Stanford

Andy Tsai

Postdoctoral Scholar, Neurology and Neurological Sciences

Bio

HONORS AND AWARDS

- NIH K99/R00 Pathway to Independence Award, National Institute on Aging (2026-2031)
- AGE VOYAGER Grant, American Aging Association (2026-2027)
- AGE 2026 Early Career Scholar, American Aging Association (2026)
- George Bartzokis Award, New Vision Research (2026)
- ADRC REC Scholar, Stanford ADRC (2025-2027)
- 2026 New Vision Research Cohort, The Charleston Conferences on Alzheimer’s Disease (2025-2026)
- ATP Scholar, CNS Metabolism, University of Kentucky (2025)
- Associate Editor, Frontier in aging neuroscience (2025)
- Advancement, Community, and Engagement Committee, Departments of Neurosurgery and Neurology, Stanford University School of Medicine (2024)
- Editorial Board Member, Translational Neuroscience (2024)
- Postdoc Champion: Community Impact Award, Stanford University Office of Postdoctoral Affairs (2024)
- Communications Chair, Immunity and Neurodegeneration Professional Interest Areas, Alzheimer's Association (2024-2026)
- Larry L. Hillblom Fellowship Grant, Larry L. Hillblom Foundation (2023-2026)
- Linda & Jack Gill Graduate Student Award, Gill Center for Bimolecular Science (2022)
- Larry Kays Fellowship, Stark Neurosciences Research Institute (2022)
- ISTAART Ambassador, Alzheimer’s Association (2022-2023)
- NIH Outstanding Scholars in Neuroscience Award Program, National Institutes of Health (2021)
- Trainee Professional Development Award, Society for Neuroscience (2021)
- Scientific Program Committee, AAIC Neuroscience Next, Alzheimer’s Association (2021)
- Eli Lilly-Stark Research Fellowship in Neurodegeneration, Indiana Clinical and Translational Science Institute (2021-2022)
- Cagiantas Scholar, Indiana University School of Medicine (2020)
- IUPUI Elite 50, Indiana University (2020)
- Paul & Carole Stark Fellowship, Stark Neurosciences Research Institute (2018)

STANFORD ADVISORS

- Tony Wyss-Coray, Postdoctoral Faculty Sponsor

Publications

PUBLICATIONS

- **Extracellular Mitochondrial Components as Emerging Biomarkers and Therapeutic Targets in Human Diseases.** *International journal of biological sciences*
  Tsui, K. H., Raj, E. N., Tsai, A. P., Wang, B., Wen, C. Y., Li, C. J.
  2026; 22 (15): 8390-8407

- **Clonal Mosaicism of Mitochondrial DNA Heteroplasmy as a Molecular Clock of Aging.** *Aging cell*
  Chang, R., Tsai, A. P., Wang, B., Tsui, K. H., Pang, C. Y., Li, C. J.
  2026; 25 (9): e70718

- **Cross-species transcriptomic integration reveals a MIRO1-mediated macrophage-T cell axis in glioma.** *Life science alliance*
  Du, Z., Li, M., Bergsneider, B. H., Tsai, A. P., Cho, K. B., Kim, L. H., Choi, J., Li, G., Wyss-Coray, T., Lim, M., Wang, X.
  2026; 9 (8)

- **The GLP-1-Mitochondria Axis in Metabolic Aging.** *Aging cell*
  Chang, R., Tsai, A. P., Wang, B., Li, C. J.
  2026; 25 (8): e70676

- **Regulatory mechanisms driven by functional 3'-UTR variants in alcohol use disorder and related traits.** *Genome biology*
  Chen, A. B., Yu, X., Rupp, J. M., Chu, X., Thapa, K. S., Gao, H., Reiter, J. L., Xuei, X., Tsai, A. P., Landreth, G. E., Wang, Y., Foroud, T. M., Tischfield, et al
  2026

- **Magnesium as a Bioenergetic Checkpoint Linking Mitochondrial Function, Metabolic Disease, and Aging.** *Aging cell*
  Huang, C. W., Wen, C. Y., Tsai, A. P., Wang, B., Tsui, K. H., Hsu, Y. J., Li, C. J.
  2026; 25 (6): e70578

- **Mitochondrial Quality Control as a Central Pharmacological Target in Aging.** *Pharmacological research*
  Tsui, K. H., Cheng, S. H., Wang, B., Lin, P. H., Raj, E. N., Lin, L. T., Chang, R., Wen, Z. H., Tsai, A. P., Li, C. J.
  2026: 108188

