Curriculum Vitae

Maria Medalla, Ph.D.
Department of Anatomy and Neurobiology
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Academic Training:

9/2008 Ph.D.	Boston University, Boston, MA; Applied Anatomy and Physiology
3/2001 B.S.	University of the Philippines, Diliman, Quezon City, Philippines; Biology

Additional Training:

3/2012-7/2015	Post Doc in Neurophysiology, Jennifer Luebke, Boston University School of Medicine, Boston, MA
10/2008-2/2012	Post Doc in Neuroanatomy, Helen Barbas, Boston University, Boston, MA

Academic Appointments:

11/2021-present	Associate Professor in Anatomy and Neurobiology, Boston University School of Medicine, Boston, MA
8/2015-11/2021	Assistant Professor in Anatomy and Neurobiology, Boston University School of Medicine, Boston, MA

Honors:

2018	Jack Spivack Emerging Leaders in Neuroscience Award
3/2001	Phi Kappa Phi Honors Society
3/2001	Phi Sigma Biological Honors Society

Major Administrative Responsibilities:

2021-present	BUSM TEM Core Assistant Director
6/2020-present	Anatomy & Neurobiology PhD Adviser

Departmental, School and University Committees:

12/2020-01/2021	Member, Anatomy & Neurobiology Faculty Search Committee
12/2020-01/2021	Member, Department of Biology Cellular and Molecular Neurobiology Faculty Search Committee
04/2017-05/2017	Member, Anatomy & Neurobiology Faculty Search Committee
2017-present	Member, Anatomy & Neurobiology Diversity Inclusion, Equity and Justice (DEIJ) Committee
2015-present	Member, Anatomy & Neurobiology Graduate Education Committee

Teaching Experience and Responsibilities:

Courses:

2018-present	Lecturer for PrISM Modules Medical Neuroscience & Medical Immunology (Module Directors: Jean-Jacques Soghomonian and Simone Levy)
Spring 2018	Co-Course Director for Methods in Neuroscience (Co-Course Director, Jean-Jacques Soghomonian)
2017-present	Lecturer for PrISM Module Cellular Foundations of Medicine (Module Director: Deborah Vaughan)
2015-present	Laboratory Instructor for Medical Histology in several PrISM modules (PrISM Director: Deborah Vaughan):

	MS141 PrISM Module Cellular Foundations of Medicine MS142 PrISM Module Body Structures MS144 PrISM Modules Medical Neuroscience & Medical Immunology MS145 PriSM Cardiovascular System MS146 PrISM Modules GI and Nutrition & Endocrinology and Reproduction
2014-present	Laboratory and Discussion Instructor Medical Neuroscience PrISM module (Module Directors, 2014-2016: Jarrett Rushmore and Simone Levy; 2017 Jean-Jacques Soghomonian and Simone Levy)
2014-present	Lecturer for Methods in Neuroscience (Course Director, Jean-Jacques Soghomonian)
2014-present	Lecturer for Cellular and Systems Neuroscience on the topic of Cortical Physiology (Directors, Douglas Rosene, Jerry Chen, William Eldred)
Fall 2013	Journal Club Facilitator on the topic The Diversity of Cortical Pyramidal Neurons
Fall 2014	Journal Club Facilitator on the topic Inhibitory Neurons in the Cortex
2004-2011	Lecturer and Teaching Assistant for Neural Systems and for Readings in Neuroscience Courses on the topics of Working Memory and Attentional Systems, and Synaptic Structure in the Cortex (Course Director, Helen Barbas)

PhD. Dissertation Advisory Committee:

Wayne Chang (Anatomy and Neurobiology)
Kathryn Babcock (Anatomy and Neurobiology)
Alexandra Tsolias (Anatomy and Neurobiology)
Sarah Devries (Anatomy and Neurobiology)

Completed:

