

MARY TEENA JOY

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The Jackson Laboratory, 600 Main Street, Bar Harbor, ME 04609

ACADEMIC APPOINTMENTS

- 10/2022-present **The Jackson Laboratory, Bar Harbor, ME**
Assistant Professor
- 11/2019- 09/2022 **University of California, Los Angeles (UCLA), CA**
Associate Project Scientist

EDUCATION

- 2009- 2013 **University College London (UCL), U.K.**
Ph.D., Neuroscience
- 2007- 2009 **VIT University, India**
M.Sc., Biomedical Genetics
- 2004-2007 **Fatima Mata National College (Kerala University), India**
B.Sc., Biotechnology

FELLOWSHIPS

- 1/2016- 12/2017 Postdoctoral fellowship (Western State); American Heart Association
- 3/2018-11/2021 Howard Hughes Medical Institute, Janelia Visiting Fellowship

RESEARCH EXPERIENCE

- 11/2013-11/2019 **University of California, Los Angeles**
Postdoctoral fellow; Advisor: **Dr. S. Thomas Carmichael**
Primary project: Recovery of motor function after stroke through pathways that regulate memory formation and learning.
- 3/2018-11/2021 **Janelia Research Campus, Virginia**
Visiting postdoctoral fellow; Host: **Dr. Adam Hantman**
Project: Cell-type, layer-specific and region-specific circuit dissections in fine motor control.
- 10/2009-04/2013 **University College London, UK**
Graduate researcher; Advisor: **Dr. Patrick Anderson**
Project: Molecular mechanisms underlying axonal regeneration in the injured CNS.
- 12/2008-5/2009 **Rajiv Gandhi Centre for Biotechnology, India**
Master's student; Advisors: Dr. Shabeesh Balan; **Dr. Moinak Banerjee**
Project: Pharmacogenomic targeting of SCN1A gene in epilepsy.

Mary Teena Joy; 2022

PUBLICATIONS

Google Scholar profile: <https://scholar.google.com/citations?hl=en&user=tK-JcTwAAAAJ>

CCR5 is a therapeutic target to stimulate recovery in stroke and traumatic brain injury.

Joy M T, Assayag E, Shabashov-Stone D, Liraz-Zaltsman S, Thareja NS, Arenas M, Kilper E, Korczyn AD, Kesner E, Zhou M, Huang S, Silva T, Katz N, Bornstein N, Silva AJ, Shohami E, Carmichael ST (2019) **Cell**, 176(5),1143-1157.

Featured in:

- *The Lancet Neurology: Recovery from brain injury: a surprising new drug target; Rosand, J., et. al. (2019).*
- *Nature Reviews Drug Discovery: Repurposing CCR5 inhibitors for stroke recovery; Villanueva, M.T. (2019)*
- *Science: HIV drug could improve recovery after stroke, Servick K. (2019)*

Encouraging an excitable brain state: mechanisms of brain repair in stroke.

Joy M T and Carmichael ST (2021). **Nat Rev Neuroscience**, 22, 38–53.

Learning and stroke recovery: parallelism of biological substrates.

Joy M T and Carmichael S T (2021). **Semin Neurol**. Epub ahead of print. PMID: 33690874

Chemokine receptors CCR5 and CXCR4 are new therapeutic targets for brain recovery following Traumatic Brain Injury.

Liraz Zaltsman S., Friedman-Levi Y., Shabashov-Stone D, Gincberg G, Atrakcy-Baranes D, **Joy M T.**, Carmichael S T, Silva A, Shohami E (2021): **J. Neurotrauma**, Epub ahead of print. PMID: 33256497.

Ischemic axonal injury up-regulates MARK4 in cortical neurons and primes tau phosphorylation and aggregation. Hayden EY; Putman J; Nunez S; Shin WS ; Oberoi M; Charreton M; Dutta S; Li Z; Komuro Y; **Joy M T**; Bitan G; MacKenzie-Graham A; Jiang L; Hinman JD (2019): **Acta Neuropathologica Communications**; 20;7(1):135.

