EgeUlgen

MD. PhD Candidate

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About me

I'm a PhD candidate in bioinformatics, focused on omics analyses of cancers, particularly brain tumors. Through computational research, I aim to contribute to the understanding of brain tumor biology and to develop new approaches to improve the outcomes of these tumors.

Personal

Birth — Istanbul, May 9, 1990

Languages — Turkish — native, English — near native, French — working knowledge

Education

2009-2015 M.D., summa cum laude — Acibadem University, Istanbul, Turkey

2016-current Ph.D. candidate — Acibadem University, Istanbul, Turkey

R Packages

1.6.1 pathfindR. Enrichment Analysis Utilizing Active Subnetworks

0.2.1 driveR. Prioritizing Cancer Driver Genes Using Genomics Data

1.1.1 pathfindR.data. Data Package for 'pathfindR'

Experience

Akalin Lab, Max–Delbrück–Centrum für Molekulare Medizin — 2018

Worked on a project on the effects of doublet cells on single–cell RNAseq analysis. Using a real dataset and simulations, demonstrated that doublets cause pseudo–paths (false patterns of differentiation), negatively affect discrimination between different cell types and have a negative effect on imputation results. Mentors: Vedran Franke, Altuna Akalin

Epigenetiks Genetik Biyoinformatik Yazılım A.Ş — 2017–Present

Working on multiple Omics Analysis pipelines for the local medical diagnostics company based in Istanbul–Turkey. Responsibilities provided include: implementation of whole exome sequencing analysis pipelines for aiding the diagnosis of undiagnosed subjects with rare diseases, and whole exome sequencing analysis pipelines for cancer diagnostics and prognostics. Mentor: Prof. Ugur Sezerman, Ph.D.

Sezerman Lab, Acibadem University — 2016–Present

Research in –omics analyses of various complex diseases, including cancers, neurological diseases and gynecological diseases, particulary focused on transcriptomics and proteomics analyses, utilizing differential expression analysis tools as well as machine learning approaches to classify patients from controls and identify genes important for pathogenesis. Mentor: Prof. Ugur Sezerman, Ph.D.

NOT Nöroonkoloji Teknolojileri Ltd Şti. — 2015–Present

Created and continously developing the Whole Exome Sequencing pipeline for the local medical diagnostics company based in Istanbul–Turkey. The pipeline allows for the identification of clinically–relevant genomics findings in brain tumors, especially regarding gliomas. Mentor: Koray Ozduman

Elective Clerkship as Research Intern at Gunel Lab – Yale University School of Medicine — 2014

Research in cortical malformations, intracranial aneurysm and particulary in gliomas. I performed in vitro experiments, including cloning, cell–culture and luciferase assays to reveal that a risk allele augments the effect of an enchancer targeting the oncogene MYC, hence facilitating gliomagenesis. Mentor: Murat Gunel

Research Internship at Gunel Lab – Yale University School of Medicine — 2013

Research in vestibular schwannomas, performing functional in vitro analyses to investigate the effect of a mutation in the pathogenesis of vestibular schwannomas. Mentor: Murat Gunel

Research Internship at Gunel Lab – Yale University School of Medicine — 2012

Research in neurogenetics, skeletal dysplasias and vestibular schwannomas, analyzing Whole Exome Sequencing results and verifying relevant findings. Mentor: Murat Gunel

Acıbadem University Brain Tumor Research Group 2012–present

Participate in journal club meetings as well as research in brain tumors, particulary on glioma. I assist in biostatistical as well as bioinformatic analyses, focusing on the integration of molecular biological and clinical data to improve diagnosis, prognosis and treatment. Mentor: Koray Ozduman

Research Internship at Gunel Lab – Yale University School of Medicine 2011

Research in neurogenetics, with particular focus on malformations of cortical development and intracranial aneurysms, utilizing molecular techniques to investigate the underlying genetic/molecular mechanisms. Mentor: Murat Gunel

Certificates

2016 Certificate in Machine Learning. Grade: 94.8 – coursera.org/verify/7QETTCDWHXHP

2018 Certificate in Finding Hidden Messages in DNA (Bioinformatics I) (with Honors). Grade: 96.0% – coursera.org/verify/B5Y2QZ4AWTCL