Hana Yeh (Pharmacology & Experimental Therapeutics) Completed, 07/30/2021
Ajay Uprety (Anatomy and Neurobiology) Completed, 07/28/2021
David Swain (MD/PhD, Anatomy and Neurobiology) Completed, 05/07/2021
Katelyn Trecartin (MD/PhD, Anatomy and Neurobiology), Completed, 04/14/2021
Kevin Clayton (PhD, Pharmacology & Experimental Therapeutics) Completed, 03/26/2021
Sema Quadir (PhD, Pharmacology & Experimental Therapeutics), external member, Completed, 9/14/2020
Chelsey LeBlang (PhD, Anatomy and Neurobiology), Completed, 03/12/2020
Ruiyi Ren (PhD, Anatomy and Neurobiology), Completed, 07/06/2018
Eli Shobin (PhD, Graduate Program in Neuroscience), second reader, Completed, 03/16/2018
Sharon O'Neill (PhD, Anatomy and Neurobiology), Completed, 03/15/2018
Mary Orczykowski (PhD, Anatomy and Neurobiology), Completed 07/2017
Roman Loonis (MD-PhD, Anatomy and Neurobiology), Completed 06/2017
Teresa Guillamon-Vivancos (PhD, Anatomy and Neurobiology), Moderating chair, Completed, 03/2017
Nadine Heyworth, (PhD, Department of Anatomy and Neurobiology), Moderating chair, Completed, 06/2016

Major Mentoring Activities:

Mentee, degree(s)	Dates	Collaborative-manuscript or product produced	Mentee Current Position
Student (PhD)			
Alexandra Tsolias PhD Anatomy and Neurobiology	2016-present	First author in published Abstract/Poster: **Tsolias A.,** Chang W., Guillamon-Vivancos T., Kopp C., Busch S., Luebke, J., Medalla M. (2021) Muscarinice acetylcholine receptor localization on distinct excitatory and inhibitory neurons within the ACC and LPFC of the rhesus monkey. SFN Global Connectome Abstract. January 11-13, 2021 Co-author in: Medalla M, Chang W**,** Calderazzo SM, Go V, **Tsolias A,** Goodliffe JW, Pathak D, De Alba D*, Pessina M, Rosene DL, Buller B, Moore TL. (2020) Treatment with Mesenchymal-Derived Extracellular Vesicles Reduces Injury-Related Pathology in Pyramidal Neurons of Monkey Perilesional Ventral Premotor Cortex. J Neurosci. 40(17):3385-3407. Epub 2020 Apr 2	Current PhD student
Student (Masters)			
Paola Castro-Mendoza MS Anatomy and Neurobiology candidate	2021-present	co-mentored by Jennifer Luebke Effects of aging on markers for myelination and inflammation in rhesus monkey prefrontal cortex	
Bingxin Mo MS Anatomy and Neurobiology candidate	2021-present	co-mentored by Jennifer Luebke Inhibitory circuitry in distinct frontal and visual cortices in mouse versus monkey	
Dickson Chen MS Anatomy and Neurobiology	2020-2021	co-mentored by Jennifer Luebke MS thesis:	
Rakin Nasar MS Anatomy and Neurobiology	2019-2020	co-mentored by Jennifer Luebke MS Thesis: Comparisons of calretinin and parvalbumin neuronal distribution, density and inhibitory synapses in rhesus monkey prefrontal cortex and primary visual cortex and the analogous areas of mice	Research Technician and Medical student applicant
Junwoo Louis Park MS Anatomy and Neurobiology	2019-2020	co-mentored by Jennifer Luebke MS Thesis: Differential Calretinin Interneuron Morphology in the Primary Visual Cortex versus the Lateral Prefrontal Cortex in the Monkey and Mouse	Research Technician in industry

