Ege Ulgen

MD, PhD

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Genomics England Limited

he/him

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About me

MD-PhD professional in bioinformatics with a medical degree from Acibadem University in 2015, postdoctoral experience at Yale University in 2016, followed by a PhD in Biostatistics and Bioinformatics in 2022. Currently a Bioinformatics Engineer at Genomics England, where I focus on creating and enhancing software for the cancer genomic medicine service.

Education

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

2016-2022 Ph.D., Biostatistics and Bioinformatics — Acibadem University
Istanbul, Turkey

Experience

Genomics England Limited — 2023–present

Working as a Bioinformatics Engineer to develop features for and maintain the cancer short read sequencing pipeline. First Level Manager: Javier Lopez

Epigenetiks Genetik Biyoinformatik Yazılım A.Ş — 2018–2022

Worked on multiple -omics analysis pipelines for the local medical diagnostics company based in Istanbul–Turkey. Responsibilities included: implementation, continuous development and maintenance of whole exome sequencing analysis pipeline for aiding the diagnosis of undiagnosed subjects with rare diseases, and whole exome sequencing analysis pipeline for cancer diagnostics and prognostics. Supervisor: Prof. Ugur Sezerman, Ph.D.

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 data set and simulations, I 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. Supervisors: Vedran Franke, Ph.D., Altuna Akalin, Ph.D.

Sezerman Lab, Acibadem University — 2016–2022

Research in -omics analyses of various complex diseases, including cancers, neurological diseases and gynecological diseases, particularly 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. Supervisor: Prof. Ugur Sezerman, Ph.D.

NOT Nöroonkoloji Teknolojileri Ltd Şti. — 2015–2022

Developed and maintained 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. Supervisor: Prof. Koray Ozduman, MD

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

Research on gliomas. I performed in-vitro experiments, including cloning, cell–culture and luciferase assays to reveal that a risk allele augments the effect of an enhancer targeting the oncogene MYC, hence facilitating gliomagenesis. Prof. Murat Gunel, MD

Research Internships at Gunel Lab – Yale University School of Medicine — 2011-2013

Research in neurogenetics, particularly malformations of cortical development, utilizing molecular techniques to investigate the underlying genetic/molecular mechanisms, analyzing Whole Exome Sequencing results and verifying relevant findings. Research in vestibular schwannomas, performing functional in-vitro analyses to investigate the effect of a mutation in the pathogenesis of vestibular schwannomas. Supervisor: Prof. Murat Gunel, MD

Acıbadem University Brain Tumor Research Group — 2012–present

Participate in research on brain tumors, particularly on gliomas. I assist in biostatistical as well as bioinformatics analyses, focusing on the integration of molecular biological and clinical data to improve diagnosis, prognosis and treatment of glioma. Supervisor: Prof. Koray Ozduman, MD

Skills

Programming

python - 5/5 R - 5/5 bash - 4/5 C++ - 2/5

Development

git - 4/5 Docker - 3/5 GitLab CI - 4/5 GitHub Actions - 4/5 PyCharm - 5/5

Strengths

Curiosity Proactively seeks innovative solutions. Time Management Effectively prioritizes tasks, ensuring timely completion of milestones. Quick Learner Adapts to new challenges swiftly.

Software

2.3.0 pathfindR. Enrichment Analysis Utilizing Active Subnetworks
1.0.1 PANACEA. Personalized Network-Based Anti-Cancer Therapy Evaluation
0.4.1 driveR. Prioritizing Cancer Driver Genes Using Genomics Data
2.0.0 pathfindR.data. Data Package for 'pathfindR'

Certification

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

Publications

1. Kaya, D., Ülgen, E., Kocagöz, A., & Sezerman, O. (2023). A comparison of various feature extraction and machine learning methods for antimicrobial resistance prediction in streptococcus pneumoniae. *Frontiers in Antibiotics*.
2. Ulgen, E., Ozisik, O., & Sezerman, O. (2023). PANACEA: Network-based methods for pharmacotherapy prioritization in personalized oncology. *Bioinformatics*.
3. Levi, C., Uçal, Y., Planchon, S., Ülgen, E., Kumru, P., Ulutaş, P., Sezerman, U., & .... (2023). Proteome analysis of human and goat colostrum: A closer look at whey fractions. *Acibadem Saglik Bilimleri Dergisi*.
4. Cansu, A., Yasemin, U., Planchon, S., Ülgen, E., KUMRU, P., ULUTAŞ, P., & .... (2023). Proteome analysis of human and goat colostrum: A closer look at whey fractions. *Acıbadem Üniversitesi Sağlık Bilimleri Dergisi*.
5. Dogan, B., Gumusoglu, E., Ulgen, E., Sezerman, O., & Gunel, T. (2022). Integrated bioinformatics analysis of validated and circulating miRNAs in ovarian cancer. *Genomics & Informatics*.
6. Keleş, I., Günel, T., Özgör, B., Ülgen, E., Gümüşoğlu, E., Hosseini, M., & .... (2022). Gene pathway analysis of the endometrium at the start of the window of implantation in women with unexplained infertility and unexplained recurrent pregnancy loss: Is .... *Human Fertility*.
7. 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*.
8. Ülgen, E., & Sezerman, O. (2021). driveR: A novel method for prioritizing cancer driver genes using somatic genomics data. *BMC Bioinformatics*.
9. Albayrak, İ., Azhari, F., Çolak, E., Balcı, B., Ülgen, E., Sezerman, U., Baştu, E., & .... (2021). Endometrial gene expression profiling of recurrent implantation failure after in vitro fertilization. *Molecular Biology Reports*.

10. Ülgen, E., Aras, F., Coşgun, E., Erşen-Danyeli, A., Dinçer, A., Usseli, M., & .... (2021). Correlation of anatomical involvement patterns of insular gliomas with subnetworks of the limbic system. *Journal of Neurosurgery*.

11. Ülgen, E., Can, Ö., Bilguvar, K., Boylu, C. A., Yüksel, Ş. K., & .... (2021). Sequential filtering for clinically relevant variants as a method for clinical interpretation of whole exome sequencing findings in glioma. *BMC Medical Genomics*.

12. Everest, E., Ülgen, E., Uygunoglu, U., Tutuncu, M., Saip, S., Sezerman, O., & .... (2021). Investigation of multiple sclerosis-related pathways through the integration of genomic and proteomic data. *PeerJ*.

13. 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*.

14. 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*.

15. 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*.

16. 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*.

17. 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*.

18. 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*.

19. 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*.

20. 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 ...*.

21. Ulgen, E., & Ozisik, O. (2019). pathfindR: An r package for comprehensive identification of enriched pathways in omics data through active subnetworks. Front genet 10: 858 59 dogan b, gumusoglu e, ulgen e .... *Genomics Inform*.

22. 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*.

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

24. 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*.

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

26. 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*.

27. 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*.

28. 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*.

29. 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*.

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

31. 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*.

32. 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*.

33. 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*.

34. 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*.

35. 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*.