Alejandro Parga, M.D., Ph.D.
apargab@gmail.com | portfolio
Seattle, WA

Professional Profile

Physician–Neurophysiologist and research leader with extensive experience integrating clinical neurophysiology, translational neuroscience, and biomedical innovation. Over 15 years bridging experimental and clinical domains through multidisciplinary research and therapeutic development, with expertise in vector-based interventions, optogenetics, and neurophysiology. Adept in establishing and directing high-performance neuroscience programs, coordinating medical and scientific teams, and fostering academic–industry collaborations. Committed to advancing neurorestorative strategies and precision technologies for human brain repair and functional recovery.

Current Leadership Roles

Seattle Children's Research Institute – Center for Integrative Brain Research
Project Lead, Neurodevelopmental Research & Program Integration | Seattle, WA | 2023 – Present

- Orchestrating the establishment of a translational neurodevelopmental research laboratory.
- Leading multi-institutional collaborations across the Seattle neuroscience community.
- Overseeing scientific operations, laboratory strategy, and research portfolio alignment to clinical goals.
- Supervising cross-functional project teams integrating neuroimaging, single-cell omics, and circuit electrophysiology.

Core Competencies

- Translational and Clinical Neuroscience Leadership
- Multidisciplinary Research Program Development
- Electrophysiology & Patch-Seq Platforms
- Neurodevelopment & Brain Injury Mechanisms
- Opto/Chemogenetic and Viral Vector Methodologies
- Strategic Collaborations and Institutional Partnerships
- Regulatory and Ethical Oversight of Human/Animal Studies
- Clinical Coordination and Medical Program Management

Professional Experience

University of Washington, Department of Physiology & Biophysics
Research Scientist / Engineer III | 2022 – 2023

- • Integrated morphological, functional, and transcriptomic approaches to map infragranular pyramidal neuron diversity in the primate brain.
- • Advanced the multimodal pipeline combining Patch-Seq electrophysiology with single-cell RNA-sequencing, supporting NIH-funded translational projects.

Veterans Affairs Puget Sound & University of Washington, Department of Neurology
Senior Research Fellow, Epilepsy Center of Excellence | 2017 – 2021

- • Established an electrophysiology core to study GABAergic dysfunction following traumatic brain injury.
- • Directed experimental design and data analysis across multiple VA-funded projects on post-traumatic epilepsy and hippocampal neuroplasticity.
- • Collaborated with clinical neurologists to align cellular findings with patient neuropathology data.

University of Arizona, College of Medicine
Postdoctoral Research Associate | 2015 – 2016

- • Investigated neurosteroid modulation of cortical spreading depression and its implications for migraine pathophysiology.
- • Pioneered optogenetic models of targeted pyramidal inhibition to control cortical excitability.

Barrow Neurological Institute / Arizona State University
Research Associate | 2008 – 2014

- • Elucidated striato-thalamo-cortical pathways mediating dopaminergic auditory activation.
- • Implemented viral tracing and electrophysiological assays to characterize auditory circuit plasticity relevant to psychosis models.

National University of Colombia / Colombian Army Medical Corps
Medical Coordinator and Emergency Physician | 2005 – 2006

- • Directed medical services for over 1,500 military personnel, managing emergency operations and trauma response.

- • Supervised medical brigades, nursing teams, and pharmacological logistics for remote operations.
- • Led training programs in advanced cardiovascular life support and emergency protocols.

Selected Grants and Contributions

• NINDS R01MH123620-01 – Multimodal analysis of primate infragranular pyramidal neurons: Electrophysiologist; integrated single-cell morpho-functional and transcriptomic data.
• VA BX002745 – Regulation of extrasynaptic GABA-A receptors in disease: Lead Neurophysiologist; established optogenetic electrophysiology pipeline.
• NINDS R01NS087031 – Mechanisms of neurosteroid regulation of migraine: Postdoctoral Co-Investigator; implemented opto/chemogenetic stimulation paradigms.

Education

Ph.D. Neuroscience – Barrow Neurological Institute / Arizona State University
Dissertation: Cortical auditory functional activation by cortico-striato-thalamo-cortico circuits: Mechanisms underlying auditory hallucinations.

M.D. Neurophysiology – National University of Colombia, Bogotá

Key Publications

• Dembrow N., Parga A., et al. Areal specializations in the morpho-electric and transcriptomic properties of layer 5 neurons in the primate neocortex. Neuron (2024, submitted).
• Parga A., Logsdon A., Banks W., Ransom C. Traumatic brain injury broadly affects GABAergic signaling in dentate gyrus granule cells. eNeuro (2021).
• Hoffman A.N., Parga A., et al. Chronic stress-enhanced fear memories and amygdala zif268 expression. Neurobiology of Learning and Memory (2015).

Professional Memberships

Society for Neuroscience (SfN)
Colegio Colombiano de Neurociencia (COLNE)
International Brain Research Organization (IBRO)

Languages

English – Native Proficiency
Spanish – Native Proficiency