



Jack Tzu-Chieh Wang, MD, PhD

Instructor, Neurology & Neurological Sciences

CLINICAL OFFICE (PRIMARY)

- **Stanford Neurosurgery Dept**

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ACADEMIC CONTACT INFORMATION

- **Administrative Contact**

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Bio

BIO

Dr. Wang is a board-certified, fellowship-trained neurocritical care specialist at Stanford Health Care. He is also an instructor in the Neurocritical Care Program of the Department of Neurology & Neurological Sciences at Stanford University School of Medicine.

Dr. Wang has clinical and research interests in stroke and traumatic brain injury. He provides care for critically ill patients with neurological illnesses in the intensive care unit (ICU) at Stanford Hospital. He also teaches fellows, residents, and medical students how to provide critical neurological care.

As a physician-scientist, Dr. Wang leads an ongoing effort to identify new targets for therapy to promote functional recovery after brain and spinal cord injuries. He has previously completed research on these topics for the National Institutes of Health (NIH) and the National Institute of Neurological Disorders and Stroke (NINDS). He also performs research funded by the American Heart Association, American Academy of Neurology, and Alzheimer's Association.

Dr. Wang has published in several top peer-reviewed journals, including Proceedings of the National Academy of Sciences, Journal of Cell Biology, and Journal of Neuroscience. He has presented his research at nationwide and worldwide conferences. His presentations mainly focus on the degeneration of axons (fibers that connect nerve cells and help them communicate) and cognitive decline following stroke. He also serves as an ad hoc reviewer for a number of publications, including Cell, Neuron, Nature, and Science.

Dr. Wang is a member of the American Academy of Neurology, American Heart Association, Neurocritical Care Society, Society of Critical Care Medicine, and Society for Neuroscience.

CLINICAL FOCUS

- Neurocritical Care

ACADEMIC APPOINTMENTS

- Instructor, Neurology & Neurological Sciences

HONORS AND AWARDS

- Clinician Scientist Early Career Award, Alzheimer's Association (2024)
- Career Development Award, American Academy of Neurology (2023)
- Career Development Award, American Heart/Stroke Association (2023)
- NCS Research Fellowship, Neurocritical Care Society (2022-2023)
- StrokeNet Research Fellowship, NINDS (2020-2021)
- Semel Institute Neuroscience Research Award, UCLA-Semel Neuroscience Institute (2018)
- Excellence in Research, Los Angeles Neurological Society (2018)
- R25 Research Training Fellowship, NINDS (2016-2020)
- Bio-X Bowes Fellow, Stanford University School of Medicine (2011-2014)
- Predoctoral Research Fellowship, American Heart/Stroke Association (2009-2011)
- Translational Research Scholar, Adelson Neural Repair & Rehabilitation Foundation (2008-2011)
- Delegate, International Achievement Summit (2007)
- Predoctoral Medical Research Fellowship, Howard Hughes Medical Institute (2005-2007)
- Excellence in Undergraduate Teaching, Stanford University, Department of Biological Sciences (2003)

PROFESSIONAL EDUCATION

- Board Certification: Neurocritical Care, American Board of Psychiatry and Neurology (2021)
- Board Certification: Vascular Neurology, American Board of Psychiatry and Neurology (2020)
- Board Certification: Neurology, American Board of Psychiatry and Neurology (2018)
- Fellowship: Stanford University Neurocritical Care and Stroke Fellowship (2020) CA
- Residency: UCLA Dept of Neurology (2018) CA
- Internship: Kaiser Permanente Santa Clara Internal Medicine Residency (2015) CA
- Medical Education: Stanford University School of Medicine (2014) CA
- PhD, Stanford University School of Medicine , Neuroscience (2014)
- MD, Stanford University School of Medicine , Medicine (2014)

LINKS

- Stanford Neurocritical Care: <https://med.stanford.edu/neurology/divisions/neurocriticalcare/team.html>

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our primary research focus is understanding the molecular mechanisms of axonal degeneration and subsequent failure of axonal regeneration in the CNS. We have identified critical cellular pathways mediating axonal degeneration following acute neurological injuries including ischemic stroke and traumatic brain injury. Modulating these pathways presents a novel therapeutic strategy to protect vulnerable nerve fibers and enhance functional recovery in a multitude of acute CNS injuries and diseases.

