Burak Ogan Mancarci

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Education

2013-2018 (expected) **PhD, Bioinformatics**; University of British Columbia (Vancouver, Canada)

Thesis title: Identification/validation of cell type marker genes of the brain and their use in estimating cell type proportions in brain samples.

2009-2013 **BSc, Molecular Biology And Genetics;** Bilkent University (Ankara, Turkey)

Research Experience

2014 - present **PhD Student at UBC Micheal Smith Laboratories** - Supervisor: Dr. Paul Pavlidis

- Identification/validation of cell type marker genes of the brain and their use in estimating cell type proportions in brain samples (**github.com/PavlidisLab/neuroExpressoAnalysis**).
- Development of a web application to visualize gene expression in brain cell types (**neuroexpresso.org**).

2013 **Rotation at BC Children's Hospital** - Supervisor: Dr. Wyeth Wasserman

- Analysis of CAGE data for detection of microRNA transcription start sites.

2013 **Rotation at Simon Fraser University** - Supervisor: Dr. Fiona Brinkman

- Analysis of antisense transcription in genomic islands.

2012 **Summer internship at University of Zurich** - Supervisor: Dr. Barbara Tschirren

- Selective mating of Japanese quails and computational analysis of various properties of quail and tit eggs.

2011 **Summer internship at Harvard Medical School** - Supervisor: Dr. George Daley

- Reprogramming of murine and human cells via viral vectors.

Teaching Experience

2018 **Teaching Assistant for Statistical Methods for High Dimensional Biology course (STAT 540) at UBC** - Instructors: Sara Mostafavi, Paul Pavlidis

2016 **Teaching Assitant for Exploratory Data Analysis course (STAT 545) at UBC** - Instructor: Dr. Jenny Brian

2015	**Teaching Assitant for Exploratory Data Analysis course (STAT 545) at UBC** - Instructor: Dr. Jenny Brian
2015	**Instructional Skills Workshop at UBC** - **iswnetwork.ca**

Awards and Scholarships

2016	1st place in HackSeq hackaton - **hackseq.com**
2015	3rd place in SportsHack hackaton - **sportshackweekend.org/ca/2015**
2013-2014	Canadian Institutes of Health Research Training Program Scholarship
2009-2013	Bilkent 50% Scholarship

Publications

Tripathy, S.J., Toker, L., Bomkamp, C., **Mancarci, B.O.**, Belmadani, M., and Pavlidis, P. (2018). Assessing Transcriptome Quality in Patch-Seq Datasets. Front. Mol. Neurosci. 11.

Toker, L., **Mancarci, B.O.**, Tripathy, S., and Pavlidis, P. (2018). Transcriptomic evidence for alterations in astrocytes and parvalbumin interneurons in bipolar disorder and schizophrenia subjects. Biological Psychiatry.

Mancarci, B.O., Toker, L., Tripathy, S.J., Li, B., Rocco, B., Sibille, E., and Pavlidis, P. (2017). Cross-Laboratory Analysis of Brain Cell Type Transcriptomes with Applications to Interpretation of Bulk Tissue Data. ENeuro 4.

Tripathy, S.J., Toker, L., Li, B., Crichlow, C.-L., Tebaykin, D., **Mancarci, B.O.**, and Pavlidis, P. (2017). Transcriptomic correlates of neuron electrophysiological diversity. PLOS Computational Biology 13, e1005814.

Horvath, G.A., Demos, M., Shyr, C., Matthews, A., Zhang, L., Race, S., Stockler-Ipsiroglu, S., Van Allen, M.I., **Mancarci, O.**, Toker, L., et al. (2016). Secondary neurotransmitter deficiencies in epilepsy caused by voltage-gated sodium channelopathies: A potential treatment target? Mol. Genet. Metab. 117, 42–48.

