

# Tamseel Fatima

College Park, MD, 20740

Phone: +1 667-678-1834 Email: [tfatima1@umd.edu](mailto:tfatima1@umd.edu)

Google Scholar: <https://scholar.google.com/citations?user=PVSZw2sAAAAJ&hl=en>

## EDUCATION

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- Jan. 2022 - Present Ph.D. candidate in Animal and Avian Sciences (**GPA 3.916/4.0**) MD, United States  
*University of Maryland, College Park*
- **Dissertation Project:** “Role of iron and iron importer TfR1 in beiging of inguinal white adipose tissue (iWAT)” (**Advisor:** Byung-Eun Kim, Ph.D.)
- Sep 2016 - Sep 2020 Bachelor of Science in Microbiology & Molecular Genetics (**GPA 3.86/4.0, GOLD MEDAL**) Lahore, Pakistan  
*University of the Punjab, Lahore*
- **Thesis:** “Effect of iron overload and HCV on hepatic and renal functioning in beta-thalassemia patients” (**Advisor:** Shahida Hasnain, Ph.D.)

## RESEARCH EXPERIENCE

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- Jan 2022- Present **Graduate Research Assistant** MD, United States  
*University of Maryland-College Park*
- Project Topic: Role of iron and iron importer TfR1 in beiging of iWAT
  - Research work involves: mouse handling, adipocyte isolation, cell culture, microscopy and other molecular biology techniques
- Mar 2021- Dec 2021 **Research Assistant** Lahore, Pakistan  
*National Centre of Excellence in Molecular Biology (NCEMB)*
- Project Topic: Amniotic membrane embedded phytoextract primed stem cells construct for wound healing – Higher Education Commission, Pakistan’s funded project
  - Research work involved: phytoextract preparation, extract characterization, isolating Adipose Derived-Mesenchymal Stem Cells (ADMSCs), priming ADMSCs, cell assays and microscopy
- Jul 2019- Jun 2020 **Research Assistant** Lahore, Pakistan  
*Sundas Foundation, Hematological disorders and blood transfusion Centre*
- Projects: (a) Food source based iron chelation strategies to improve quality of life for beta thalassemia patients, and (b) evaluation of the effect of iron overload and hepatitis C on hepatic and renal functioning in beta-thalassemia patients
  - Complete blood count, blood typing test, ferritin measurement, ELISA based assays for HCV, and HAV, and mutational screening of beta-thalassemia patients.

## PUBLICATIONS AND PRESENTATIONS

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### Publications

- (In revision after PNAS review) First author of “Iron-Dependent Regulation of Adenylyl Cyclase 3 Governs the Thermogenic Activation of Adipocytes” from Byung-Eun Kim Lab.
- Fayyaz, T., Qadeer, M. I., Irfan, M., Amjad, F., **Fatima, T.**, Husnain, S., (2023). Effect of Flaxseed intervention on iron overload and its complications in Thalassemia Major patients, *Nutrition and food science*, 8(53), 1268-1278.
- Amjad, F., **Fatima, T.**, Fayyaz, T., Khan, M. A., & Qadeer, M. I., (2020). Novel genetic therapeutic approaches for modulating the severity of  $\beta$ -thalassemia. *Biomedical Reports*, 13(5), 48.

### Conference Presentations:

- **Tamseel Fatima**, Yasmin A. Mejia-Guevara, Tamara Korolnek, Evan Ying, Yining Liu, Theresa A. Alexandar, Naili Liu, Najib M. El-Sayed, Oksana Gavrilova and Byung-Eun Kim, “Insufficient basal iron limits beiging via alternative Adenylyl cyclase 3 transcription in adipocytes,” Red Cell Club (RCC) and East-West Iron Club (EWIC) meeting, School of medicine, University of Maryland, Baltimore, MD, USA, October 27-29, **Oral presentation**