Teaching

COURSES

2023-24

- Stroke Seminar: NENS 204 (Win)

2022-23

- Stroke Seminar: NENS 204 (Win)

Publications

PUBLICATIONS

- **What are the Molecular Mechanisms of Axonal Degeneration in Stroke?**
Wang, J.
LIPPINCOTT WILLIAMS & WILKINS.2021
- **Absence of Sarm1 Promotes Axonal and Neuronal Survival after Stroke**
Wang, J., Toh, B., Komuro, Y., Hinman, J. D.
WILEY.2019: S240
- **Developmental mechanisms for establishing functional non-image-forming visual circuits**
Dhande, O. S., Phan, A. H., Seabrook, T. A., Nguyen, P. L., Wang, J. T., Huberman, A.
ASSOC RESEARCH VISION OPHTHALMOLOGY INC.2017
- **Local axonal protection by WldS as revealed by conditional regulation of protein stability** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Wang, J. T., Medress, Z. A., Vargas, M. E., Barres, B. A.
2015; 112 (33): 10093-10100
- **Gap junctions are essential for generating the correlated spike activity of neighboring retinal ganglion cells.** *PloS one*
Völgyi, B., Pan, F., Paul, D. L., Wang, J. T., Huberman, A. D., Bloomfield, S. A.
2013; 8 (7): e69426
- **Gap Junctions Are Essential for Generating the Correlated Spike Activity of Neighboring Retinal Ganglion Cells** *PLOS ONE*
Voelgyi, B., Pan, F., Paul, D. L., Wang, J. T., Huberman, A. D., Bloomfield, S. A.
2013; 8 (7)
- **Culturing hybridoma cell lines for monoclonal antibody production.** *Cold Spring Harbor protocols*
Winzeler, A., Wang, J. T.
2013; 2013 (7): 640-642
- **Purification and culture of retinal ganglion cells.** *Cold Spring Harbor protocols*
Winzeler, A., Wang, J. T.
2013; 2013 (7): 614-617
- **Purification and culture of retinal ganglion cells from rodents.** *Cold Spring Harbor protocols*
Winzeler, A., Wang, J. T.
2013; 2013 (7): 643-652
- **Axon Degeneration: Where the Wld(s) Things Are** *CURRENT BIOLOGY*
Wang, J. T., Barres, B. A.
2012; 22 (7): R221-R223
- **Axon degeneration: Molecular mechanisms of a self-destruction pathway** *JOURNAL OF CELL BIOLOGY*
Wang, J. T., Medress, Z. A., Barres, B. A.
2012; 196 (1): 7-18
- **Disease gene candidates revealed by expression profiling of retinal ganglion cell development** *JOURNAL OF NEUROSCIENCE*
Wang, J. T., Kunzevitzky, N. J., Dugas, J. C., Cameron, M., Barres, B. A., Goldberg, J. L.
2007; 27 (32): 8593-8603
- **An oligodendrocyte lineage-specific semaphorin, sema5A, inhibits axon growth by retinal ganglion cells** *JOURNAL OF NEUROSCIENCE*
Goldberg, J. L., Vargas, M. E., Wang, J. T., Mandemakers, W., Oster, S. F., Sretavan, D. W., Barres, B. A.

2004; 24 (21): 4989-4999

PRESENTATIONS

- Molecular Mechanisms of Wlds and SARM1 Mediated Protection in Stroke - American Academy of Neurology Annual Conference (4/2018)
- What is the Molecular Mechanism of Axon Degeneration in Stroke? - American Society of Neurochemistry Annual Conference (3/2018)