- **Toward actionable interventions in human aging (12th ARDD meeting, 2025).** *Aging*
  Dekan, A., Lore, S., Yoon, Y. E., Sjöholm, A., Tyshkovskiy, A., Terskikh, A., Cuervo, A. M., Georgievskaya, A., Heinz, A., Seluanov, A., Adams, A., Tsai, A. P., Murray, et al
  2026; 18 (1): 282-302

- **Mitoxyperilysis: Rethinking oxidative stress as a spatially constrained lethal signal.** *International journal of biological sciences*
  Wen, C. Y., Wu, M. Y., Tsai, A. P., Yong, S. B., Li, C. J.
  2026; 22 (8): 4139-4143

- **PLCG2 signaling and genetic resilience in Alzheimer's disease.** *Molecular neurodegeneration*
  Tsai, A. P., Martin, A. K., Mi, A., Yeh, A. E., Ramirez Lopez, E., Wyss-Coray, T.
  2026; 21 (1)

- **Simultaneous spatial transcriptomics and morphology profiling as tools to explore how microglia change with age.** *Nature aging*
  Henze, D. E., Tsai, A. P., Wyss-Coray, T., Quake, S. R.
  2026

- **Spatially gated oxidative killing: mitoxyperilysis redefines how ROS cause lytic cell death.** *Apoptosis : an international journal on programmed cell death*
  Wu, M. Y., Tsai, A. P., Yong, S. B., Li, C. J.
  2026; 31 (3)

- **Targeting immune cells in the aged brain reveals that engineered cytokine IL-10 enhances neurogenesis and improves cognition.** *Immunity*
  Navarro Negredo, P., You, J., Hauptschein, M., Schroer, A. B., Richard, D. J., Abhiraman, G. C., Tsai, A. P., Sun, E. D., Notarangelo, G., Ramirez-Matias, J., Zhou, O. Y., Buckley, M. T., Malacon, et al
  2026

