Yizhou Yu

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SCIENTIFIC CAREER & EDUCATION:

Senior Computational Biologist, PI: Prof Sarah Teichmann October 2023 – Present
Cambridge Stem Cell Institute and Wellcome Sanger Institute, Cambridge, UK

Project: Using Human Cell Atlas technologies to investigate the aetiology of peripheral inflammatory neuropathy

Founder & CEO, Healthspan Biotics (https://www.healthspanbiotics.com/) November 2023 – Present
Milner Therapeutics Institute, Jeffrey Cheah Biomedical Centre, Cambridge, UK

Company aim: Evolving probiotics to improve neuronal health and delay Alzheimer's disease progression

PhD & MPhil studentships, PI: Dr L. Miguel Martins October 2019 – October 2023
MRC Toxicology Unit, University of Cambridge, UK

Thesis title: Integrative multiomic insights into Alzheimer's disease pathology

- I developed computational workflows to analyse the transcriptome, proteome and metabolome of a fly model of AD and identified mitochondrial dysfunction as a key pathological feature. I showed that protecting mitochondria alleviates AD pathology in flies and human patients.
- Funded by the University of Cambridge Vice-Chancellor's fund and MRC, £32 000 per year for 4 years

Co-founder, International Sleep Charity September 2018 – November 2024
internationalsleepcharity.org Charity Number: 1123736

- I developed a machine learning-based short questionnaire hosted on Amazon Web Services to screen for sleep disorders. I also lead a research team of 10 individuals to do epidemiological research and meta-analyses.
- I gained experience in applying for ethical permission as well as leadership and time management skills.
- Funded by SleepHubs Ltd, £10 000

Research intern, PI: Prof Masud Husain April 2019 – April 2020
Department of Clinical Neurosciences, University of Oxford, UK

Research topic: Magnetic resonance imaging signatures of cardiovascular, cerebrovascular and genetic risk factors for AD using data from the UK Biobank.

- I used machine learning to analyse ~30 000 neuroimaging and phenotypic data and found that poor sleep, a putative cause for AD, is associated with increased cerebrovascular damage.
- Funded by Alzheimer's Research UK, £3350

Research intern, PI: Dr Giorgio F. Gilestro (lab.gilest.ro) April 2018 – September 2019
Department of Life Sciences, Imperial College London, UK

2019 **The effect of reduced sleep on nicotinamide adenine dinucleotide levels in the brain of *Drosophila*.**
- Funded by the Genetics Society, £2000 - Top Project Award in the Genetics Society research competition.

2018 **The effect of pheromone treatment on the cognition of sleep-deprived *Drosophila*.**
- Funded by the Biotechnology and Biological Sciences Research Council, £2100

- I contributed to developing a high-throughput associative learning paradigm based on the Ethoscope.

Biological Sciences B.Sc., Imperial College London, First class honours October 2016 – July 2019

SELECTED ACADEMIC AWARDS AND HONOURS (in order of relevance):

- Trinity Bradfield Prize, 2025.
- Postdoctoral Research Associateship at Gonville and Caius College, University of Cambridge, 2024-2026.
- Falling Walls Cambridge - First Prize (project: Breaking the Wall of Dementia), 2023. Received the second prize (out of a total of >2300 international applicants) at the Falling Walls Summit.
- Selected as the student from the University of Cambridge to attend the 72nd Lindau Nobel Laureate Meeting in Physiology/Medicine, 2023.
- Cambridge Society for the Application of Research PhD Student Award (project: Mitochondrial folate one-carbon metabolism moderates Alzheimer's disease pathology), 2023.
- Oxford University Press Toxicology Research Prize (project: Identification of aripiprazole-binding proteins using thermal proteome profiling), British Toxicology Society, 2023.
- Elected as the 2024 chair of the Gordon Research Conference, Neurobiology of Brain Disorders.

Best speaker awards

- Best speaker of the year award (title: Integrative multiomic insights into Alzheimer's disease pathology), MRC Toxicology Unit, University of Cambridge, 2023.
- Best Data Blitz Talk (title: One-carbon metabolism in Alzheimer's disease), Alzheimer's Research UK, 2024.
- Three-minute Thesis competition, first prize (title: Unlocking the "sleep switch" in Alzheimer's disease), University of Cambridge Hughes Hall, 2024.
- Best speaker award (title: *Parp* mutations protect from Alzheimer's disease pathology), Symposium for Biological and Life Sciences, 2022.
- Best speaker award (title: *Parp* mutations protect from Alzheimer's disease pathology), by Alzheimer's Research UK - East Network, 2022.
- Best speaker award (title: *Parp* mutations protect from mitochondrial toxicity in Alzheimer's disease), by the British Neuroscience Association, 2021.

