

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 Assistant 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

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*.

Tripathy, S., Toker, L., Bomkamp, C., **Mancarci, O.**, Belmadani, M., and Pavlidis, P. (2018). A critical assessment of single-cell transcriptomes sampled following patch-clamp electrophysiology. *BioRxiv* 298133.

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 hackaton. Available at hackseq.github.io/vasco.

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: A GUI based 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 have been maintaining various R packages aimed at making life easier for myself and other bioinformaticians. See github.com/topics/ogan-bio 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: Mancarci, O., Toker, L., Tripathy, S., Pavlidis, P., Mancarci, 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.