- **Extracellular Mitochondrial Components as Emerging Biomarkers and Therapeutic Targets in Human Diseases** *INTERNATIONAL JOURNAL OF BIOLOGICAL SCIENCES*
  Tsui, K., Raj, E., Tsai, A. P., Wang, B., Wen, C., Li, C.
  2026; 22 (15): 8390-8407
- **Basic Science and Pathogenesis.** *Alzheimer's & dementia : the journal of the Alzheimer's Association*
  Messenger, E. J., Baar, S., Bedford, L. M., Tsai, A. P., Lin, P. B., Xu, G., Wallace, A., Landreth, G. E., Lamb, B. T., Bissel, S. J.
  2025; 21 Suppl 1: e104521
- **Spatial and single-cell transcriptomics reveal the reorganization of cerebellar microglia with aging.** *Cell reports*
  Tsai, A. P., Henze, D. E., Ramirez Lopez, E., Haberberger, J., Dong, C., Lu, N., Atkins, M., Costa, E. K., Farinas, A., Oh, H. S., Moran-Losada, P., Le Guen, Y., Isakova, et al
  2025; 44 (12): 116624
- **Color-neutral and reversible tissue transparency enables longitudinal deep-tissue imaging in live mice.** *Proceedings of the National Academy of Sciences of the United States of America*
  Keck, C. H., Schmidt, E. L., Roth, R. H., Floyd, B. M., Tsai, A. P., Garcia, H. B., Cui, M., Chen, X., Wang, C., Park, A., Zhao, S., Liao, P. A., Casey, et al
  2025; 122 (35): e2504264122
- **Disruption of the cerebrospinal fluid-plasma protein balance in cognitive impairment and aging.** *Nature medicine*
  Farinas, A., Rutledge, J., Bot, V. A., Western, D., Ying, K., Lawrence, K. A., Oh, H. S., Yoon, S., Ding, D. Y., Tsai, A. P., Moran-Losada, P., Timsina, J., Le Guen, et al
  2025
- **PLCG2 modulates TREM2 expression and signaling in response to Alzheimer's disease pathology.** *Alzheimer's & dementia : the journal of the Alzheimer's Association*
  Messenger, E. J., Baar, S. A., Bedford, L. M., Tsai, A. P., Lin, P. B., Ferguson, C. A., Xu, G., Wallace, A., Landreth, G. E., Lamb, B. T., Bissel, S. J.
  2025; 21 (5): e70231
- **A high-throughput assay platform to discover small molecule activators of the phospholipase PLC-γ2 to treat Alzheimer's disease.** *The Journal of biological chemistry*
  Carr, A. J., Hajicek, N., Tsai, A. P., Acharya, P. P., Hardy, P. B., Meyer, E., Wyss-Coray, T., Pearce, K. H., Sondek, J., Zhang, Q.
  2025: 108356
- **Advancements in Immunity and Dementia Research: Highlights from the 2023 AAIC Advancements: Immunity Conference.** *Alzheimer's & dementia : the journal of the Alzheimer's Association*
  Kloske, C. M., Mahinrad, S., Barnum, C. J., Batista, A. F., Bradshaw, E. M., Butts, B., Carrillo, M. C., Chakrabarty, P., Chen, X., Craft, S., Da Mesquita, S., Dabin, L. C., Devanand, et al
  2024
- **Mitigating mitochondrial dysfunction and neuroinflammation by hematoma aspiration in a new surgical model for severe intracerebral hemorrhage.** *Experimental neurology*
  Hu, W. F., Lee, C. H., Pang, C. Y., Huang, H. Y., Tsai, S. T., Wang, P. K., Shih, M. T., Cheah, P. Y., Wu, Y. F., Tsai, A. P., Tseng, K. Y., Airavaara, M., Liew, et al
  2024: 115098
- **CYP1B1-RMDN2 Alzheimer's disease endophenotype locus identified for cerebral tau PET.** *Nature communications*
  Nho, K., Risacher, S. L., Apostolova, L. G., Bice, P. J., Brosch, J. R., Deardorff, R., Faber, K., Farlow, M. R., Foroud, T., Gao, S., Rosewood, T., Kim, J. P., Nudelman, et al
  2024; 15 (1): 8251
- **APOE4/4 is linked to damaging lipid droplets in Alzheimer's diseasemicroglia.** *Nature*
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  2024
- **Deep learning-driven adaptive optics for single-molecule localization microscopy.** *Nature methods*
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- **Genetic variants of phospholipase C-γ2 alter the phenotype and function of microglia and confer differential risk for Alzheimer's disease.** *Immunity*
  Tsai, A. P., Dong, C., Lin, P. B., Oblak, A. L., Viana Di Prisco, G., Wang, N., Hajicek, N., Carr, A. J., Lendy, E. K., Hahn, O., Atkins, M., Foltz, A. G., Patel, et al
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- **Amyloid pathology reduces ELP3 expression and tRNA modifications leading to impaired proteostasis.** *Biochimica et biophysica acta. Molecular basis of disease*
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- **INPP5D deficiency attenuates amyloid pathology in a mouse model of Alzheimer's disease.** *Alzheimer's & dementia : the journal of the Alzheimer's Association*
  Lin, P. B., Tsai, A. P., Soni, D., Lee-Gosselin, A., Moutinho, M., Puntambekar, S. S., Landreth, G. E., Lamb, B. T., Oblak, A. L.
  2022
- **Integrating multimodality magnetic resonance imaging to the Allen Mouse Brain Common Coordinate Framework.** *NMR in biomedicine*
  Wang, N., Maharjan, S., Tsai, A. P., Lin, P. B., Qi, Y., Wallace, A., Jewett, M., Liu, F., Landreth, G. E., Oblak, A. L.
  2022: e4887
- **The P522R protective variant of PLCG2 promotes the expression of antigen presentation genes by human microglia in an Alzheimer's disease mouse model.** *Alzheimer's & dementia : the journal of the Alzheimer's Association*
  Claes, C., England, W. E., Danhash, E. P., Kiani Shabestari, S., Jairaman, A., Chadarevian, J. P., Hasselmann, J., Tsai, A. P., Coburn, M. A., Sanchez, J., Lim, T. E., Hidalgo, J. L., Tu, et al
  2022; 18 (10): 1765-1778
- **Age-dependent microstructure alterations in 5xFAD mice by high-resolution diffusion tensor imaging.** *Frontiers in neuroscience*
  Maharjan, S., Tsai, A. P., Lin, P. B., Ingraham, C., Jewett, M. R., Landreth, G. E., Oblak, A. L., Wang, N.
  2022; 16: 964654
- **Plcg2M28L Interacts With High Fat/High Sugar Diet to Accelerate Alzheimer's Disease-Relevant Phenotypes in Mice.** *Frontiers in aging neuroscience*
  Oblak, A. L., Kotredes, K. P., Pandey, R. S., Reagan, A. M., Ingraham, C., Perkins, B., Lloyd, C., Baker, D., Lin, P. B., Soni, D. M., Tsai, A. P., Persohn, S. A., Bedwell, et al
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- **The niacin receptor HCAR2 modulates microglial response and limits disease progression in a mouse model of Alzheimer's disease.** *Science translational medicine*
  Moutinho, M., Puntambekar, S. S., Tsai, A. P., Coronel, I., Lin, P. B., Casali, B. T., Martinez, P., Oblak, A. L., Lasagna-Reeves, C. A., Lamb, B. T., Landreth, G. E.
  2022; 14 (637): eabl7634
- **PLCG2 is associated with the inflammatory response and is induced by amyloid plaques in Alzheimer's disease.** *Genome medicine*
  Tsai, A. P., Dong, C., Lin, P. B., Messenger, E. J., Casali, B. T., Moutinho, M., Liu, Y., Oblak, A. L., Lamb, B. T., Landreth, G. E., Bissel, S. J., Nho, K.
  2022; 14 (1): 17
- **Moderate Ethanol Pre-treatment Mitigates ICH-Induced Injury via ER Stress Modulation in Rats.** *Frontiers in molecular neuroscience*
  Lin, P. B., Wang, P. K., Pang, C. Y., Hu, W. F., Tsai, A. P., Oblak, A. L., Liew, H. K.
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- **Rare CASP6N73T variant associated with hippocampal volume exhibits decreased proteolytic activity, synaptic transmission defect, and neurodegeneration.** *Scientific reports*
  Zhou, L., Nho, K., Haddad, M. G., Cherepacha, N., Tubeleviciute-Aydin, A., Tsai, A. P., Saykin, A. J., Jesper Sjöström, P., LeBlanc, A. C.
  2021; 11 (1): 12695
- **INPP5D expression is associated with risk for Alzheimer's disease and induced by plaque-associated microglia.** *Neurobiology of disease*