Best poster awards

- Best scientific poster award (title: Identification of aripiprazole-binding proteins using thermal proteome profiling), by Gordon Research Conference (Cellular and Molecular Mechanisms of Toxicity), 2023.
- Best scientific poster award (title: *Parp* mutations protect from Alzheimer's disease pathology), by Gordon Research Conference (Neurobiology of Brain Disorders), 2022.
- Best scientific poster award (title: Personalised medicine in Alzheimer's disease), Precision Health Initiative Launch Symposium, 2022.

Other honours

- Selected as a Bio-spark Company-Seeding Fellow, 2023.
- Second place at the Hack Cambridge hackathon (project: Data-informed fine-tuning of GPT3 to detect medical symptoms), 2023.
- Rob Clarke Award for best undergraduate project (project: Molecular modelling of the $GABA_A$ receptor reveals a novel gating mechanism), by The Physiological Society, 2019.

INVITED TALKS:

- **Interviewed** by France24. (27 April 2020). Title: Preliminary study links severity of illness to air pollution
- Invited **speaker** at the Imperial College Lates podcast. (27 October 2020). Title: *Wellbeing for a winter lockdown*.
- Invited **speaker** at the Imperial College Welfare Week. (24 May 2020). Title: *What do we know about sleep and how to sleep better?*. Saint Mary's Hospital, London, UK.
- Invited **speaker** at the Wellbeing Conference. (4 July 2019). Title: *What do we know about sleep and how to sleep better?*. Commerzbank London, UK.
- Featured on BBC One (27 February 2019, 18:30 pm): Sleep in a busy city like London.

LEADERSHIP & TEACHING EXPERIENCE:

- **Supervision for degree projects (MSc or BSc)** at the University of Cambridge
  - Bryan Tan: Multi-omic & multi-tissue Mendelian randomisation prediction of AD risk 2023
    Grade: *First class honours*, **highest grade in his cohort**
  - Ryan Kinkela: Longitudinal sleep recording in a *Drosophila* model of AD 2023
    Grade: *First class honours*
  - Krishna Amin: *In silico* screening of MAP4K3 inhibitors 2022
    Grade: *First class honours,* **highest grade in his cohort**
  - Rayo Akande: Meta-analysis on the protective effect of vitamins in AD 2021
    Grade: *First class honours*
- **Head of Branch**, Cambridge Innovation Forum: 2019-2021
- **Representative of graduate students**, University of Cambridge, Faculty of Biology 2019-2020
- **Vice President and departmental representative**, Imperial College London 2016-2019

SELECTED PUBLICATIONS & GITHUB REPOSITORIES:

H-index: 6, Citations: 954, selected (co)first-author publications are shown, please visit my Google Scholar for the full list

1. **Yu Y**, Fedele G, Celardo I, Zhou L, Tan BWZ, Loh SHY, Martins LM. (2025). Distinct forms of amyloid-β moderate sleep duration through NAD^+-linked redox metabolism in Alzheimer's disease. *Under revision (Minor Revisions)*. **first & co-corresponding author** https://www.yizhouyu.com/abeta_sleep/
2. **Yu Y**, Chen CZ, Celardo I, Tan BWZ, Leal NJS, Popovic R, Loh SHY, Martins LM. (2024). Enhancing mitochondrial one-carbon metabolism is neuroprotective in Alzheimer's disease models. *Cell Death & Disease*. doi.org/10.1038/s41419-024-07179-3. **first & co-corresponding author** https://m1gus.github.io/AD-FA/
3. **Yu Y**, Martins LM. (2024). Mitochondrial one-carbon metabolism and Alzheimer's disease. *International Journal of Molecular Sciences*. doi.org/10.3390/ijms25126302 **first & co-corresponding author**
4. **Yu Y**, Fedele G, Celardo I, Loh SHY, Martins LM. (2021). Parp mutations protect from mitochondrial toxicity in Alzheimer's disease. *Cell Death & Disease*. doi.org/10.1038/s41419-021-03926-y. **first author** https://github.com/M1gus/AD_Parp
5. **Yu Y**. (2023). Links between Sleep Apnoea and Insomnia in a British Cohort. *Clocks & Sleep*. https://doi.org/10.3390/clockssleep5030036 **single author** https://www.yizhouyu.com/osa_insomnia/
6. Travaglio M, **Yu Y**, Popovic R, Selley L, Leal NS, Martins LM. (2020). Links between air pollution and COVID-19 in England. *Environmental pollution*. doi.org/10.1016/j.envpol.2020.115859. **co-first author** https://github.com/M1gus/AirPollutionCOVID19
7. Popovic R, **Yu Y**, Leal NJS, Fedele G, Loh SHY, Martins LM. (2023). Tribbles upregulation decreases body weight and increases sleep duration. *Disease Models & Mechanisms.* https://doi.org/10.1242/dmm.049942 **co-first author** https://m1gus.github.io/Tribbles-sleep/
8. **Yu Y**, Travaglio M, Popovic R, Leal NJS, Martins LM. (2021). Alzheimer's and Parkinson's diseases predict different COVID-19 outcomes, a UK Biobank study. *Geriatrics*. doi.org/10.3390/geriatrics6010010 **co-first author** https://github.com/M1gus/AD_PD_COVID19
9. Leal NJS, **Yu Y**, Chen Y, Fedele G, Martins LM. (2021). Paracetamol is associated with a lower risk of COVID-19 infection and decreased ACE2 protein expression: a retrospective analysis. *COVID*. https://doi.org/10.3390/covid1010018 **co-first author** https://github.com/M1gus/NSAIDs_Ace2

