Stanford

Nannan Lu

Instructor, Adult Neurology

Bio

ACADEMIC APPOINTMENTS

- Instructor, Adult Neurology

Publications

PUBLICATIONS

- **Core activation program and selective regional responsiveness of microglia during aging and parabiosis.** *Cell reports*
  Naz, H., Lu, N., Escoubas, C. C., Sager, L., Xiong, J., Pálovics, R., Yamada, S., Molofsky, A. V., Wyss-Coray, T., Li, Q., Zhao, G.
  2026; 45 (9): 117919

- **Plasma proteomic signatures of cellular aging predict human disease.** *Nature medicine*
  Ding, D. Y., Bot, V. A., Chen, K. L., Groves, J. W., Pálovics, R., Masuda, D., Farinas, A., Oh, H. S., Wagner, V., Lu, N., Cruchaga, C., Isakova, A., Schott, et al
  2026

- **Cellular Aging Signatures in the Plasma Proteome Record Human Health and Disease.** *bioRxiv : the preprint server for biology*
  Ding, D. Y., Bot, V. A., Chen, K. L., Groves, J., Pálovics, R., Masuda, D., Farinas, A., Oh, H. S., Wagner, V., Lu, N., Cruchaga, C., Isakova, A., Schott, et al
  2026

- **Ageing promotes microglial accumulation of slow-degrading synaptic proteins.** *Nature*
  Guldner, I. H., Wagner, V. P., Moran-Losada, P., Shi, S. M., Golub, S. W., Hevler, J. F., Chen, K., Meese, B. T., Ghoochani, A., Pulido, E., Oh, H. S., Le Guen, Y., Lu, et al
  2026

- **Basic Science and Pathogenesis.** *Alzheimer's & dementia : the journal of the Alzheimer's Association*
  Naz, H., Palovics, R., Yamada, S., Lu, N., Wyss-Coray, T., Li, Q., Zhao, G.
  2025; 21 Suppl 1 (Suppl 1): e106438

- **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

- **Reduction of neuronal activity mediated by blood-vessel regression in the adult brain.** *Nature communications*
  Gao, X., Chen, X. J., Ye, M., Li, J. L., Lu, N., Yao, D., Ci, B., Chen, F., Zheng, L., Yi, Y., Zhang, S., Bi, Z., Gao, et al
  2025; 16 (1): 5840

- **A spatio-temporal brain miRNA expression atlas identifies sex-independent age-related microglial driven miR-155-5p increase.** *Nature communications*
  Engel, A., Wagner, V., Hahn, O., Foltz, A. G., Atkins, M., Beganovic, A., Guldner, I. H., Lu, N., Saksena, A., Fischer, U., Ludwig, N., Meese, E., Wyss-Coray, et al

2025; 16 (1): 4588

- **Glycocalyx dysregulation impairs blood-brain barrier in ageing and disease.** *Nature*
  Shi, S. M., Suh, R. J., Shon, D. J., Garcia, F. J., Buff, J. K., Atkins, M., Li, L., Lu, N., Sun, B., Luo, J., To, N. S., Cheung, T. H., McNerney, et al
  2025
- **PTER is a N-acetyltaurine hydrolase that regulates feeding and obesity.** *Nature*
  Wei, W., Lyu, X., Markhard, A. L., Fu, S., Mardjuki, R. E., Cavanagh, P. E., Zeng, X., Rajniak, J., Lu, N., Xiao, S., Zhao, M., Moya-Garzon, M. D., Truong, et al
  2024
- **Atlas of the aging mouse brain reveals white matter as vulnerable foci.** *Cell*
  Hahn, O., Foltz, A. G., Atkins, M., Kedir, B., Moran-Losada, P., Guldner, I. H., Munson, C., Kern, F., Pálovics, R., Lu, N., Zhang, H., Kaur, A., Hull, et al
  2023
- **Electroacupuncture ameliorates cerebrovascular impairment in Alzheimer's disease mice via melatonin signaling.** *CNS neuroscience & therapeutics*
  Jiang, Y., Lin, Y., Tan, Y., Shen, X., Liao, M., Wang, H., Lu, N., Han, F., Xu, N., Tang, C., Song, J., Tao, R.
  2022
- **Young CSF restores oligodendrogenesis and memory in aged mice via Fgf17.** *Nature*
  Iram, T., Kern, F., Kaur, A., Myneni, S., Morningstar, A. R., Shin, H., Garcia, M. A., Yerra, L., Palovics, R., Yang, A. C., Hahn, O., Lu, N., Shuken, et al
  2022
- **Exercise plasma boosts memory and dampens brain inflammation via clusterin.** *Nature*
  De Miguel, Z., Khoury, N., Betley, M. J., Lehallier, B., Willoughby, D., Olsson, N., Yang, A. C., Hahn, O., Lu, N., Vest, R. T., Bonanno, L. N., Yerra, L., Zhang, et al
  2021
- **Dysregulation of brain and choroid plexus cell types in severe COVID-19.** *Nature*
  Yang, A. C., Kern, F., Losada, P. M., Agam, M. R., Maat, C. A., Schmartz, G. P., Fehlmann, T., Stein, J. A., Schaum, N., Lee, D. P., Calcuttawala, K., Vest, R. T., Berdnik, et al
  2021
- **Endothelium-derived semaphorin 3G attenuates ischemic retinopathy by coordinating β-catenin-dependent vascular remodeling.** *The Journal of clinical investigation*
  Chen, D. Y., Sun, N. H., Chen, X., Gong, J. J., Yuan, S. T., Hu, Z. Z., Lu, N. N., Körbelin, J., Fukunaga, K., Liu, Q. H., Lu, Y. M., Han, F.
  2021; 131 (4)
- **Endothelial Cdk5 deficit leads to the development of spontaneous epilepsy through CXCL1/CXCR2-mediated reactive astrogliosis.** *The Journal of experimental medicine*
  Liu, X. X., Yang, L., Shao, L. X., He, Y., Wu, G., Bao, Y. H., Lu, N. N., Gong, D. M., Lu, Y. P., Cui, T. T., Sun, N. H., Chen, D. Y., Shi, et al
  2020; 217 (1)
- **Endothelium-Derived Semaphorin 3G Regulates Hippocampal Synaptic Structure and Plasticity via Neuropilin-2/PlexinA4.** *Neuron*
  Tan, C., Lu, N. N., Wang, C. K., Chen, D. Y., Sun, N. H., Lyu, H., Körbelin, J., Shi, W. X., Fukunaga, K., Lu, Y. M., Han, F.
  2019; 101 (5): 920-937.e13
- **Cholinergic Grb2-Associated-Binding Protein 1 Regulates Cognitive Function.** *Cerebral cortex (New York, N.Y. : 1991)*
  Lu, N. N., Tan, C., Sun, N. H., Shao, L. X., Liu, X. X., Gao, Y. P., Tao, R. R., Jiang, Q., Wang, C. K., Huang, J. Y., Zhao, K., Wang, G. F., Liu, et al
  2018; 28 (7): 2391-2404
- **A fluorescent peptidyl substrate for visualizing peptidyl-prolyl cis/trans isomerase activity in live cells.** *Chemical communications (Cambridge, England)*
  Jiang, Q., Li, X. R., Wang, C. K., Cheng, J., Tan, C., Cui, T. T., Lu, N. N., James, T. D., Han, F., Li, X.
  2018; 54 (15): 1857-1860
- **Nitration of TRPM2 as a Molecular Switch Induces Autophagy During Brain Pericyte Injury.** *Antioxidants & redox signaling*
  Jiang, Q., Gao, Y., Wang, C., Tao, R., Wu, Y., Zhan, K., Liao, M., Lu, N., Lu, Y., Wilcox, C. S., Luo, J., Jiang, L. H., Yang, et al
  2017; 27 (16): 1297-1316

