Emir Turkes

PhD Graduate - Bioinformatics/Neuroscience

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Research Interest: Neurodegeneration and computational methods development
Nationality: American **Current Location:** Sapporo, Japan

Education

University College London
PhD Neuroscience *(2019-2025)*
Supervisor: Karen E. Duff, PhD. Thesis

The University of Tokyo
MS Health Science *(2016-2018)*
Supervisor: Seiichiroh Ohsako, PhD, DVM

Boston University
BA Neuroscience *(2011-2015)*

Awards

10x Genomics Neuroscience Scientific Challenge *April 2021*
Recipient of free spatial and single-cell servicing and sequencing kits for collaborative research. *Link to award*

Rotary Yoneyama Memorial Foundation Fellow *April 2016 - March 2018*
Recipient of a two-year scholarship to fund Master's studies and membership to Rotary Club. *Link to award*

Teaching

Clinician Coders *London, UK*
Instructor - *github.com/ClinicianCoders/ClinicianCoders* *May 2021 - November 2021*
- Taught statistical analysis in R to clinicians and helped build curriculum.

Boston University *Boston, MA, USA*
Teaching Assistant - *Intro to Computational Models of Brain and Behavior* *January 2015 - May 2015*
- Provided instruction on the use of MATLAB for labs and assignments.

Experience

Visiting Student *Columbus, Ohio, USA*
Ohio State University Medical Center *under Prof. Hongjun Fu, PhD* *April 2022 - July 2022*
- Collaborated on an optimisation of immunostaining protocol combined with Visium spatial transcriptomics.

Research Assistant *New York, NY, USA*
Taub Institute at Columbia University *under Prof. Karen E. Duff, PhD* *February 2019 - August 2019*
- Trained in bioinformatics analysis to study cell-type specific vulnerability to pathological tau in Alzheimer's Disease.

Visiting Student *Kashiwa, Japan*
Phenovance LLC *under Dr. Toshihiro Endo, PhD* *July 2016 - March 2018*
- Helped develop new software and experimental paradigms for Intellicage, an automated home cage system.

Research Assistant *Boston, MA, USA*
Boston University Speech Lab *under Prof. Frank H. Guenther, PhD* *June 2015 - February 2016*
- Worked on MATLAB pipelines to automate the processing of resting-state fMRI images to study speech motor control.

Clinical Shadowing *Toms River, NJ, USA*
Shore Neurology *under Dr. Gerald Ferencz, MD* *May 2013 - August 2013*
- Gained clinical experience in general neurology and assisted in the coordination of Phase II, III, and IV clinical trials.

Publications

[1] E. Turkes and K. E. Duff, "Genefunnel: A mean absolute deviation-based, dispersion-adjusted gene set scoring method," Manuscript in submission: eturkes.com/media/genefunnel-manuscript.

[2] D. Acosta Ingram, E. Turkes, T. Y. Kim, S. Vo, N. Sweeney, M.-A. Bonte, R. Rutherford, D. L. Julian, M. Pan, J. Marsh, et al., "Gramd1b is a regulator of lipid homeostasis, autophagic flux and phosphorylated tau," *Nature communications*, vol. 16, no. 1, p. 3312, 2025. DOI: 10.1038/s41467-025-58585-w.

[3] S. L. Fowler, T. S. Behr, E. Turkes, D. P. O'Brien, P. M. Cauhy, I. Rawlinson, M. Edmonds, M. S. Foiani, A. Schaler, G. Crowley, et al., "Tau filaments are tethered within brain extracellular vesicles in alzheimer's disease," *Nature Neuroscience*, vol. 28, no. 1, pp. 40–48, 2025. DOI: 10.1038/s41593-024-01801-5.

[4] E. Tsefou, S. Bez, T. J. Birkle, M. Foiani, N. Watamura, M. Bourdenx, D. Gavriouchkina, E. Turkes, S. Crawford, R. Coneys, et al., "Scalable human neuronal models of tauopathy producing endogenous seed-competent 4r tau," *bioRxiv*, pp. 2025–07, 2025. DOI: 10.1101/2025.07.11.664346.

