

## Soroor Hediyezh-zadeh

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### CONTACT INFORMATION

✉ hediyezhzadeh.s@wehi.edu.au

### RESEARCH PROFILES

🏠 Website

🔗 Google Scholar profile

🌐 <https://github.com/soroorh>

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### EDUCATION

#### **The University of Melbourne**

2020-2023

Department of Medical Biology (WEHI)

Doctor of Philosophy

Thesis: *Statistical and Machine learning models for the analysis of label-free mass spectrometry data*

Supervisors: Melissa J Davis, Andrew I. Webb

#### **The University of Melbourne**

2017-2019

School of Mathematics and Statistics

M.S., Statistics and Stochastic Processes

Thesis: *Differential expression analysis of RNA-seq data at the transcript level*

Supervisors: Gordon K Smyth, Melissa J Davis, Yunshun Chen

#### **The University of Melbourne**

2012-2015

School of Mathematics and Statistics

B.S., Statistics and Stochastic Processes

Undergraduate Project: *Statistical analysis of RNA-seq data*

Supervisors: Gordon K Smyth, Alexandra Garnham

### EMPLOYMENT

#### **Walter and Eliza Hall Institute of Medical Research**

2016 - 2020

*Bioinformatics Division*

Research Assistant

Advisor: Melissa J Davis

Role: Analysis of high-throughput sequencing data, including RNA-seq, ChIP-seq, ATAC-seq, SLAM-seq, scRNA-seq, and shotgun proteomics data. Developed methods for data integration, understanding cellular heterogeneity in single-cell RNA-seq data. Also co-supervised a visiting student March 2019 - June 2019.

#### **The University of Melbourne**

2014 - 2016

*School of Engineering, Systems Biology Laboratory*

UROP Student/Research Technician

Project title: *Identifying the molecular networks disrupted in metastasising carcinoma*

Supervisor: Melissa J Davis

Role: Database development, transcription factor motif analysis

### PUBLICATIONS

#### *Peer-Reviewed Journal Articles*

- [1] Huang, Q., Jacquelot, N., Preaudet, A., Hediyezh-Zadeh, S., Souza-Fonseca-Guimaraes, F., McKenzie, A. N., ... Belz, G. T. (2021). *Type 2 Innate Lymphoid Cells Protect against Colorectal Cancer Progression and Predict Improved Patient Survival.*

**Cancers**, 13(3), 559.

- [2] Moujalled, D. M., Hanna, D. T., Hediye-Zadeh, S., Pomilio, G., Brown, L., Litalien, V., ... Maragno, A. L. (2020). *Cotargeting BCL-2 and MCL-1 in high-risk B-ALL*. **Blood advances**, 4(12), 2762-2767.
- [3] Emery-Corbin, S. J., Hamey, J. J., Ansell, B. R., Balan, B., Tichkule, S., Stroehlein, A. J., ..., Hediye-Zadeh, S., ... Jex, A. R. (2020). Eukaryote-conserved methy-larginine is absent in diplomonads and functionally compensated in Giardia. **Molecular biology and evolution**, 37(12), 3525-3549.
- [4] Ng, A. P., Coughlan, H. D., Hediye-Zadeh, S., Behrens, K., Johanson, T. M., Low, M. S. Y., ... Boudier, T. (2020). *An Erg-driven transcriptional program controls B cell lymphopoiesis*. **Nature Communications**, 11(1), 1-14.
- [5] Wee, K., Hediye-zadeh, S., Duszyc, K., Verma, S., Nanavati, B., Khare, S., ... Budnar, S. (2020). *Snail induces epithelial cell extrusion by regulating RhoA contractile signaling and cell-matrix adhesion*. **Journal of Cell Science**.
- [6] Carmichael, C. L., Wang, J., Nguyen, T., Kolawole, O., Benyoucef, A., De Maz-ière, C., ..., Hediye-zadeh, S., ... Vo, A. N. Q. (2020). *The EMT modulator SNAI1 contributes to AML pathogenesis via its interaction with LSD1*. **Blood**.
- [7] Louis, C., Guimaraes, F., Yang, Y., D'Silva, D., Kratina, T., Dagley, L., Hediye-Zadeh, S., ... Babon, J. J. (2020). *NK cell-derived GM-CSF potentiates inflammatory arthritis and is negatively regulated by CIS*. **Journal of Experimental Medicine**, 217(5).
- [8] Delconte, R. B., Guittard, G., Goh, W., Hediye-Zadeh, S., Hennessy, R. J., Rautela, J., ... Huntington, N. D. (2020). *NK Cell Priming From Endogenous Homeostatic Signals Is Modulated by CIS*. **Frontiers in Immunology**, 11, 75.
- [9] Goh, W., Jackson, J. T., Hediye-zadeh, S., Delconte, R. B., Andoniou, C. E., Rautela, J., ... Huntington, N. D. (2020). *Hhex Is Essential for NK Cell Persistence by Repressing Bcl2l11-Dependent Apoptosis*. **CELL-REPORTS-D-19-05014**.
- [10] Rautela, J., Dagley, L. F., De Oliveira, C. C., Schuster, I. S., Hediye-Zadeh, S., Delconte, R. B., ... Kita, B. (2019). *Therapeutic blockade of activin-A improves NK cell function and antitumor immunity*. **Science signaling**, 12(596), eaat7527.
- [11] Cursons, J., Souza-Fonseca-Guimaraes, F., Foroutan, M., Anderson, A., Hol-lande, F., Hediye-Zadeh, S., ... Davis, M. J. (2019). *A gene signature predict-ing natural killer cell infiltration and improved survival in melanoma patients*. **Cancer immunology research**, 7(7), 1162-1174.
- [12] Mielke, L. A., Liao, Y., Clemens, E. B., Firth, M. A., Duckworth, B., Huang, Q., ... Hediye-Zadeh, S. (2019). *TCF-1 limits the formation of Tc17 cells via repression of the MAF-RORYt axis*. **Journal of Experimental Medicine**, jem-20181778.
- [13] Cursons, J., Pillman, K. A., Scheer, K. G., Gregory, P. A., Foroutan, M., Hediye-Zadeh, S., ... Davis, M. J. (2018). *Combinatorial targeting by Mi-croRNAs co-ordinates post-transcriptional control of EMT*. **Cell systems**, 7(1), 77-91.
- [14] Rautela, J., Souza-Fonseca-Guimaraes, F., Hediye-Zadeh, S., Delconte, R. B., Davis, M. J., Huntington, N. D. (2018). *Molecular insight into targeting the NK cell immune response to cancer*. **Immunology and cell biology**, 96(5), 477-484.