Mentee, degree(s)	Dates	Collaborative-manuscript or product produced	Mentee Current Position
Yuxin Zhou MS Anatomy and Neurobiology	2019-2020	co-mentored by Tara Moore MS thesis and publication in preparation: Mesenchymal Stem Cells Derived Extracellular Vesicles Enhance Excitatory Synapses by Inhibiting Neuroinflammatory Responses after Cortical Injury in Rhesus Monkeys First author in published Abstract/ Poster: **Zhou, Y.,** Go V.,. Rosene DL, Buller B, Moore TL and M Medalla (2021) Extracellular Vesicles Derived from Mesenchymal Stem Cells Modulate Microglia-Synapse Structural Interactions after Cortical Injury in Rhesus Monkeys. SFN Global Connectome Abstract. January 11-13, 2021 Co-author in: Go V, Sarikaya D, **Zhou Y**, Bowley BGE, Pessina MA, Rosene DL, Zhang ZG, Chopp M, Finklestein SP, Medalla M, Buller B, Moore TL. (2020) Extracellular vesicles derived from bone marrow mesenchymal stem cells enhance myelin maintenance after cortical injury in aged rhesus monkeys. Exp Neurol.:113540	Research Technician position to Current PhD Student
Samantha Calderazzo MS Anatomy and Neurobiology		co-mentored by Tara Moore **Calderazzo SM**, Busch SE, Moore TL, Rosene DL, Medalla M. (2021) Distribution and overlap of entorhinal, premotor, and amygdalar connections in the monkey anterior cingulate cortex. J Comp Neurol. 2021 Mar;529(4):885-904. doi: 10.1002/cne.24986. Epub 2020 Aug 13. Medalla M, Chang W, **Calderazzo SM**, Go V, Tsolias A, Goodliffe JW, Pathak D, De Alba D*, Pessina M, Rosene DL, Buller B, Moore TL. (2020) Treatment with Mesenchymal-Derived Extracellular Vesicles Reduces Injury-Related Pathology in Pyramidal Neurons of Monkey Perilesional Ventral Premotor Cortex. J Neurosci. 40(17):3385-3407. Epub 2020 Apr 2	Current MD-PhD student, BUSM

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Mathias Nittmann, MS Medical Sciences	2016-2017	MS Thesis: Morphological properties of projection specific pyramidal neurons of primate anterior cingulate cortex Co-author in manuscript submitted: Medalla et al., (2021) Layer-specific pyramidal neuron properties underlie diverse anterior cingulate cortical motor and limbic networks.	MD candidate, 2021 USF Morsani College of Medicine
Charles Kopp, MS Medical Sciences	2016-2017	MS Thesis: Cholinergic Modulation Of Excitatory Synapses Of The ACC And LPFC	MD student
Alexander Hsu MS Anatomy and Neurobiology	2015-2016	co-mentored by Jennifer Luebke MS thesis: Comparison of excitatory synapses in diverse cortical areas of The mouse and monkey First author in: **Hsu A,** Luebke JI, Medalla M. (2017) Comparative ultrastructural features of excitatory synapses in the visual and frontal cortices of the adult mouse and monkey. J Comp Neurol. 2017 Jun 15;525(9):2175-2191	PhD Student Carnegie Mellon University Computational Neuroscience program
Joshua Gilman MS Medical Sciences	2013-2014	co-mentored by Jennifer Luebke MS Thesis Co-author in Medalla M, **Gilman JP**, Wang JY, Luebke JI. (2017) Strength and Diversity of Inhibitory Signaling Differentiates Primate Anterior Cingulate from Lateral Prefrontal Cortex. J Neurosci. 2017 May 3;37(18):4717-4734.	continued as a medical student at Rutgers University to a BUSM resident
Jingyi Wang MS Anatomy and Neurobiology	2013-2014	co-mentored by Jennifer Luebke MS Thesis: Co-author in Medalla M, Gilman JP, **Wang JY**, Luebke JI. (2017) Strength and Diversity of Inhibitory Signaling Differentiates Primate Anterior Cingulate from Lateral Prefrontal Cortex. J Neurosci. 2017 May 3;37(18):4717-4734.	continued as a Ph.D. student in Human Physiology program at Sargent College, Boston University Now a post-doc at University of California, Santa Barbara