[5] G. Crowley, E. Turkes, M. Kim, S. De Schepper, B. J. Tan, J. Rueda-Carrasco, M. Toneva, J. C. Fajardo, J. Z. Ge, Z. G. Yang, et al., "C1q and immunoglobulins mediate activity-dependent synapse loss in the adult brain," *bioRxiv*, pp. 2024–12, 2024. DOI: 10.1101/2024.12.18.629085.

[6] H.-P. Lipp, S. Krackow, E. Turkes, S. Benner, T. Endo, and H. Russig, "Intellicage: The development and perspectives of a mouse-and user-friendly automated behavioral test system," *Frontiers in Behavioral Neuroscience*, vol. 17, p. 1 270 538, 2024. DOI: 10.3389/fnbeh.2023.1270538.

[7] N. Watamura, M. S. Foiani, S. Bez, M. Bourdenx, A. Santambrogio, C. Frodsham, E. Camporesi, G. Brinkmalm, H. Zetterberg, S. Patel, et al., "In vivo hyperphosphorylation of tau is associated with synaptic loss and behavioral abnormalities in the absence of tau seeds," *Nature Neuroscience*, pp. 1–15, 2024. DOI: 10.1038/s41593-024-01829-7.

[8] S. Chen, Y. Chang, L. Li, D. Acosta, Y. Li, Q. Guo, C. Wang, E. Turkes, C. Morrison, D. Julian, et al., "Spatially resolved transcriptomics reveals genes associated with the vulnerability of middle temporal gyrus in alzheimer's disease," *Acta neuropathologica communications*, vol. 10, no. 1, p. 188, 2022. DOI: 10.1186/s40478-022-01494-6.

[9] A. Kiryk, A. Janusz, B. Zglinicki, E. Turkes, E. Knapska, W. Konopka, H.-P. Lipp, and L. Kaczmarek, "Intellicage as a tool for measuring mouse behavior–20 years perspective," *Behavioural brain research*, vol. 388, p. 112 620, 2020. DOI: 10.1016/j.bbr.2020.112620.

Book Chapters

[1] R. Morris, D. G. Amaral, T. Bliss, K. Duff, and J. O'Keefe, *The hippocampus book*. Oxford university press, 2024. DOI: 10.1093/med/9780190065324.001.0001.

[2] F. H. Guenther, *Neural control of speech*. Mit Press, 2016. DOI: 10.7551/mitpress/10471.001.0001.

Select Talks

[1] E. Turkes, "Preserving modularity when reducing dimensionality," in *UK DRI ECR Integrative Informatics for Targeting Dementia*, London, UK, 2024.

[2] E. Turkes and K. E. Duff, "Methods in prioritizing pathways and targets from expression data," *Alzheimer's & Dementia*, vol. 19, e066331, 2023. DOI: 10.1002/alz.066331.

[3] E. Turkes, K. Harris, N. Skene, R. Lovering, and K. E. Duff, "Molecular signature of neurofibrillary tangle-bearing neurons in alzheimer's disease," in *VIB Conferences: Revolutionizing Next-Generation Sequencing (5th edition)*, Ghent, Belgium, 2023.

[4] E. Turkes and K. E. Duff, "Cell-type specific selective vulnerability to pathological tau in alzheimer's disease," in *UK-Japan Neuroscience Symposium*, Edinburgh, UK, 2020.

[5] E. Turkes and K. E. Duff, "Cell-type specific selective vulnerability to pathological tau in alzheimer's disease," in *Invitation to the Allen Institute for Brain Science*, Seattle, Washington, USA, 2020.

Software

[1] K. Blighe, S. Rana, E. Turkes, B. Ostendorf, A. Grioni, and M. Lewis, *Enhancedvolcano: Publication-ready volcano plots with enhanced colouring and labeling (version r package version 1.14. 0)*, 2022. DOI: 10.18129/B9.bioc.EnhancedVolcano.