- [15] Foroutan, M., Cursons, J., Hediye-Zadeh, S., Thompson, E. W., Davis, M. J. (2017). *A transcriptional program for detecting TGFB-induced EMT in Cancer*. **Molecular Cancer Research**, 15(5), 619-631.

SELECTED INVITED TALKS *Mapping phenotypic similarities using single cells manifold*, Joint GIW/ABACBS 2019. Sydney, Australia.

*Mapping phenotypic similarities using single cells manifold*, 10X Genomics User Group, Melbourne, November 2019.

*Supervised deconvolution of population heterogeneities in single cell RNA-seq via similarity-based embeddings*, Victorian Cancer Bioinformatics Symposium 2019.

*Supervised deconvolution of population heterogeneities in single cell RNA-seq via similarity-based embeddings*, OZ Single Cells meeting 2019.

*Using Docker to make biomedical research outcomes reproducible*, Tech Talk: Using Docker-like Containers in Service Deployment (Online Meetup). (April 2018)

*Computational workflows for research students: towards a reproducible research*, COMBINE Student Symposium. (November 2016)

*OPPAR: Outlier Profile and Pathway Analysis*, bioCasia2016. (November 2016)

TALKS AND SEMINARS *Machine Learning in Biology: Learning meaningful representations of life*, WEHI Machine Learning Interest Group, June 2020.

*Methods for imputation, differential expression and multi-Omics integration of proteomics data*, WEHI Bioinformatics Seminars, April 2019

AWARDS **WEHI Bioinformatics Travel Award, 2020**  
**Kellaway Excellence Education Award, 2019**  
**BiocAsia 2016 meeting Travel Award**  
**Winter School in Mathematical and Computational Biology Travel Bursary, 2014**  
**Australian Neurogenetics Conference Travel Award, 2014**

PROGRAMMING LANGUAGES Proficient: R, Bash, L<sup>A</sup>T<sub>E</sub>X, Python

SOFTWARE msImpute: Peptide-level imputation in mass spectrometry label-free proteomics by low-rank approximation. DOI: <https://doi.org/doi:10.18129/B9.bioc.msImpute>

scDECAF: Reference-free cell type and phenotype annotation by learning geneset representations. source code: <https://github.com/DavisLaboratory/scDECAF>

oppar - An R/Bioconductor package for outlier profile analysis in cancer samples.  
DOI: <https://doi.org/doi:10.18129/B9.bioc.oppar>

PROFESSIONAL  
SERVICES

*Workshops*

Producing publication-ready documents in R Markdown. R-Ladies Melbourne, Feb 2019. *Speaker and co-organiser*

Semi-parametric and non-parametric models in R. R-Ladies Melbourne, December 2018. *Speaker and co-organiser*

Parallel Programming in R. R-Ladies Melbourne, March 2018. *Speaker and co-organiser*

Introduction to R Shiny. R-Ladies Melbourne, November 2017. *Speaker and co-organiser*

COMBINE R for Bioinformatics. May 2017. *Training instructor and organiser*

Version Control and Project Management with Git. R-Ladies Melbourne, May 2017. *Speaker and co-organiser*

COMBINE R software Carpentry workshop. April 2017. *Training instructor and organiser*

*Committees and Societies*

WEHI Machine Learning Special Interest Group (2020) - Co-organiser

WEHI Deep Learning in Medical Biology Symposium 2020 - Co-organiser

R-Ladies Melbourne co-organiser (2017 - Feb 2019)

useR! 2018 conference organising committee

ABACBS 2017 organising committee - COMBINE training coordinator