

## ADRIAN SALAVATY

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### SKILLS

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- **Bioinformatics and Systems Biology:** Genomics (cancer genomics), Epigenomics (familiar with epigenetic modifications/gene regulation), NGS data analysis, Transcriptomics (RNA-seq and microarray data analysis), Proteomics (protein sequence and structure analysis), Interactomics, Investigation of protein-protein interactions, visualization and analysis of biological networks, homology modelling, function prediction
- **Programming languages and skills:** R, R package development, Shiny app development, Python, Python package development, Linux and command-line-based high performance computing (HPC)
- **Machine learning (ML):** Supervised ML, Unsupervised ML, Familiar with both classical (*e.g.* SVM, Random Forest, Decision Tree) and modern (neural network-based) ML models, Dimension reduction, Feature selection/extraction
- **Statistics:** Biostatistics, Data mining, Meta-analysis
- **Scientific writing:** Reference manager (EndNote, Mendeley, Citavi)
- **Computer skills:** MS Office, Adobe Photoshop, Adobe Illustrator

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### CERTIFICATES

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- Python Essential Training  
LinkedIn Learning Feb 2022
- Learning Python  
LinkedIn Learning May 2021
- Workshop on Application of Next-Generation Sequencing in Cancer Diagnosis and Management  
Isfahan University of Medical Sciences, Department of Genetics and Molecular Biology  
OMICS™ October 2015  
BGI Tech Isfahan, Iran
- Bioinformatics Workshop  
Shahid Chamran University of Ahvaz June 2014  
Ahvaz, Iran

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## PROGRAMMING PROJECTS

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### Shiny Apps

- AutoClone: Calculation of distances (clonality) based on color features  
URL: <https://autoclone.erc.monash.edu/>  
Monash University 2021
- Influential Software Package web portal  
URL: <https://influential.erc.monash.edu/>  
ExIR Shiny app  
IVI Shiny app  
Monash University 2021

### Python-based Packages and Models

- influential: Identification and Classification of the Most Influential Nodes 2023  
R package, released on CRAN  
PyPI link: <https://pypi.org/project/influential/>  
GitHub repo: <https://github.com/asalavaty/python-influential>  
Experimental-data-based Integrative Ranking (ExIR)  
Integrated Value of Influence (IVI)  
SIR model-based Influence Ranking (SIRIR)

### R-based Packages and Models

- influential: Identification and Classification of the Most Influential Nodes  
R package, released on CRAN  
CRAN link: <https://cran.r-project.org/package=influential>  
Website: <https://asalavaty.github.io/influential/>  
GitHub repo: <https://github.com/asalavaty/influential>  
Experimental-data-based Integrative Ranking (ExIR)  
Integrated Value of Influence (IVI)  
SIR model-based Influence Ranking (SIRIR)  
Monash University 2020-2021

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## EDUCATION

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### Ph.D. in Bioinformatics 2019-2023

Australian Regenerative Medicine Institute, Monash University Melb, AUS

PhD thesis: Identification of commonalities in clonal selection during normal and cancer tissue development using bioinformatics and systems biology techniques

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| <b>Master of Science in Biology-Biochemistry</b>   | 2016-2018    |
| University of Kashan   | Kashan, Iran |
| Master thesis: Computational functional analysis and annotation of lung adenocarcinoma prognostic long non-coding RNAs |              |
| GPA: 3.82/4  |              |
| <b>Bachelor of Science in Genetics</b>   | 2011-2015    |
| Shahid Chamran University of Ahvaz   | Ahvaz, Iran  |
| GPA: 3.72/4  |              |

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## PROFESSIONAL EXPERIENCES

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### Affiliations

- Post-doctoral Research Officer, Children's Cancer Institute Australia 2022-present
- Scientific Advisor, MEDDA (Next Generation Alternative Medicine) 2021-present
- The Systems Biology Institute Australia 2019-present
- Professional Member of Cancer Epigenetics Society (ID Number: 1537) 2018-present
- Member of Young Researchers and Elite Club, Iran 2016-present
- Research fellow (Bioinformatician), Al-Zahra Medical Genetics Laboratory, Isfahan, Isfahan, Iran 2015-2018
- Member of National Elites Foundation, Iran 2015-present
- Member of Complex Biological Systems Alliance (CBSA), a global non-profit research consortium 2015-present