Selected publications where I was a co-author (in order of impact):

1. Wilson EL, **Yu Y**, Leal NS, Woodward JA, Patikas N, Morris JL, Field SF, Plumbly W, Paupe V, Chowdhury SR, Antrobus R, Lindop GE, Adia Y, Loh SHY, Prudent J, Martins LM, Metzakopian E. Genome-wide CRISPR/Cas9 screen shows that loss of GET4 increases mitochondria-endoplasmic reticulum contact sites and is neuroprotective. (2024) *Cell Death & Disease*. doi.org/10.1038/s41419-024-06568-y
2. Popovic R, Mukherjee A, Leal NS, Morris L, **Yu Y**, Loh SHY, Martins LM. (2023). Blocking dPerk in the intestine suppresses neurodegeneration in a *Drosophila* model of Parkinson's disease. *Cell Death & Disease*. doi.org/10.1038/s41419-023-05729-9
3. Hardy RE, Chung I, **Yu Y**, Loh SHY, Morone N, Soleilhavoup C, Travaglio M, Serreli R, Panman L, Cain K, Hirst J, Martins LM, MacFarlane M, Pryde KR. (2023). The antipsychotic medications aripiprazole, brexpiprazole and cariprazine are off-target respiratory chain complex I inhibitors. *Biology Direct*. doi.org/10.1186/s13062-023-00375-9
4. Popovic R, Celardo I, **Yu Y**, Costa AC, Loh SHY, Martins LM. Combined transcriptomic and proteomic analysis of perk toxicity pathways. (2022). *International Journal of Molecular Sciences*. doi.org/10.3390/ijms22094598
5. Travaglio M, Michopoulos F, **Yu Y**, Popovic R, Foster E, Coen M, Martins LM. (2023). Increased cysteine metabolism in PINK1 models of Parkinson's disease. *Disease models & mechanisms*. doi.org/10.1242/dmm.049727
6. Stefanatos R, Robertson F, Castejon-Vega B, **Yu Y**, Uribe AH, Myers K, Kataura T, Korolchuk VI, Maddocks ODK, Martins LM, Sanz A. (2025). Developmental mitochondrial complex I activity determines lifespan. *EMBO reports*. doi.org/10.1038/s44319-025-00416-6
7. Stefanatos R, Robertson F, Castejon-Vega B, **Yu Y**, Uribe AH, Myers K, Kataura T, Korolchuk VI, Maddocks ODK, Martins LM, Sanz A. (2025). Developmental mitochondrial complex I activity determines lifespan. *Disease models & mechanisms*. http://doi.org/10.1242/dmm.052180
8. Rifkin-Zybutz R, Selim H, Johal M, Kuleindiren N, Palmon I, Lin A, **Yu Y**, Mahmud M. Preliminary validation study of the Mindset4Dementia application: assessing remote collection of dementia risk factors and cognitive performance. (2022). *BMJ Innovations*. doi.org/10.1136/bmjinnov-2021-000780
9. Kuleindiren N, Rifkin-Zybutz RP, Johal M, Selim H, Palmon I, Lin A, **Yu Y**, Alim-Marvasti A, Mahmud M. (2022). Optimizing existing mental health screening methods in a dementia screening and risk factor app: observational machine learning study. *JMIR Formative Research* doi.org/10.2196/31209