Juan C. **Sanchez-Arias**

Postdoctoral Fellow

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"Any man could, if he were so inclined, be the sculptor of his own brain." Santiago Ramon y Cajal

Education

University of Victoria

Victoria, BC. Canada

PhD in Neuroscience *Jan. 2015 - April. 2020*

- **Dissertation**: Pannexin 1 regulates dendritic spine formation.
- **GPA**: 8.2/9.0.
  - **Relevant Coursework:** Developmental neurobiology, Tools for the study of ion channels.

Universidad del Valle - School of Medicine

Cali, Valle. Colombia

Doctor of Medicine *Aug. 2007 - Oct. 2014*

- **Pre-Diploma Rotatory Internship**: Hospital Universitario del Valle ESE - Universidad del Valle. Cali, Valle. Colombia.
- **Research Internship**: Centro de Estudios Cerebrales (Centre for Brain Studies). Universidad del Valle. Cali, Valle. Colombia
  - *Area of study*: Cerebral cortex cytoarchitectonics, functional neuronatomy, diffuse traumatic brain injury and ischemic stroke models in rats. Supervisors: Prof. Hernan Pimienta, Prof. Marhta Escobar, and Prof. Efrain Buritica.
- **Observership**: Functional Neurosurgery. Department of Neurosurgery. University of Illinois Hospital & Health Sciences System. University of Illinois at Chicago. Chicago, IL. USA. Supervisor: Dr. Konstantin Slavin.
- **Professional elective**: Neurosurgery and Neurocritical Care. Department of Neurosurgery.Hospital Universitario del Valle ESE - Universidad del Valle. Cali, Valle. Colombia.
- **GPA**: 4.4/5.0.
  - **Relevant Coursework:** Functional Neuroanatomy, Cerebral cortex cytoarchitectonics, Scientific Integrity, Bio-statistics, Addiction and Pharmacology, Systems Pathology

Skills

Research	Project management, experimental design, data management, statistical analysis and modeling, scientific writing, delivery of reports and presentation of results to specialized and lay audiences.
Laboratory	Confocal and Stimulated-emission-depletion (STED, super-resolution) microscopy, live cell microscopy, cell culture and transfection (cell lines and primary neurons), immunocyto(histo)chemistry, transgenic mouse colony management and generation of conditional knockouts (Cre-Lox), rodent surgery (stroke induction and viral vector injection), rodent behavioural testing
Programming	R, Python, ImageJ Macro Language (IJM), HTML, Markdown, LaTeX
Software	Microsoft Office Suite, Adobe Creative Suite, ImageJ/FIJI, RStudio
Languages	English (fluent), Spanish (native)

Research Experience

University of Victoria

Victoria, BC. Canada

Postdoctoral Fellow *Aug. 2020 - Aug. 2022*

- Advisors: Leigh Anne Swayne, PhD., Laura Arbour, MSc, MD, MSc, FRCPC, FCCMG
- Area of Study: dendritic spine plasticity, synapse and neuronal network formation, channel trafficking, cytoskeleton in neurons and cardiomyocytes, Ca^2+ dynamics in neurons and cardiomyocytes
  - Investigating the role of pannexin 1 (PANX1) and PANX1 blockers in the regulation of the neuronal cytoskelton
  - Application of advanced microscopy (fixed and live) for cell biology
  - Established immunocyto(histo)chemistry protocols that preserve the neuronal cytoskeleton.

University of Victoria *Victoria, BC. Canada*

Graduate Fellow in Neuroscience *Jan. 2015 - Apr. 2020*

- Advisor: Leigh Anne Swayne, PhD.
- Area of Study: Pannexin 1 channels, dendritic spine plasticity, synapse formation, channel trafficking, neuronal cytoskeleton dynamics, neural stem cells, advanced microscopy for cell biology.
    - Generated conditional and conditional-inducible knockout models for the study of cerebral cortex development.
    - Optimized protocols to generate primary neuronal cultures from neonatal mice suitable for network analysis.
    - Developed methods to visualize dendritic spines and filopodia in tissue sections and living primary neurons.
    - Established immunocyto(histo)chemistry protocols that preserve the neuronal cytoskeleton.

Centro de Estudios Cerebrales - Universidad del Valle *Cali, Valle. Colombia*

Research Intern in Biomedical Sciences - Neuroscience Concentration *Feb. 2014 - Jun. 2014*

- Advisors: Prof. Martha Escobar, MSc; Prof. Hernan Pimienta, MSc, Prof. Efrain Buritica, PhD.
- Area of study: functional neuroanatomy, cerebral cortex organization, traumatic brain injury, stroke, neuroprotection.
- Performed carotid ligation in Whistar rats using microsurgery techniques.
- Used the weight-drop model of diffuse traumatic brain injury to generate organotypic slice cultures from rats.
- Optimized immunohystochemistry for neuronal and astrocytic markers in thick rat brain tissue sections.