### Editorial and reviewer

- Reviewer, Frontiers in Genetics 2020
- Reviewer, Journal of Rare Diseases Research & Treatment 2017
- Reviewer, Molecular Neurobiology 2017
- Editor, AMOR: Advances in Modern Oncology Research 2015-2019
- Reviewer, MOJPB: MedCrave Online Journal of Proteomics & Bioinformatics 2014-2016

### Teaching experiences

- TA of medical biotechnology; genomics, proteomics and bioinformatics (BRM5012) 2021  
Monash University Melbourne, Australia
- TA of Introduction to Bioinformatics (BMS5021) 2021  
Monash University Melbourne, Australia
- TA of Genomics and its applications (GEN3040) 2020-2021  
Monash University Melbourne, Australia

- Cancer Systems Biology Workshop 2018  
Tehran University of Medical Sciences Tehran, Iran
- Manuscript Writing Workshop 2016  
University of Kashan Kashan, Iran
- Secondary school-level courses in English language 2015  
Ghalamchi Educational Foundation Isfahan, Iran

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## AWARDS AND HONORS

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- Awardee of Postgraduate Publication Award 2022  
Monash University top 30 PhD students according to publication records/prospects
- Awardee of the Best Oral Talk Based on People's Choice  
COMBINE-ABACBS Student Symposium 2021
- Awardee of the Best Student Oral Talk  
Victorian Cancer Bioinformatics Symposium 2021
- Awardee of Australia's Global Talent Permanent Residency Visa  
Data Science sector 2020
- Ph.D. scholarship from Monash University, (awarded and taken up) 2018
- Ph.D. scholarship from the Vancouver Prostate Center, University of British Columbia, (offered, but not taken up) 2018
- Ph.D. scholarship from Griffith University, (offered, but not taken up) 2018
- Ph.D. scholarship from the John Curtin School of Medical Research, Australian National University, (offered, but not taken up) 2018
- Ranked 2<sup>nd</sup> among all M.Sc. students in Biochemistry, University of Kashan 2018
- Ranked among the top 4% of participants in the  
National University Entrance Exam, Iran 2011

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## GRANTS

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Monash Data Futures Institute Seed Grants - AI and Data Science for Monash Global Challenges.  
*Finding the right targets: most influential nodes in complex networks*

Chief investigators: Ramialison, Currie, Dowe August 2021  
Abbas Salavaty is a named investigator in this grant .

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## PUBLICATIONS, PRESENTATIONS, AND ABSTRACTS

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### Publications (Google Scholar Citations = 580)

- **Salavaty A**, Esmaeel Azadian, Shalin H. Naik, Currie P. Clonal selection parallels between normal and cancer tissues. *Trends in Genetics*. February 2023. PMID: 36842901

- **Salavaty A**, Sara Alaei Shehni, Ramialison M, Currie P. Systematic molecular profiling of acute leukemia cancer stem cells allows identification of druggable targets. *Heliyon*. October 2022. PMID: 36281397
- **Salavaty A**, Ramialison M, Currie P. Integrated Value of Influence: An Integrative Method for the Identification of the Most Influential Nodes within Networks. *Patterns*. August 2020. PMID: 33205118
- **Salavaty A**, Rezvani Z, Najafi A. Survival analysis and functional annotation of long non-coding RNAs in lung adenocarcinoma. *Journal of Cellular and Molecular Medicine*. June 2019. PMID: 31211495
- **Salavaty A**, Movahedi Motlagh F, Barabadi M, Cheshomi H, Dehghan Esmatabadi MJ, Shahmoradi M, Soleimanpour-lichaei HR. Potential role of RAB6C-AS1 long noncoding RNA in different cancers. *Journal of Cellular Physiology*. August 2018. PMID: 30076712
- **Salavaty A**, Rezvani Z, Najafi A. Long non-coding RNA LINC00987 may function as a tumor suppressor in lung adenocarcinoma. *F1000Research*. May 2018. DOI: 10.12688/f1000research.14785.1
- **Salavaty A**, Mohammadi N, Shahmoradi M, Naderi Soorki M. Bioinformatic analysis of circadian expression of oncogenes and tumor suppressor genes. *Bioinformatics and Biology Insights*. December 2017. PMID: 29276378
- Hajjari M, Sadeghi I, **Salavaty A**, Nasiri H, Birgani MT. Tissue Specific Expression Levels of Apoptosis Involved Genes Have Correlations with Codon and Amino Acid Usage. *Genomics & Informatics*. 14(4):234-240. December 2016. PMID: 28154517
- Sedghi M, Esfandiari E, Fazel-Najafabadi E, Salehi M, **Salavaty A**, Fattahpour S, Dehghani L, Nouri N, Mokarian F. Genomic rearrangement screening of the BRCA1 from seventy Iranian high-risk breast cancer families. *Journal of Research in Medical Sciences*. 21:95. November 2016. PMID: 28163741
- Hajjari M, **Salavaty A**, Crea F, Shin YK. The potential role of PHF6 as an oncogene: a genotranscriptomic/proteomic meta-analysis. *Tumor Biology*. 37:5317-5325. April 2016. PMID: 26561469
- **Salavaty A**. Carcinogenic effects of circadian disruption: an epigenetic viewpoint. *Chinese Journal of Cancer*. 34-38. June 2015. PMID: 26253128
- Hajjari M, **Salavaty A**. *HOTAIR*: an oncogenic long non-coding RNA in different cancers. *Cancer Biology & Medicine*. 12:1-9. March 2015. PMID: 25859406