Enhancing the Alignment of the Preclinical and Clinical Stroke Recovery Research Pipeline: Consensus-Based Core Recommendations From the Stroke Recovery and Rehabilitation Roundtable Translational Working Group. Corbett D, Carmichael ST, Murphy TH, Jones TA, Schwab ME, Jolkkonen J, Clarkson AN, Dancause N, Weiloch T, Johansen-Berg H, Nilsson M, McCullough LD, **Joy M T.** (2017) **Int J Stroke**, 12(5):462-471; Article reprinted in-Neurorehabil Neural Repair. 2017 Aug;31(8):699-70.

Sulf1 and Sulf2 expression in the nervous system and its role in limiting neurite outgrowth in vitro.

Joy M T, Vrbova G, Dhoot GK, Anderson PN (2014) **Exp. Neurol**. 263:150-60.

ErbB1 epidermal growth factor receptor is a valid target for reducing the effects of multiple inhibitors of axonal regeneration.

Leinster VH, **Joy M T**, Vuononvirta RE, Bolsover SR, Anderson PN (2013) **Exp. Neurol**. 239C:82.

Book Chapters

Quantitative spatial mapping of axons across cortical regions to assess axonal sprouting after stroke.

Joy M T, Bridges SP, Carmichael ST (in press) Neural Repair, Methods in Molecular Biology, Springer Nature.

PRESENTATIONS

Workshops

Canadian Partnership for Stroke Recovery, Virtual, July 20-23, 2020.

Stroke Program in Neurorecovery (SPiN)- Fluorescence Activated Cell Sorting in Stroke Research.

Talks

American Society for Neurorehabilitation

Chicago, October 17-18, 2019: Translational mechanisms – how do we use animal models to inform type, dosing, and timing of interventions?

San Diego, November 1-2, 2018: Genetics and stroke recovery.

Baltimore, November 9-10, 2017: Critical Periods in Neurodevelopment and Neurorecovery.

UCLA Chancellor's society, Los Angeles, January 22, 2018.

Targeting neural repair for stroke recovery.

UCLA Neurology - Grand Rounds, Los Angeles, August 20, 2021.

Molecular Encoders of Memory as Therapeutic Targets for Motor Recovery.

Posters

Inducing neuroplasticity in motor circuits after stroke- **Joy, M T.**; Carmichael, ST.- Keystone symposium on State of the Brain: Genetic Dissection of Brain Circuits and Behavior in Health and Disease (A2); Colorado January 14-18; 2018.

Neuroplasticity mechanisms that lead to stroke recovery; **Joy, M T.**; Silva, A.J.; Carmichael, S.T.- Society for Neuroscience, Washington D.C, October 17-21;2017.

The Role of C-C Chemokine Receptor-5 in neural repair after stroke; **Joy, M T.**; Zhou, M; Cai, Y; Silva, A.J.; Carmichael S.T- Society for Neuroscience, Chicago, October 17-21;2015.

TEACHING AND MENTORING EXPERIENCE

2020 - Regenerative Medicine in Stroke, UCLA

Virtual program for high school students, teaching concepts in stroke recovery, review of literature and group discussions.

2017- Bioscience Education Postdoc Leadership program, UCLA

Course: Modern Biology Approaches.

Observed and reviewed lectures on transcriptomics and proteomics; participated in literature discussions and led group discussions for graduate students.

2010-2011 Graduate Tutor, University College London

Course: Genetics

Tutored undergraduate majors in Biomedicine; conducted lab demonstrations for practical sessions in molecular biology; reviewed and scored test sheets.

2014-2019 Research mentor, UCLA

Mentored Undergraduate and graduate students in the Carmichael lab.

2014- Jessie Lopez; (Master's)	current position: PhD candidate at UC Santa Cruz.
2015-2016 Marcela Sanchez (Master's)	current position: Clinical stroke coordinator at USC.
2017-Nikita Thareja; (Undergrad)	current position: Medical student at UCSD.
2018-2019- Rex Lee (Undergrad)	current position: Medical student at UCSF.

PROFESSIONAL ACTIVITIES

2021- Abstract reviewer; International Stroke Conference, 2022.

2020- Abstract reviewer; International Stroke Conference, 2021.

2019- Abstract reviewer; International Stroke Conference, 2020.

2018- Abstract reviewer; International Stroke Conference, 2019.

2017-present- Reviewer; Neurorehabilitation and Neural Repair.

2016- Moderator and participant; Stroke Recovery Rehabilitation Round table, Philadelphia. A roundtable was convened of 60 leading international experts in clinical and pre-clinical stroke research to formulate guidelines for stroke research.

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