

# Gamze Bulut, Ph.D.

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## Professional Summary

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Positive, innovative, and ambitious research scientist with over 9 years of experience excelling in cell biology, vascular biology, bioinformatics, and immunology. Engaging presenter and motivating research advisor for 9 computational biology undergraduate students. Inherently curious and 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

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**Doctor of Philosophy in Genetics and Development** | University of Texas Southwestern Medical Center  
**Bachelor of Science in Molecular Biology and Genetics** | Bilkent University

## Work Experience

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

- Adapted 3 undergraduate courses (~500 students) in molecular cell biology, receiving an average student evaluation score of 4.41 out of 5 in Fall 2023.
- Provided instruction during hands-on Cell Biology laboratory sessions for 12 students, exploring bacterial transformation, restriction enzyme digestion, PCR, and agarose gel electrophoresis.
- Guided lab sessions on bioinformatics including Sanger sequencing, GFP purification, and SDS PAGE gel electrophoresis.
- Mentored 9+ undergraduate students on research projects, resulting in a poster presentation.
- Obtained a \$5,000 summer faculty grant for research.

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

- Provided research support to Dr. Judy Voynow and team members to execute research projects.
- Optimized monocyte purification in a cost-effective way from buffy coats.
- Increased data output through high-yield monocyte to macrophage differentiation assays.
- Secured a \$7,000 research grant to fund ongoing projects.
- Produced two scientific publications based on research.

**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 5 publications in prestigious journals.
- Collaborated with ~20 lab professionals and other labs at the University of Virginia to develop novel hypotheses and implement modern techniques to improve physiological understanding of cardiovascular biology.
- Obtained a postdoctoral fellowship from the American Heart Association.
- Gained expertise in computational biology, R scripting, and big data analysis.
- Mentored 2 undergraduate students 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 2 publications.
- Generated and characterized 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.
- Awarded a predoctoral fellowship from the American Heart Association.
- Mentored 1 graduate student.

## **Skills**

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**Experimental Design:** data analysis, project management, grant writing, scientific writing

**Molecular Biology:** cloning, subcloning, epitope tagging, PCR, site-directed mutagenesis, protein expression, protein purification, RT-qPCR, Oligo Design,

**Flow Cytometry:** high parametric flow cytometry (up to 18 colors), basic flow cytometers, LSRII, Fortessa, Cytex Aurora, Imagestream X, Flow Data analysis, Flow Jo, FCS Express, Panel design for Cytex.

**Tissue Culture and Biochemistry:** cell lines and primary cells, primary human blood monocyte-derived macrophage culture, transfection, knockdown, generation of retrovirus, lentivirus, protein assay, western blots, immunoprecipitations, ELISA, tracking receptor internalization, ubiquitination

**In vivo experience:** quadruple transgenic mouse lines, genotyping, perfusion, harvesting most tissues including brachiocephalic arteries, carotid ligation surgery, BrdU pump implantation, timed pregnancies, harvesting erythroid progenitors from E13.5 embryos, metabolic assays, glucose/insulin tolerance tests, blood collection

**Imaging:** light, fluorescence, confocal microscopy, intravital imaging (corneal limbal vessels), quantification (Imaris). Histology, sectioning.

**Bioinformatics:** R scripting, Rstudio, single-cell RNA sequencing, Dplyr, Ggplot2, Seurat, statistics

## **Selected Publications**

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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- $\kappa$ B 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.

*Full list of 15 publications available on [www.gamzebulut.com](http://www.gamzebulut.com)*