### Working manuscripts

- **Salavaty A**, Douek AM, Thijs A, Kreuder F, Stamatis S, Steele JR, Hanchapola I, Shah AD, Schittenhelm RB, Ramialison M, Currie PD, Kaslin J. Systems-level investigation of mucopolysaccharidosis IIIA identifies deficient synaptic activity as a key driver of disease progression. *Preprinted in biorXiv*. October 2022. DOI: 10.1101/2022.10.03.510585.

## Presentations and abstracts

- Australasian Genomic Technologies Association (AGTA) October/November 2022  
Sunshine Coast, Queensland, Australia  
- Poster presentation: **Salavaty A**, Pinese M. InCRIMP: a versatile computational model for the integrative analysis of multi-omics data.
- Oral presentation: **Salavaty A**, Ramialison M, Currie P. Identification, classification, and prioritization of most influential players in normal biological processes and diseases.
  - COMBINE-ABACBS Student Symposium November 2021
  - Victorian Cancer Bioinformatics Symposium October 2021
  - Oz Single Cell – PERTH September 2021
  - ANZSCDB August 2021
- ISMB/ECCB conference alliance July 2021  
Virtual
  - E-Poster and Short Talk: **Salavaty A**, Ramialison M, Currie P. Identification, classification, and prioritization of most influential players in normal biological processes and diseases.
  - E-Poster and Short Talk: **Salavaty A**, Ramialison M, Currie P. Identification of the most influential nodes involving all topological dimensions of a network.
- Global Meet on Nanomedicine & Healthcare November 2017  
New Orleans, USA  
E-Poster: **Salavaty A**, Shahmoradi M. Application of nanobioinformatics in drug design and delivery systems. *Biol Med Case Rep*. DOI: 10.13140/RG.2.2.24092.39043
- 5<sup>th</sup> International Conference on Proteomics & Bioinformatics September 2015  
OMICS Group, Valencia, Spain  
Abstract: **Salavaty A**, Hajjari M. Meta-analysis of RAG2 using a genotranscriptomic/proteomic approach: suggestive of its oncogenic role. *Journal of Proteomics & Bioinformatics*. 8:88.  
October 2015. DOI: 10.4172/0974-276X.S1.077

## Books

- Co-translator of “Next Generation Sequencing Technologies in Medical Genetics” book  
ISBN: 978-600-356-502-9; National Bibliography Number (NBN): 4282468  
Shahid Chamran University of Ahvaz 2015  
Supervisor: Dr. Maryam Naderi Soorki

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## RESEARCH INTERESTS

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- Bioinformatics and systems biology analysis of cancer initiation/progression causes
- Cancer stem cells

- Epigenetic basis of carcinogenesis
- Development of tools and packages for the identification, classification, prioritization, and visualization of biological molecules

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## **TEACHING INTERESTS**

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- Graduate/undergraduate-level courses in Bioinformatics
- Graduate/undergraduate-level courses in Systems Biology
- Graduate/undergraduate-level courses in Molecular Oncology