Gamze Bulut, Ph.D.

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Professional Summary

Positive, innovative, and ambitious research scientist with over 9 years of experience in excelling in cell biology, vascular biology, bioinformatics, and immunology. Creative, quirky, and engaging presenter, motivating research advisor for 9 computational biology undergraduate students. Inherently curious, committed to exploring molecular mechanisms of human diseases using state-of-the-art analytical methods to develop potential therapeutics while interacting with trainees to pursue fulfilling intellectual leadership.

Education

Doctor of Philosophy in Genetics and Development |
University of Texas Southwestern Medical Center (2014)

Bachelor of Science in Molecular Biology and Genetics |
Bilkent University, Ankara, Turkey (2007)

Skills

- **Bioinformatics:** Proficient in R scripting using Rstudio, analysis of single cell RNA sequencing data using Seurat Package. Certificates available from EdX (Statistics and R and more)
- **Experimental Design**, Data Analysis, Project Management, Grant Writing, Scientific Writing,
- **Flow Cytometry:** Expertise in high parametric flow cytometry (up to 18 colors): Basic flow cytometers and LSRII; Fortessa; Cytek Aurora; Imagestream X; data analysis using Flow Jo, FCS Express.
- **Tissue Culture and Biochemistry:** Cell lines and primary cells, blood monocyte-derived macrophage culture, transfection, knockdown, generation of retrovirus, lentivirus, western blots, immunoprecipitations, ELISA, tracking receptor internalization, ubiquitination,
- **In vivo experience:** Generation and maintenance of quadruple transgenic mouse lines, genotyping, perfusion, harvesting tissues including brachiocephalic arteries, timed pregnancies, metabolic assays, blood collection.
- **Imaging:** Light, confocal microscopy, intravital imaging, and quantification.
- **Molecular Biology:** Cloning; PCR; Site-directed Mutagenesis; Expression & Purification of Proteins; RT-qPCR; Oligo Design.

Work Experience

College of William and Mary, Department of Biology | Williamsburg, VA
Visiting Assistant Teaching Professor | August 2022 - May 2024

- Creatively adopted 3 undergraduate courses (~500 students) in molecular cell biology, receiving an average student evaluation score of 4.41 out of 5 (Fall 2023).
- Provided instruction of hand on Cell Biology laboratory sessions for 12 students exploring bacterial transformation, restriction enzyme digestion, PCR and agarose gel electrophoresis, bioinformatics including Sanger sequencing, GFP purification and SDS PAGE gel electrophoresis.
- Mentored 9 undergraduate students on research projects, resulting in poster presentation.
- Obtained a summer faculty grant for research ($5000)

Virginia Commonwealth University, Pediatrics | Richmond, VA
Research Associate | April 2021 - August 2022

- Provided research support to Dr. Judy Voynow and her team in executing research projects.
- Optimized monocyte purification in a cost-effective way from buffy coats.
- High yield monocyte to macrophage differentiation assays to increase data output.

- Resulted in two scientific publications and obtained a research grant ($7000)

University of Virginia, Cardiovascular Research Center | Charlottesville, VA
Postdoctoral Fellow | September 2017 - December 2020

- Investigated smooth muscle cell plasticity using flow cytometry of tissues from quadruple transgenic mouse models and single cell RNAseq, resulting in 3 publications in prestigious journals.
- Collaborated with ~20 lab mates and other labs at University of Virginia to develop novel hypotheses and implement modern techniques to improve physiological understanding of cardiovascular biology.
- Obtained postdoctoral fellowship from American Heart Association.
- Gained expertise in computational biology, R scripting and big data analysis.
- Mentored 2 undergraduate and 1 medical student.

Virginia Commonwealth University, Biochemistry and Molecular Biology | Richmond, VA
Postdoctoral Researcher | October 2015 - September 2017

- Investigated alternative splicing of Caspase 9 in the context of lung cancer to obtain publications.
- Generated and characterizes founder lines for two transgenic mouse lines.
- Purified hnRNPL from SF9 cells for identification of phosphorylation sites by Mass Spec.
- Mentored 1 graduate student.

UT Southwestern Medical Center, Cell Biology | Dallas, TX
Graduate Student | August 2008 - September 2015

- Investigated ubiquitination and trafficking of erythropoietin receptor, resulting in 5 publications.
- Gained proficiency in flow cytometry, western blotting, and immunoprecipitations.
- Obtained predoctoral fellowship from American Heart Association.
- Mentored 1 graduate student.

Selected Publications (6 out of 15) Full list available on gamzebulut.com.

1. Zheng, S., Kummarapurugu, A., **Bulut, G.,** Syed, A., Kang, L., & Voynow J. "Neutrophil Elastase activates the release of extracellular traps from COPD blood monocyte-derived macrophages." Accepted to Clinical and Translational Science.
2. Deaton, R., **Bulut, G.,** Serbulea, V., Salamon, A., Shankman, L., Nguyen, A.T., & Owens, G. "A new autosomal Myh11-CreERT2 smooth muscle cell lineage tracing and gene knockout mouse model." (Featured Article, ATVB, 2022 February issue)
3. **Bulut, G. B.,** Alencar, G. F., Owsiany, K. M., Nguyen, A. T., Karnewar, S., Haskins, R. M., Waller, L. K., Cherepanova, O. A., Deaton, R. A., Shankman, L. S., Keller, S. R., & Owens, G. K. "KLF4 (Kruppel-Like Factor 4)-Dependent Perivascular Plasticity Contributes to Adipose Tissue Inflammation." Arteriosclerosis, Thrombosis, and Vascular Biology.
4. Vu, N. T., Park, M. A., Shultz, M. D., **Bulut, G. B.,** Ladd, A. C., & Chalfant, C. E. "Caspase-9b Interacts directly with cIAP1 to Drive Agonist-Independent Activation of NF-κB and Lung Tumorigenesis." Cancer Research.
5. **Bulut, G. B.,** Sulahian, R., Yao, H., & Huang, L. J. "Cbl ubiquitination of p85 is essential for Epo-induced EpoR endocytosis." Blood.
6. **Bulut, G. B.,** Sulahian, R., Ma, Y., Chi, N. W., & Huang, L. J. "Ubiquitination regulates the internalization, endolysosomal sorting, and signaling of the erythropoietin receptor." Journal of Biological Chemistry.