- **Melatonin ameliorates hypoglycemic stress-induced brain endothelial tight junction injury by inhibiting protein nitration of TP53-induced glycolysis and apoptosis regulator.** *Journal of pineal research*
  Wang, C. K., Ahmed, M. M., Jiang, Q., Lu, N. N., Tan, C., Gao, Y. P., Mahmood, Q., Chen, D. Y., Fukunaga, K., Li, M., Chen, Z., Wilcox, C. S., Lu, et al
  2017; 63 (4)

- **Endothelial ErbB4 deficit induces alterations in exploratory behavior and brain energy metabolism in mice.** *CNS neuroscience & therapeutics*
  Wu, G., Liu, X. X., Lu, N. N., Liu, Q. B., Tian, Y., Ye, W. F., Jiang, G. J., Tao, R. R., Han, F., Lu, Y. M.
  2017; 23 (6): 510-517

- **Endogenous Polysialic Acid Based Micelles for Calmodulin Antagonist Delivery against Vascular Dementia.** *ACS applied materials & interfaces*
  Wang, X. J., Gao, Y. P., Lu, N. N., Li, W. S., Xu, J. F., Ying, X. Y., Wu, G., Liao, M. H., Tan, C., Shao, L. X., Lu, Y. M., Zhang, C., Fukunaga, et al
  2016; 8 (51): 35045-35058

- **Visualizing peroxynitrite fluxes in endothelial cells reveals the dynamic progression of brain vascular injury.** *Journal of the American Chemical Society*
  Li, X., Tao, R. R., Hong, L. J., Cheng, J., Jiang, Q., Lu, Y. M., Liao, M. H., Ye, W. F., Lu, N. N., Han, F., Hu, Y. Z., Hu, Y. H.
  2015; 137 (38): 12296-303

- **P2RX7 sensitizes Mac-1/ICAM-1-dependent leukocyte-endothelial adhesion and promotes neurovascular injury during septic encephalopathy.** *Cell research*
  Wang, H., Hong, L. J., Huang, J. Y., Jiang, Q., Tao, R. R., Tan, C., Lu, N. N., Wang, C. K., Ahmed, M. M., Lu, Y. M., Liu, Z. R., Shi, W. X., Lai, et al
  2015; 25 (6): 674-90

- **Atg5 deficit exaggerates the lysosome formation and cathepsin B activation in mice brain after lipid nanoparticles injection.** *Nanomedicine : nanotechnology, biology, and medicine*
  Lu, N. N., Liu, J., Tian, Y., Liao, M. H., Wang, H., Lu, Y. M., Tao, R. R., Hong, L. J., Liu, S. S., Fukunaga, K., Du, Y. Z., Han, F.
  2014; 10 (8): 1843-52

- **Peroxiredoxin 1 participates in ischemia-triggered endothelial polarization.** *CNS neuroscience & therapeutics*
  Ye, W. F., Tao, R. R., Jiang, Q., Huang, J. Y., Lu, N. N., Lu, Y. M., Fukunaga, K., Wang, H., Han, F.
  2014; 20 (8): 791-3

- **Nitrosative stress induces peroxiredoxin 1 ubiquitination during ischemic insult via E6AP activation in endothelial cells both in vitro and in vivo.** *Antioxidants & redox signaling*
  Tao, R. R., Wang, H., Hong, L. J., Huang, J. Y., Lu, Y. M., Liao, M. H., Ye, W. F., Lu, N. N., Zhu, D. Y., Huang, Q., Fukunaga, K., Lou, Y. J., Shoji, et al
  2014; 21 (1): 1-16