School of Public Health - Universidad del Valle *Cali, Valle. Colombia*

Student Researcher *Aug. 2010 - Feb. 2011*

- Advisors: Enrique A. Estevez, MD and Elsa P. Muñoz, MD, MPH
- Area of study: ardiovascular risk factor assessment in spinal cord injured patient assisting to a tertiary-level hospital.
    - Prepared a research project proposal, liaised with ethical boards, and established a network of collaborators to complete using a standarized survey.
    - Prepared reports and presentations to share project results in local and national meetings.
    - Created a database in EpiInfo 7 for data collection, data management, and statistical analysis.
    - Contributed to the assessment and management of patients with chronic spinal cord injury, including prescribing rehabilitation plans and ordering of radiological and laboratory ancillary tests. Discussed cases with Physical Medicine and Rehabilitation attendings and residents.

Teaching Experience

University of Victoria - Division of Medical Sciences *Victoria, BC. Canada*

Teaching Assistant *Spring 2017, Fall 2018, Spring 2020*

- Course: Foundations of Medical Practice I and II
- Program: Island Medical Program - University of British Columbia
    - MEDD412 - Neuroanatomy Bootcamp #1 (Year 1).
    - MEDD412 - Neuroanatomy Lab on Cranial Nerves V & VII and Pain (Year 1).
    - MEDD412 - Neuroanatomy Lab on Eye Movements and Brainstem (Year 1).
    - MEDD421 - Neuroanatomy Lab on Cerebral Cortex, Functional Areas, and Blood Supply (Year 2).
    - MEDD421 - Neuroanatomy Lab on Control of Movement and Cerebellum (Year 2).
    - MEDD422 - Neuroanatomy Lab on Limbic System/Dementia (Year 2).

Service & Leadership

BC Regenerative Network (BCREGMED) *Victoria & Vancouver, BC. Canada*

Trainee Steering Committee *Feb. 2017 - PRESENT*

- Co-editor for the BC Regenerative Medicine Network Newsletter.
- Member of the BCREGMED Symposium Organizing and Scientific committee.

CIHR Brain Bee - Victoria Chapter *Victoria, BC. Canada*

Organizer *2017 - PRESENT*

- Organized and coordinated social media for the Victoria Brain Bee. Mentored high school students from the Greater Victoria Area who participated in the Brain Bee competition.
- Secured funding to sponsor Victoria Brain Bee winners traveling to the CIHR National Brain Bee.

Neuroscience Graduate Student Association (NGSA) *Victoria & Vancouver, BC. Canada*

Student Member *2017 - PRESENT*

- Student Representative - Division of Medical Sciences.
- Member of the Organizing Committee for the Neuroscience Graduate Program Kick-Off. Liased and recruited keynote speakers for seminar lectures.

Let's Talk Science - UVic *Victoria, BC. Canada*

Volunteer *Oct 2018 - PRESENT*

- Involved in Neuroscience Outreach talks and high school science excursions at the University of Victoria - Division of Medical Sciences.

Honors & Awards

International Gap Junction Conference NB Gilula Star Award, 2019 *IGJC2019*
John & Myrtle Tilley Graduate Scholarship, 2019 *UVic-FGS*
BC Regenerative Medicine Travel Award, 2018 *BCREGMED*
Donald Wagg Graduate Scholarship, 2017 2018 *UVic-FGS*
Vera Allen Travel Award for Medical Sciences, 2016 2017 2018 2019 *UVic-FGS*
University of Victoria Student Travel Grant, 2016 *UVic-FGS*
James A. & Laurette Agnew Memorial Scholarship & Award, 2015 2016 2017 2018 2019 *UVic-FGS*
University of Victoria Graduate Award, 2015 2017 2018 2019 *UVic-FGS*
University of Victoria Fellowship Award, 2015 *UVic-FGS*
Universidad del Valle - School of Medicine Dean's List, 2007 2009 2013 2014 *UniValle*
Public High School Academic Excellence Scholarship, 2006 *InfiValle-Colombia*

Publications

Journal Articles

Presentations

Oral Presentations

UBC nd Annual Tri-Cluster Research Day: The Future of Health *Virtual*

Top 10 Submissions Lighting Round: Pannexin 1 regulates dendritic protrusion dynamics in developing cortical neurons *November 4, 2020*

International Gap Junction Conference *Victoria, BC. Canada*

Star Award Talk: Pannexin 1 regulates neuronal networks and dendritic spine formation in cortical neurons *July 27-31, 2019*

University of Victoria - Neuroscience Graduate Program Kick-Off *Victoria, BC. Canada*

Pannexin 1 regulates cortical dendritic spine formation *September 14, 2018*

BC Regenerative Medicine Symposium *Vancouver, BC. Canada*

Pannexin 1 in neuronal development *May 10, 2017*

XV Health Sciences Research Symposium: Disability and Life Cycle - Universidad del Valle *Cali, Colombia*

Behavioural risk factors associated with cardiovascular disease in chronic spinal cord injury *Oct. 14, 2013*

XXI Colombian Student´s Congress of Medical Research (CECIM) *Bucaramanga, Colombia*

A pilot for the assessment of behavioural risk factors associated with cardiovascular disease in spinal cord injury *May. 5, 2010*

Poster Presentations