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Brendan Hunt MS Medical Sciences	2012-2013	co-mentored by Jennifer Luebke MS Thesis: Synapses Loss Does Not Correlate With Cognitive Decline During Aging In The Rhesus Monkey Primary Visual Cortex Co-author in: Luebke JI, Medalla M, Amatrudo JM, Weaver CM, Crimins JL, **Hunt B**, Hof PR, Peters A. (2013) Age-Related Changes to Layer 3 Pyramidal Cells in the Rhesus Monkey Visual Cortex. Cereb Cortex. 2013 Dec 8. PMID: 24323499	continued as a Ph.D. student in University of Calgary
Seung-Yeon Kim MS Cognitive and Neural Systems	2011-2012	co-mentored by Helen Barbas MS Thesis: Ultrastructural analyses of synapses from superior temporal cortex terminating in distinct prefrontal areas in rhesus monkeys	continued as a technician in Massachusetts General Hospital, continued to several industry jobs and is now a US Insights & Analytics, Lung Cancer Franchise Lead Takeda
Student (Undergraduates and Post-Baccalaureate)			
Mitali Sakharkar, Undergraduate CAS, Medical Sciences (Seven-Year Medical Program), Minor: Psychology and Neuropsychological Science, BU Undergrad Research Opportunity Program (UROP) Awardee	2020-2021 Spring 2021	Co-author in published Abstract/Poster: Pessina M., Zhou Y., Sakharkar M.R.*, Bowley B.G.E., . Rosene DL., Medalla M., and TL. Moore (2020). The efficacy of curcumin to facilitate recovery of function in a rhesus monkey model of cortical injury. SFN Global Connectome Abstract. January 11-13, 2021 UROP project: Semi-automated quantification of 3D morphology muscarinic receptor expression of inhibitory neurons in anterior cingulate and lateral prefrontal cortices in rhesus monkey	BU undergraduate student
Chantal Aaron BUSM Post-baccalaureate Research Education Program (BU PREP)	2020-2021	co-mentored by Jennifer Luebke Project: Effects of curcumin treatment on myelin integrity in middle aged monkeys	Incoming PhD Student at Tufts University
Lazaro Fernandez BUSM GMS STaRs Undergraduate Summer Research Internship Awardee	Summer 2020	co-mentored by Jennifer Luebke Project: Effects of curcumin treatment on synapse ultrastructure in middle aged monkeys	Florida International University undergraduate student

Mentee, degree(s)	Dates	Collaborative-manuscript or product produced	Mentee Current Position
Diego DeAlba BUSM Post-baccalaureate Research Education Program (BU PREP)	2019-2020	co-mentored by Jennifer Luebke Co-author in Medalla M, Chang W, Calderazzo SM, Go V, Tsolias A, Goodliffe JW, Pathak D, **De Alba D**, Pessina M, Rosene DL, Buller B, Moore TL. (2020) Treatment with Mesenchymal-Derived Extracellular Vesicles Reduces Injury-Related Pathology in Pyramidal Neurons of Monkey Perilesional Ventral Premotor Cortex. J Neurosci. 40(17):3385-3407. Epub 2020 Apr 2	PhD student in UC Santa Barbara
BUSM GMS STaRs Undergraduate Summer Research Internship Awardee	Summer 2018	Poster presented in BU Russek Day, 2019: Effects of mesenchymal–derived extracellular vesicle treatment on distinct GABAergic cell types and receptors in perilesional premotor cortex Poster presented in ABRCMS, 2018: De Alba, D., Chang, W., Busch SE., Luebke JI., Buller B., Moore TL., and M. Medalla (2018) Recovery-associated alterations to dendritic morphology and electrophysiology of pyramidal neurons after cortical injury in primate premotor cortex.	

Mentee, degree(s)	Dates	Collaborative-manuscript or product produced	Mentee Current Position
Anastasia Kapitonava Undergraduate BS CAS, Neuroscience	2019-2020	Co-author in: Medalla et al., 2021 Layer-specific pyramidal neuron properties underlie diverse anterior cingulate cortical motor and limbic networks. BU Undergraduate Honors Thesis: Properties of Inhibitory Inputs on Amygdala-targeting Projection Neurons in Anterior Cingulate Cortex of Rhesus Monkey First author in SFN Global connectome 2020 published Abstract/Poster: **Kapitonava, A.** and M. Medalla. (2020) Distribution of distinct inhibitory synapses on amygdala-targeting projection neurons in dorsal and ventral anterior cingulate cortex. SFN Global Connectome Abstract. January 11-13, 2021 Co-Author in the following published Abstracts/Posters: Medalla M., Chang W., Ibañez S., Guillamon-Vivancos T., Nittman M., **Kapitonava A.,** Busch S.E. , Rosene D.L., Moore T.L.and J.I. Luebke. (2020) Lamina-specific biophysical and structural properties of amygdala and premotor targeting pyramidal neurons in monkey anterior cingulate cortex. SFN Global Connectome Abstract. January 11-13, 2021 Ibañez S., Chang W., Guillamon-Vivancos T., **Kapitonava A.,** Luebke JI. and M. Medalla (2020). Diverse oscillatory dynamics predicted by network models of layer-specific premotor- and amygdala-targeting pyramidal neurons in the anterior cingulate cortex. SFN Global Connectome Abstract. January 11-13, 2021	continued on as a Clinical Neurotechnology Research Assistant, Department of Neurology, MGH current Medical school applicant
Undergrad Research Opportunity Program (UROP) Awardee	Summer 2018	UROP project and First author in published Abstract/Poster for 2019 New England Science Symposium: Kapitonava, A and M. Medalla, 2019 Distinct inhibitory synaptic properties in the ACC circuits for motor-planning and emotions in rhesus monkey	