Tsai, A. P., Lin, P. B., Dong, C., Moutinho, M., Casali, B. T., Liu, Y., Lamb, B. T., Landreth, G. E., Oblak, A. L., Nho, K.
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- **Metabolic Defects Caused by High-Fat Diet Modify Disease Risk through Inflammatory and Amyloidogenic Pathways in a Mouse Model of Alzheimer's Disease.** *Nutrients*
  Reilly, A. M., Tsai, A. P., Lin, P. B., Ericsson, A. C., Oblak, A. L., Ren, H.
  2020; 12 (10)
- **The Role of Urocortins in Intracerebral Hemorrhage.** *Biomolecules*
  Choy, K. W., Tsai, A. P., Lin, P. B., Wu, M. Y., Lee, C., Alias, A., Pang, C. Y., Liew, H. K.
  2020; 10 (1)
- **Over-Activated Proteasome Mediates Neuroinflammation on Acute Intracerebral Hemorrhage in Rats.** *Cells*
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  2019; 8 (11)
- **Contrast Media Induced Kounis Syndrome: A Case Report.** *Diagnostics (Basel, Switzerland)*
  Chien, D. S., Tsai, A. P., Lin, P. C., Yiang, G. T., Wu, M. Y.
  2019; 9 (4)
- **Severe Type of Minocycline-Induced Hyperpigmentation Mimicking Peripheral Arterial Occlusive Disease in a Bullous Pemphigoid Patient.** *Antibiotics (Basel, Switzerland)*
  Wu, M. Y., Hou, Y. T., Yiang, G. T., Tsai, A. P., Lin, C. H.
  2019; 8 (3)
- **Advanced Evolution of Pathogenesis Concepts in Cardiomyopathies.** *Journal of clinical medicine*
  Li, C. J., Chen, C. S., Yiang, G. T., Tsai, A. P., Liao, W. T., Wu, M. Y.
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- **Epithelial to Mesenchymal Transition and Cell Biology of Molecular Regulation in Endometrial Carcinogenesis.** *Journal of clinical medicine*
  Chiu, H. C., Li, C. J., Yiang, G. T., Tsai, A. P., Wu, M. Y.
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- **An engineered arginine-rich α-helical antimicrobial peptide exhibits broad-spectrum bactericidal activity against pathogenic bacteria and reduces bacterial infections in mice.** *Scientific reports*
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- **Current Mechanistic Concepts in Ischemia and Reperfusion Injury.** *Cellular physiology and biochemistry : international journal of experimental cellular physiology, biochemistry, and pharmacology*
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- **Molecular Regulation of Bone Metastasis Pathogenesis.** *Cellular physiology and biochemistry : international journal of experimental cellular physiology, biochemistry, and pharmacology*
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