Onder, T.T., Kara, N., Cherry, A., Sinha, A.U., Zhu, N., Bernt, K.M., Cahan, P., **Mancarci, B.O.**, Unternaehrer, J., Gupta, P.B., et al. (2012). Chromatin-modifying enzymes as modulators of reprogramming. Nature 483, 598–602.

Software

NeuroExpresso: A web application for visualization of gene expression data in brain cell types. Available at **neuroexpresso.org**.

markerGeneProfile: An R package for calculation of marker gene profiles as described in **Mancarci et al. (2017)**. Available at **github.com/PavlidisLab/markerGeneProfile**.

VASCO: A web application for visualization of gene expression data from single cell RNA sequencing experiments. Developed for HackSeq 2016. Available at **hackseq.github.io/vasco**.

Viral Voyager: A web application for visualization and analysis of metavirome data collected for the Tara Oceans Project. Developed for HackSeq 2018. Available at **oganm.com/shiny/taracyc**.

Impact Replays: A web application for visualization play-by-play data from football games. Developed for SportsHack hackaton. Available at **daattali.com/shiny/cfl**.

eggstractor: Software to automate extraction of shape and pigmentation related information from quail eggs. Developed for 2012 summer internship under Barbara Tschirren. Available at **github.com/oganm/eggstractor**.

Misc. Bioinformatics related R packages: I maintain R packages aimed at making life easier for myslef and other bioinformaticians. See **github.com/topics/ogan-bio** for a full list.

Misc. D&D related repositories: I maintain R packages and web applications to be used while playing Dungeon's and Dragons, a popular tabletop roleplaying game. See **github.com/topics/ogan-dnd** for a full list.

Presentations

Society for Neuroscience Annual Meeting 2017: Mancarci, B.O., Toker, L., Li, B., Rocco, B., Tripathy, S., Sibille, E., and Pavlidis, P. NeuroExpresso: A brain cell type specific gene expression database composed of pooled microarray and single cell RNA sequencing data.

25th Annual International Conference on Intelligent Systems for Molecular Biology: Mancarci, B.O., Toker, L., Li, B., Rocco, B., Tripathy, S., Sibille, E., and Pavlidis, P. (2017). NeuroExpresso: Cross laboratory database of brain cell type specific gene expression.

Society for Neuroscience Annual Meeting 2016: Toker, L., **Mancarci, B.O.**, Tripathy, S., and Pavlidis, P. (2016). Deciphering the cell-type specific component in the pathophysiology of brain-related disorders.

Society for Neuroscience Annual Meeting 2016: Tripathy, S., Tebaykin, D., **Mancarci, O.**, Toker, L., and Pavlidis, P. (2016). Transcriptomic correlates of brain-wide electrophysiological diversity.

Society for Neuroscience Annual Meeting 2016: Mancarci, O., Toker, L., and Pavlidis, P. (2016). Comparison of single cell and pooled cell expression data from mouse and human brain.

24th Annual International Conference on Intelligent Systems for Molecular Biology: Mancarci, O., Toker, L., Li, B., Tripathy, S., and Pavlidis, P. (2016). Identification of novel markers for mammalian brain cell types.

Organization of Computational Neurosciences Conference 2015: Tripathy, S.J., Tebaykin, D., Li, B., **Mancarci, O.**, Toker, L., and Pavlidis, P. (2015). Large-scale analysis of brain-wide electrophysiological diversity reveals novel characterization of mammalian neuron types. BMC Neurosci 16, O4.

23rd Annual International Conference on Intelligent Systems for Molecular Biology: Mancarcı, O., Toker, L., Tripathy, S., Pavlidis, P., Mancarcı, O., Toker, L., Tripathy, S., and Pavlidis, P. (2015). A comprehensive database of cell-type specific marker genes for the mammalian brain. F1000Research 4.

23rd Annual International Conference on Intelligent Systems for Molecular Biology: Toker, L., **Mancarci, O.**, Tripathy, S., and Pavlidis, P. (2015). A transcriptomics approach for revealing cell-type proportion changes in psychiatric disorders.