Mentee, degree(s)	Dates	Collaborative manuscript or product produced	Mentee Current Position
Gerardo Sequen Rivera BUSM GMS STaRs Undergraduate Summer Research Internship Awardee	Summer 2019	co-mentored by Jennifer Luebke Project: Ultrastructural analyses of inhibitory synapses in Q175 mouse model of Huntington's disease	El Camino College
James Zhao, Undergraduate BS CAS, Neuroscience Undergrad Research Opportunity Program (UROP) Awardee	2018-2019 Summer 2019	UROP Poster: The effects of TIA1 RNA binding protein on TNF-α pro-inflammatory cytokine expression and mitochondrial degeneration in a mouse model of tauopathy Co-author in: LeBlang CJ, Medalla M, Nicoletti NW, Hays EC, **Zhao J,** Shattuck J, Cruz AL, Wolozin B, Luebke JI. (2020). Reduction of the RNA Binding Protein TIA1 Exacerbates Neuroinflammation in Tauopathy. Front Neurosci. 14:285. doi: 10.3389/fnins.2020.00285. eCollection 2020.	BU graduate, 2021 and current Medical school applicant
Mollie Sherman Summer Program in Neuroscience (SPIN) 2019	Summer 2019	Quantified m1/m2 expressing cells in specific anterior cingulate and lateral prefrontal cortical pyramidal neurons in rhesus monkey	University of Northern Iowa, graduate
Caroline Beneville, Summer Program in Neuroscience (SPIN) 2018	Summer 2018	Quantified spines on dendrites of projection specific anterior cingulate and lateral prefrontal cortical pyramidal neurons in rhesus monkey	Lafayette College graduate Strategy and Life Science Associate at IQVIA
Haeji Chung, Summer Program in Neuroscience (SPIN) 2018	Summer 2018	Quantified and 3D reconstructed synapses in electron microscope images of Q175 mouse model of Huntington's disease	Dickinson College graduate 2019 Research assistant position at Harvard Medical School, Current medical school applicant
Courtney Dunphy, Summer Program in Neuroscience (SPIN) 2017	Summer 2017	Quantified cfos expression and microglia morphology after cortical injury	Colgate University, graduate 2018
Joy Yang, Summer Program in Neuroscience (SPIN) 2017	Summer 2017	Quantified cannabinoid receptor 1 and muscarinic receptor 2 expression on inhibitory axon terminals in anterior cingulate and lateral prefrontal cortex of rhesus monkey	Emory University

Mentee, degree(s)	Dates	Collaborative-manuscript or product produced	Mentee Current Position
Alexandra J Morquette, BUSM GMS STaRs Undergraduate Summer Research Internship Awardee	Summer 2015	co-mentored by Jennifer Luebke Poster presented in ABRCMS, 2015: Quantification of GABAergic Inhibitory Synapses in Rhesus Monkey Neocortex through Detection of the vesicular GABA transporter VGAT contributed to: Medalla M, Gilman JP, Wang JY, Luebke JI. (2017) Strength and Diversity of Inhibitory Signaling Differentiates Primate Anterior Cingulate from Lateral Prefrontal Cortex. J Neurosci. 2017 May 3;37(18):4717-4734.	Columbia University graduate Medical student at Temple University
Students (High School Interns)			
Adrian Lin	Summer 2021	BU RISE High School Summer Research Intern	Current student
Marianna Tsolias	Summer 2020-Summer 2021	High School Research Intern Volunteer	Current student
William Alano,	Summer 2019	High School Summer Research Intern Volunteer	Continued as a student at Wentworth Institute of Technology
Kiran Bhai	Summer 2009	BU CELEST NSF High School Summer Research Intern, neuroscience (co-mentored by Helen Barbas)	Continued as a student at Duke University