2019 Certificate in Genome Sequencing (Bioinformatics II) (with Honors). Grade: 99.0% – coursera.org/verify/242DMGMNGFXA

2019 Certificate in Comparing Genes, Proteins, and Genomes (Bioinformatics III) (with Honors). Grade: 100% – coursera.org/verify/N3B77QC9N7V6

2019 Certificate in Molecular Evolution (Bioinformatics IV) (with Honors). Grade: 100% – coursera.org/verify/TM3MWQPRPS47

2019 Certificate in Genomic Data Science and Clustering (Bioinformatics V) (with Honors). Grade: 94.0% – coursera.org/verify/AGX8F2V8PU3G

2019 Certificate in Bioinformatics Capstone: Big Data in Biology. Grade: 100% – coursera.org/verify/9AKDLPVN9M2U

2019 Certificate in Bioinformatics Specialization. coursera.org/verify/35KWGTCVTJX8

Honors and Awards

2009 Awarded School of Medicine Full Student Scholarship. Acibadem University

2009 Awarded KYK Scholarship for Outstanding Achievement in OSS (College Entrance Examination). Ministry of Youth and Sports, Republic of Turkey

Publications

1. Yousef, M., Ülgen, E., & Sezerman, O. (2021). CogNet: Classification of gene expression data based on ranked active-subnetwork-oriented KEGG pathway enrichment analysis. *PeerJ Computer Science*.
2. Ülgen, E., Can, Ö., Bilguvar, K., Boylu, C., Yüksel, Ş., Danyeli, A., & .... (2021). Sequential filtering for clinically relevant variants as a method for clinical interpretation of whole exome sequencing findings in glioma. *BMC Medical Genomics*.
3. Ülgen, E., & Sezerman, O. (2021). driveR: A novel method for prioritizing cancer driver genes using somatic genomics data. *BMC Bioinformatics*.
4. Ülgen, E., Karacan, S., Gerlevik, U., Can, Ö., Bilguvar, K., Oktay, Y., Akyerli, C. B., & .... (2020). Mutations and copy number alterations in IDH wild-type glioblastomas are shaped by different oncogenic mechanisms. *Biomedicines*.
5. Keleş, I., Ülgen, E., Erkan, M., Çelik, S., Aydın, Y., Önem, A., Kandemir, H., & .... (2020). Comparison of endometrial prostanoid profiles in three infertile subgroups: The missing part of receptivity? *Fertility and Sterility*.
6. Ozduman, K., Ulgen, E., Karacan, S., Gerlevik, U., Can, O., Bilguvar, K., & .... (2020). Mutations and copy number alterations in diffuse gliomas are shaped by different mechanisms. *European Journal of Cancer*.
7. Ulgen, E., Ozisik, O., & Sezerman, O. (2019). pathfindR: An r package for comprehensive identification of enriched pathways in omics data through active subnetworks. *Frontiers in Genetics*.

8. Bastu, E., Demiral, I., Gunel, T., Ulgen, E., Gumusoglu, E., Hosseini, M., & .... (2019). Potential marker pathways in the endometrium that may cause recurrent implantation failure. *Reproductive Sciences*.

9. Ülgen, E., Can, Ö., Bilguvar, K., Oktay, Y., Akyerli, C., Danyeli, A., Yakıcıer, M., & .... (2019). Whole exome sequencing–based analysis to identify DNA damage repair deficiency as a major contributor to gliomagenesis in adult diffuse gliomas. *Journal of Neurosurgery*.

10. Ülgen, E., Bektaşoğlu, P., Sav, M., Can, Ö., Danyeli, A., Hızal, D., Pamir, M., & .... (2019). Meningiomas display a specific immunoexpression pattern in a rostrocaudal gradient: An analysis of 366 patients. *World Neurosurgery*.

11. Sezerman, O., Ulgen, E., Seymen, N., & Durasi, I. (2019). Bioinformatics workflows for genomic variant discovery, interpretation and prioritization. *Bioinformatics Tools for Detection and Clinical Interpretation of Genomic ....*

12. Ulgen, E., Ozisik, O., & Sezerman, O. (2018). pathfindR: An r package for pathway enrichment analysis utilizing active subnetworks. *BioRxiv*.

