciplinary Disruptive Innovation in Brain Health: The *ENTICE* Model", Emory Innovations D.C., Washington, DC, June 20, 2019
51. Invited Lecture, "Connectomic Targeting (Subgenual Cingulate)", Engineering & Functional Neurosurgery Workshop, World Society for Stereotactic and Functional Neurosurgery Biennial Meeting, New York NY, June 24, 2019
52. Invited Lecture, "Subgenual Cingulate Network in Depression (DBS): From Nodes to Networks... and Back Again, From Nodes to Networks Symposium, World Society for Stereotactic and Functional Neurosurgery Biennial Meeting, New York NY, June 24, 2019
53. Invited Lecture, "Stereotactic Gene Therapy for Movement Disorders: Progress and Future", Voyager Therapeutics Symposium, World Society for Stereotactic and Functional Neurosurgery Biennial Meeting, New York NY, June 25, 2019
54. Invited Lecture, "Surgical Overview: Medtronic DBS for Epilepsy Anterior nucleus of the thalamus (ANT)", Medtronic Symposium, World Society for Stereotactic and Functional Neurosurgery, New York, NY, June 25, 2019
55. Invited Lecture, "Connectomic Targeting in Clinical Practice (Subgenual Cingulate/Depression), Diffusion MRI guidance for Transcranial Focused Ultrasound Focused Ultrasound Society, Charlottesville, VA, August 12-13, 2019
56. Invited Lecture, "DBS: What do we know regarding the science?", Neuromodulation: The Science, Napa Valley, CA, October 4, 2019

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A. Published and accepted research articles in refereed journals:

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2. Gross RE, Bagchi S, Lu X and Rubin CS. Cloning, characterization and expression of the gene for the catalytic subunit of cAMP-dependent protein kinase in *Caenorhabditis elegans*. Identification of highly conserved and unique isoforms generated by alternative splicing. *Journal of Biological Chemistry*, 265, 6896-6907, 1990.
3. Gross RE, Lu XY and Rubin CS. Regulation of the expression of the regulatory subunits of cAMP-dependent protein kinase IIbeta in Friend erythroleukemic cells. Evidence for post-transcriptional

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 5. **Gross RE**, Mehler MF, Mabie PC, Zang Ziyang, Santchi L and Kessler JA. Bone morphogenetic proteins promote astroglial lineage commitment by mammalian subventricular zone progenitor cells. *Neuron*, 17, 595-606, 1996.
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 7. **Gross RE**, Lozano AM, Lang AE, Tasker RR, Hutchison WD and Dostrovsky JO. The effects of GPI pallidotomy on Parkinson's Disease: Study design and assessment techniques. *Acta Neurochir.* (suppl.) 68, 24-28, 1997.
 8. Lozano AM, Kumar R, **Gross RE**, Giladi N, Hutchison W, Dostrovsky JO and Lang AE. Globus pallidus internus pallidotomy for generalized dystonia. *Movement Disorders*, 12, 865-870, 1997.
 9. Lombardi WJ, Andreason PJ, Sirocco KY, **Gross RE**, Rio DE, Umhau JC and Hommer DW. Metabolism in the dorsolateral fronto-subcortical circuit predicts perseveration on the Wisconsin Card Sorting Test following closed-head injury. *Journal of Clinical and Experimental Neuropsychology*, 21, 2-16, 1999.
 10. Wennberg R, Gross D, Quesney F, **Gross RE**, Oliver A and Lozano AM. Transient epileptic foci secondary to subdural and epidural electrode placement. *Clinical Neurophysiology*, 110, 419-423, 1999.
 11. **Gross RE**, Lombardi WJ, Hutchison WD, Narula S, Saint-Cyr J, Dostrovsky JO, Tasker RR, Lang AE and Lozano AM. Variability in lesion location following microelectrode-guided pallidotomy for Parkinson's Disease: Anatomic, physiologic and technical factors determining lesion distribution. *Journal of Neurosurgery*, 90, 468-477, 1999.
 12. **Gross RE**, Lombardi WJ, Lang AE, Duff J, Hutchison WD, Saint-Cyr J, Tasker RR and Lozano AM. Relationship of lesion location to clinical outcome following microelectrode-guided pallidotomy for Parkinson's Disease. *Brain*, 122, 405-416, 1999.
 13. **Gross RE**, Dean A, Lewine J, Chong B, Jones G, Funke M, McDonald P. Relationship of magnetic source imaging to ictal electrocorticography in a neuronavigational workspace. *Stereotactic and Functional Neurosurgery*, 73, 109-114, 1999.
 14. Lombardi WJ, **Gross RE**, Trepanier LL, Lang AE, Lozano AM and Saint-Cyr JA. Relationship of lesion location to cognitive outcome following microelectrode-guided pallidotomy for Parkinson's Disease: Support for the existence of cognitive circuits in the human pallidum. *Brain*, 123, 746-768, 2000.
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1. "Deep Brain Stimulation in the Treatment of Epilepsy". Emory Epilepsy Center, Clinical Notes, August 2005.
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3. "Yes...I WILL Be Using A Laser!": Laser Interstitial Thermal Therapy (LITT) for Tumors and Epileptic Foci". Congress of Neurological Surgeons Quarterly, Spring, 2014

I. Patents

METHODS, SYSTEMS AND COMPUTER READABLE STORAGE MEDIA STORING INSTRUCTIONS FOR ADAPTIVELY CONTROLLING NEUROMODULATION for which a United States Provisional Application was filed on November 6, 2013 and assigned Serial No. 61/900,452; Mahmoudi B, **Gross RE**

NOVEL METHOD TO ACTIVATE OPTOGENETIC VECTORS USING GENE-BASED FLUOROPHORE EXPRESSION for which a United States Provisional Application was filed on December 24, 2013 and assigned Serial No. 61/908,964; Laxpati, **Gross RE**

OPTOGENETIC INHIBITION OF OVERACTIVE NEURONAL ACTIVITY for which a United States Provisional Application was filed on October 31, 2014 and assigned Serial No. 14/529,539; **Gross RE**, Tung JT, Berglund K, Laxpati N