Professional Societies: Memberships, Offices, and Committee Assignments:

2005-present Member, Society for Neurosciences

Invited Journal Reviewer:

Communications Biology
eNeuro
Neuron
Journal of Histochemistry and Cytochemistry
Neurobiology of Aging
Scientific Reports
Frontiers Journals
Cerebral Cortex
European Journal of Neuroscience
Journal of Comparative Neurology

Invited Grant Reviewer:

Paul G. Allen Frontiers Group Award

Other Support:

Current:

12/2021-11/2023	NIMH R21MH126250 (PIs: M. Medalla, E. Zeldich): Transcriptomic, physiological, and neurochemical profiling of cortico-limbic projection neurons in monkey anterior cingulate cortex. Total Direct Cost, $247,500 year 1; $206,250/year 2. Role: Co-Principal Investigator
9/2021-11/2026	NINDS R01-NS122969 (PIs: J. Luebke and C. Chandrasekaran): Multimodal characterization of prefrontal and premotor circuits underlying perceptual decision making in the rhesus monkey. Total Direct Cost, $408,694/year. Role: Co-Investigator
04/2020-03/2021	NIH/NINDS R56 NS112207-01A1 **(**MPIs: TL Moore and B Buller) Neural substrates of exosome-mediated enhancement of recovery after cortical injury in non-human primates. Total Direct Cost, $350,000/year ` Role: Co-Investigator
07/2020-6/2025	NIH/NIA R01AG068168-01 (PI: TL Moore) Extracellular Vesicle treatment and age-related neuropathology in non-human primates Direct cost: $410,243/year Role: Co-Investigator
4/2020-1/2025	NIH/NIMH R01MH117785-31 (PI: H Barbas) Prefrontal Anatomic Pathways in Executive Control Direct cost: $250,000/year Role: Co-Investigator
5/2019-3/2024	NIH/NIA 1RF1AG062831-01 (PI: DL Rosene) Age-related cognitive decline and myelin pathology: A comprehensive study of oligodendroglia, microglia and myelin homeostasis in the normal aging monkey Direct cost: $2,270,090 Role: Co-Investigator
4/2019-1/2024	NIMH R01MH116008 (PI: M. Medalla): Circuit structure and dynamics in prefrontal-limbic networks Total Direct Cost, $250,000/year. Role: Principal Investigator
2/2019-11/2023	NIH/NIA RF1-AG043640 (PI: D. Rosene) Mechanisms of myelin damage and cognitive impairment in the aging monkey: Gene Expression, Neurophysiology, Inflammation and Effects of Calorie Restriction Total Direct Cost, $250,000/year. Role: Co-Investigator
4/2018-7/2022	NIH/NIA R01-AG059028 (PIs: J. Luebke and P. Hof) Mechanisms of age-related cognitive decline in rhesus monkey Total Direct Cost, $598,095/year. Role: Co-Investigator

Past:

10/2016-6/2021	RF1-AG054199-01 (PI: Ikezu) Exosome-mediated propagation of pathogenic tau protein Total Direct Cost, $1,742,225 Role: Co-Investigator
4/2016-4/2020	NIH/NIA R01-AG050471 (PI: B. Wolozin): RNA binding proteins as novel targets in Alzheimer's disease, Total Direct Cost, $314,276 Role: Co-Investigator
7/2017-7/2019	NIH/NINDS R21-NS102991 (PI: TL. Moore): Exosomes from bone marrow derived mesenchymal stem cells as a restorative treatment in a monkey model of cortical injury Total Direct Cost, $155,412. Role: Co-Investigator