13. Akyerli, C., Yüksel, Ş., Can, Ö., Erson-Omay, E., Oktay, Y., Coşgun, E., & .... (2018). Use of telomerase promoter mutations to mark specific molecular subsets with reciprocal clinical behavior in IDH mutant and IDH wild-type diffuse gliomas. *Journal of Neurosurgery*.

14. Bastu, E., Demiral, I., Ulgen, E., Erkan, M., Celik, S., Aydin, Y., Onem, A., & .... (2018). Lipidomic analysis reveals increased TXA2 presence in non-receptive endometrium of recurrent miscarriage and repeated implantation failure patients. *HUMAN REPRODUCTION*.

15. Dogan, M., Demiral, I., Akgun, E., Ulgen, E., Gurel, B., Sahin, B., Aytan, A., & .... (2018). Endometrial proteomic signature in recurrent implantation failure. *HUMAN REPRODUCTION*.

16. Demiral, I., Gumusoglu, E., Ulgen, E., Hosseini, M., Ozgor, B., Dogan, M., & .... (2018). Endometrial transcriptomic pathways analysis in recurrent miscarriages and unexplained infertility. *HUMAN REPRODUCTION*.

17. Ozduman, K., Ulgen, E., Can, O., Akyerli, C., & Pamir, M. (2018). Analysis of mutational processes in 23 adult hemispheric diffuse gliomas identifies DNA-damage repair deficiency as a major contributor to gliomagenesis. *JOURNAL OF NEUROSURGERY*.

18. Siva, A., Everest, E., Ülgen, E., UygunoÄŸlu, U., Tütüncü, M., Saip, S., & .... (2018). Identification of multiple sclerosis related pathways through genome-proteome correlations. *ACTRIMS Forum*.

19. Çağlayan, A., Sezer, R., Kaymakçalan, H., Ulgen, E., Yavuz, T., & .... (2017). ALPK3 gene mutation in a patient with congenital cardiomyopathy and dysmorphic features. *Molecular Case Studies*.

20. Ülgen, E., & Asar, Ö. (2017). Tekrarlı gözlem ve sağkalım verilerinin bileşik modellenmesi. *Türkiye Klinikleri Biyoistatistik*.

21. Demiral, I., Bastu, E., Gunel, T., Sezerman, U., Gumusoglu, E., Ulgen, E., & .... (2017). Endometrial gene expression in patients with recurrent implantation failure. *Fertility and Sterility*.

22. Bastu, E., Gunel, T., Sezerman, O., Demiral, I., Gumusoglu, E., Ulgen, E., & .... (2017). RAC1 signaling pathway is crucial for etiology of repeated implantation failure (RIF). *Fertility and Sterility*.

23. Oktay, Y., Ülgen, E., Can, Ö., Akyerli, C., Yüksel, Ş., Erdemgil, Y., Durası, İ., & .... (2016). IDH-mutant glioma specific association of rs55705857 located at 8q24. 21 involves MYC deregulation. *Scientific Reports*.

24. Per, H., Canpolat, M., Bayram, A., Ulgen, E., Baran, B., Kardas, F., Gumus, H., & .... (2015). Clinical, electrodiagnostic, and genetic features of tangier disease in an adolescent girl with presentation of peripheral neuropathy. *Neuropediatrics*.

25. Bayram, A., Per, H., Quon, J., Canpolat, M., Ülgen, E., Doğan, H., Gumus, H., & .... (2015). A rare case of congenital fibrosis of extraocular muscle type 1A due to KIF21A mutation with marcus gunn jaw-winking phenomenon. *European Journal of Paediatric Neurology*.

Skills

- Advanced Knowledge in R, Python

- Intermediate Knowledge in Perl, Bash Shell scripting, Git, LaTeX, AWS, make, snakemake
- Basic Knowledge in MATLAB, Julia, Java, C, C++
- Confident in Microsoft Office.
- A knowledge of Adobe Illustrator and Adobe Photoshop.

References

Available upon request