CHU HUA CHANG

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I am a dedicated Neuroscience Ph.D. candidate with expertise in modeling Parkinson's Disease using stem cell-derived dopaminergic neurons and brain organoids. Driven by a strong curiosity about the complexities of the brain, I am seeking postdoctoral opportunities to further investigate the molecular mechanisms underlying neurodegenerative diseases. My dissertation has been submitted, and my Ph.D. viva is expected in July 2025.

RESEARCH EXPERIENCE

Ph.D. Research Jan 2021 – Present
Lee Kong Chian School of Medicine, Nanyang Technological University
- Utilizing dopaminergic neurons and midbrain-like organoids derived from human embryonic stem cells to investigate the roles of PD-associated gene
- Performed molecular and cellular assays related to neuronal and synaptic functions
- Transcriptomics analysis of bulk- and single cell-RNA sequencing datasets
- Writing and preparing manuscripts for publications based on my research findings

Final Year Project Jan – May 2020
School of Biological Sciences, Nanyang Technological University
- Examined the learning and memory of a mouse model of Huntington's Disease using trace fear conditioning

Laboratory Attachment June – Nov 2019
School of Biological Sciences, Nanyang Technological University
- Evaluated the killing effect of different epigenetic inhibitors on multi-drug resistance small cell lung cancer cell line
- Performed in-vitro scratch assays to study the migration pattern of small cell lung cancer cells when pre-treated with the epigenetic drugs

Research Internship Feb – Aug 2019
*Human Genetics, Genome Institute of Singapore, A*STAR*
- Identified and validated genetic variants from whole-exome sequencing that are responsible for rare diseases in consanguineous families
- Assisted my supervisor in editing and reviewing her collaborator's manuscripts

EDUCATION

Ph.D. in Neuroscience Jan 2021 – Present
Nanyang Technological University, Singapore

B.Sc. in Biological Sciences with Honours (Highest Distinction) Aug 2016 – June 2020
Nanyang Technological University, Singapore

AWARDS

NTU Research Scholarship 2021 - Present
- Graduate scholarship to support PhD studies

Nanyang Scholarship 2016 - 2020
- Undergraduate scholarship for academic excellence and leadership potential

LABORATORY SKILLS

- Neuronal Cell Culture derived from Stem Cells (2D dopaminergic neurons and 3D midbrain organoids)
- Mammalian Cell Culture (H9 human hESC, iPSC, cancer cell, HEK293)
- CRISPR Gene Editing
- Molecular Techniques including PCR, Molecular Cloning, RT-qPCR, Western Blot
- Cellular assays including ELISA, Proximity Ligation Assay, Surface Biotinylation, Immunoprecipitation
- Immunocytochemistry
- Flow cytometry
- Animal work (Barnes Maze, Trace Fear Conditioning, Brain Dissection, Cryosectioning)
- Transcriptomic analysis of bulk and single-cell RNA sequencing data

PUBLICATIONS

Chang, C. H.*, Chew, E. G. Y.*, Lian, M. M., Tandiono, M., Li, Z., Chung, S. J., Tan, L. C. S., Au, W.-L., Prakash, K. M., Ahmad-Annuar, A., Tan, A. H., Mok, V., Chan, A. Y. Y., Lin, J.-J., Jeon, B. S., Khor, C. C., Lim, S.-Y., Tan, E.-K., & Foo, J. N. (2025). Rare SV2C coding variants in Parkinson's disease risk. *Journal of Parkinson's Disease*, 1877718X241300298. https://doi.org/10.1177/1877718X241300298

Chew, E. G. Y., Liu, Z., Li, Z., Chung, S. J., Lian, M. M., Tandiono, M., Ng, E. Y., Tan, L. C. S., Chng, W. L., Tan, T. J., Peh, E. K. L., Ho, Y. S., Chen, X. Y., Lim, E. Y. T., **Chang, C. H.**, Leong, J. J., Heng, Y. J., Peh, T. X., Chan, L.-L., … Foo, J. N. (2024). Exome sequencing in Asian populations identifies low-frequency and rare coding variation influencing Parkinson's disease risk. *Nature Aging*. https://doi.org/10.1038/s43587-024-00760-7

Chang, C. H., Lim, K. L., & Foo, J. N. (2024). Synaptic Vesicle Glycoprotein 2C: a role in Parkinson's disease. *Frontiers in Cellular Neuroscience*, *18*. https://doi.org/10.3389/fncel.2024.1437144

Ali, G., Awan, N. B., Sadia, Khawaja, A. W., Foo, J. N., Khor, C. C., **Chang, C.-H.**, Chew, E. G., Kiani, F. R., & Jelani, M. (2020). Identification of a recurrent nonsense mutation in HR gene responsible for atrichia with papular lesions in two Kashmiri families. *The Journal of Gene Medicine*, *22*(5), e3167. https://doi.org/10.1002/jgm.3167

CONFERENCE POSTERS

"Functional Characterisation of SV2C and its variants as a Parkinson's Disease-associated Gene." Neuroscience 2023. *Society for Neuroscience.* Washington D.C., United States.