8/2015-7/2019	NIMH R00MH101234 (PI: M. Medalla): Physiology and structure of prefrontal projections to memory and motor circuits Total Direct Cost, $490,416. Role: PI
9/2018–8/2019	NIH/NIA R56- R56AG059693 (PIs: TL. Moore and M. Medalla) The efficacy of curcumin to facilitate recovery of function in a rhesus monkey model of cortical injury. Total Direct Cost, $480,278. Role: Co-PI
4/2016-3/2019	CHDI foundation (PI: JI. Luebke and C. Weaver): Empirical and computational analyses of striatal MSNs and FSIs and of L5 CPNs in the Q175 and DN17 models. Total Direct Cost, $598,095
4/2015-3/2018	Nancy Lurie Marks Family Foundation (PI: T. Ikezu): Characterization of Microglial Wnt signaling in maternal immune activation-related autism Role: Co-Investigator
8/2013-8/2015	NIMH K99MH101234 (PI: M. Medalla): Physiology and structure of prefrontal projections to memory and motor circuits; K99 phase Total Direct Cost, $158.288.
8/2012-4/2013	NRSA T32 postdoctoral training grant (PI: M. Moss)
3/2010-3/2012	CELEST, NSF Science of Learning Center Postdoctoral training grant NSF 0835976 CELEST (PI: Shinn-Cunningham, Ames, Guenther, Sekuler): Center of Excellence in Learning, Education, Science and Technology. Total Direct Cost. $16,050,000 (3/1/2010-2/28/2016).

Invited Lectures and Conference Presentations:

28 March 2022	Prefrontal cortico-limbic networks in cognition: cellular and circuit diversity. Virtual Seminar INRAE, Institut national de recherche pour l'agriculture, l'alimentation et l'environnement. Paris, France.
8 March 2021	Cellular and circuit diversity of prefrontal cortico-limbic networks in non-human primates. Boston University, Biology Department Weekly Seminar Series. Boston, MA.
14 October 2018	Excitatory and inhibitory circuit diversity in lateral prefrontal and anterior cingulate cortices. Computational Properties of Prefrontal Cortex 2018. Nashville, TN.
15 April 2018	Effects of dietary curcumin on microglia-neuron interactions in middle-aged rhesus monkeys. Spring Brain Conference 2018. Sedona, AZ.
22 May 2014	Distinctive properties of glutamatergic synapses in primary visual and lateral prefrontal cortices in primates. Boston University School of Medicine, Department of Anatomy and Neurobiology Seminar Series. Boston, MA.
8 Aug 2014	Distinctive structural and functional features of excitatory and inhibitory synapses in primate anterior cingulate and lateral prefrontal cortices. Gordon Research Seminar and Conference on Synaptic Transmission. Waterville Valley, NH, USA, 2014.
7 June 2013	Convergence of auditory and cingulate input in frontopolar area 10: synaptic substrate for complex cognition. 17 th International Conference on Cognitive and Neural Systems. Boston, MA.

28 Feb 2011 Synaptic structure of anterior cingulate pathways involved in cognitive control. COSYNE workshop on Conflicts and Resolution: an integrative approach to the role of medial frontal cortex in the control of effective choice behavior. Snowbird, UT.

May 2009 Differential interaction of anterior cingulate cortex with functionally distinct dorsolateral prefrontal areas 46 and 10, 13th International Conference on Cognitive and Neural Systems. Boston, USA.

May 2007 Differential synaptic interaction of intrinsic prefrontal pathways with calbindin and calretinin -expressing inhibitory neurons in the rhesus monkey. 11th International Conference on Cognitive and Neural Systems. Boston, MA

Bibliography:

Original, Peer Reviewed Articles:

1. Tsolias A and **Medalla M.** (2022) Muscarinic acetylcholine receptor localization on distinct excitatory and inhibitory neurons within the ACC and LPFC of the rhesus monkey. Frontiers in Neural Circuits. 2022 Jan 11;15:795325. doi: 10.3389/fncir.2021.795325. eCollection 2021. PMID: 35087381
2. Chang W, Weaver CM, **Medalla M,** Moore TL, Luebke JI. (2021) Age-related alterations to working memory and to pyramidal neurons in the prefrontal cortex of rhesus monkeys begin in early middle-age and are partially ameliorated by dietary curcumin. Neurobiol Aging. 2021 Sep 16;109:113-124. doi: 10.1016/j.neurobiolaging.2021.09.012. Online ahead of print. PMID: 34715442
3. Zhang J, Buller BA, Zhang ZG, Zhang Y, Lu M, Rosene DL, **Medalla M,** Moore TL, Chopp M. (2021). Exosomes derived from bone marrow mesenchymal stromal cells promote remyelination and reduce neuroinflammation in the demyelinating central nervous system. Exp Neurol. 2021 Oct 13;347:113895. doi: 10.1016/j.expneurol.2021.113895. Online ahead of print. PMID: 34653510
4. Bottenfield KR, Bowley BGE, Pessina MA, **Medalla M,** Rosene DL, Moore TL. (2021) Sex differences in recovery of motor function in a rhesus monkey model of cortical injury. Biol Sex Differ. 2021 Oct 9;12(1):54. doi: 10.1186/s13293-021-00398-9. PMID: 34627376**.**
5. **Medalla M,** Chang W, Ibañez S, Guillamon-Vivancos T, Nittmann M, Kapitonava A, Busch SE, Moore TL, Rosene DL, Luebke JI. (2021) Layer-specific pyramidal neuron properties underlie diverse anterior cingulate cortical motor and limbic networks. Cereb Cortex. 2021 Oct 6:bhab347. doi: 10.1093/cercor/bhab347. Online ahead of print. PMID: 34613380
6. Delpech JC, Pathak D, Varghese M, Kalavai SV, Hays EC, Hof PR, Johnson WE, Ikezu S, **Medalla M**, Luebke JI, Ikezu T. Wolframin-1-expressing neurons in the entorhinal cortex propagate tau to CA1 neurons and impair hippocampal memory in mice. Sci Transl Med. 2021 Sep 15;13(611):eabe8455. doi: 10.1126/scitranslmed.abe8455. Epub 2021 Sep 15. PMID: 34524859
7. Lee EK, Balasubramanian H, Tsolias A, Anakwe SU, **Medalla M,** Shenoy KV, Chandrasekaran C (2021). Non-linear dimensionality reduction on extracellular waveforms reveals cell type diversity in premotor cortex. Elife. 2021 Aug 6;10:e67490. doi: 10.7554/eLife.67490. Online ahead of print.
8. Freire-Cobo C, Edler MK, Varghese M, Munger E, Laffey J, Raia S, In SS, Wicinski B, **Medalla M**, Perez SE, Mufson EJ, Erwin JM, Guevara EE, Sherwood CC, Luebke JI, Lacreuse A, Raghanti MA, Hof PR. (2021) Comparative neuropathology in aging primates: A perspective. Am J Primatol. 2021 Nov;83(11):e23299. doi: 10.1002/ajp.23299. Epub 2021 Jul 13.PMID: 34255875 Review.
9. Ash PEA, Lei S, Shattuck J, Boudeau S, Carlomagno Y, **Medalla M,** Mashimo BL, Socorro G, Al-Mohanna LFA, Jiang L, Öztürk MM, Knobel M, Ivanov P, Petrucelli L, S Wegmann S, Kanaan NM, Wolozin B (2021) TIA1 potentiates tau phase separation and promotes generation of toxic oligomeric tau. Proc Natl Acad Sci U S A. 2021 Mar 2;118(9):e2014188118. doi: 10.1073/pnas.2014188118.

10. Calderazzo SM, Busch SE, Moore TL, Rosene DL, **Medalla M**. (2021) Distribution and overlap of entorhinal, premotor, and amygdalar connections in the monkey anterior cingulate cortex. J Comp Neurol. 2021 Mar;529(4):885-904. doi: 10.1002/cne.24986. Epub 2020 Aug 13.
11. Go V, Sarikaya D, Zhou Y, Bowley BGE, Pessina MA, Rosene DL, Zhang ZG, Chopp M, Finklestein SP, **Medalla M,** Buller B, Moore TL. (2020) Extracellular vesicles derived from bone marrow mesenchymal stem cells enhance myelin maintenance after cortical injury in aged rhesus monkeys. Exp Neurol.:113540. doi: 10.1016/j.expneurol.2020.113540. Online ahead of print.
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