- **Tamseel Fatima**, Yasmin Mejia-Guevara, Evan Ying, Yinning Liu, Najib El-Sayed, Oksana Gavrilova, and Byung-Eun Kim, “Adipocyte iron level orchestrates cAMP driven browning of white adipose tissue,” Mid-Atlantic Frontiers in Metals and Medicine Symposium, University of Maryland, MD, USA, September 25, 2024, **Poster presentation**
- **Tamseel Fatima**, Yasmin Mejia-Guevara, Evan Ying, Yinning Liu, Najib El-Sayed Oksana Gavrilova, and Byung-Eun Kim, “Iron modulates cyclic AMP levels to promote the browning of white adipose tissue”, Annual Mid-Atlantic Diabetes and Obesity Research Symposium, Diabetes, Endocrinology, and Obesity Branch (DEOB), National Institutes of Health (NIH), MD, USA, September 27, 2024, **Flash talk and Poster presentation**
- **Tamseel Fatima**, Yasmin Mejia-Guevara, Evan Ying, Yinning Liu, Oksana Gavrilova, and Byung-Eun Kim, “Iron modulates cyclic AMP levels to promote the browning of white adipose tissue”, 2024 FASEB Meeting - Trace Elements in Biology and Medicine, Melbourne, FL, USA, June 9, 2024, **Flash talk and poster presentation**
- **Tamseel Fatima**, Yasmin Mejia-Guevara, Evan Ying, Oksana Gavrilova, and Byung-Eun Kim, “Iron is a key modulator for beiging of inguinal white adipose tissue (iWAT): implications for metabolic health”, Annual Mid-Atlantic Diabetes and Obesity Research Symposium, Diabetes, Endocrinology, and Obesity Branch (DEOB), National Institutes of Health (NIH), MD, USA, September 22, 2023, **Poster presentation**

**Departmental Presentations** (ANSC Annual symposium in University of Maryland, College Park, MD, USA):

- **Tamseel Fatima**, Yining Liu, Ashton Trey Belew, Evan Ying, Najib El-Sayed, Byung-Eun Kim, “Transferrin Receptor 1 is essential for early postnatal adipose tissue development and remodeling,” May 2025, **Poster presentation**
- **Tamseel Fatima**, Yasmin Mejia-Guevara, Evan Ying, Yinning Liu, Oksana Gavrilova, and Byung-Eun Kim, “Iron modulates cAMP levels to promote beiging of inguinal white adipose tissue”, May 23, 2024, **Oral presentation**
- **Tamseel Fatima**, Yasmin Mejia-Guevara, Evan Ying, and Byung-Eun Kim, “Iron is a key modulator for thermogenic response and beiging in inguinal white adipose tissue (iWAT): implications for metabolic health”, May 25, 2023, **Poster presentation**
- **Tamseel Fatima**, Yasmin Mejia-Guevara, Evan Ying, and Byung-Eun Kim, “Metabolic crosstalk between iron homeostasis and UCP1 regulation in adipose tissue”, May 25, 2022, **Poster presentation**

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## GRANT WRITING EXPERIENCE AND ACADEMIC SERVICES

### Grants

- Secured **Mpower Early Scholar Investment Fund** to support summer and fall 2026 stipend, tuition fee and fringe benefits (January 2026).
- Contributed to the design and writing of a specific aim for an **NIH R21** grant proposal titled “*Fe-Driven Genetic and Metabolic Programming of Adipocytes*”. The application was submitted by PI Byung-Eun Kim, Ph.D. (October 2025)
- Contributed as a Co-Investigator (Co-I) to writing portions of a grant submission to the Maryland Agricultural Experiment Station (**MAES**) Competitive Grant Program. The proposal titled “*The Role of Iron in Adipocyte Signaling and Homeostasis*,” was awarded to **PI** Byung-Eun Kim, Ph.D. (November 2024)
- Contributed to the design of experiments and review of the final draft of an **NIH R03** grant proposal titled “*Iron Import Dynamics: Implications for Adipose Tissue Development and Homeostasis*”. The application was submitted by PI Byung-Eun Kim, Ph.D. (June 2024)

### Manuscript review

- Co-reviewer (Early Career Researcher) for a manuscript submitted titled “*Pathophysiological Significance of Impaired KAT7-Dependent Histone H3K14 Acetylation During Zinc Deficiency*” to *Nature Communications* (2025).

### Training and mentoring experience

- Served as co-advisor for **undergraduate honors thesis research** (2023-2026) of Yining Sunnythia Liu, “*Investigating the Mobilization of Hepatic Iron During Early Development of Mice.*” She successfully presented her research on March 27, 2026. Primary Advisor: Byung-Eun Kim, Ph.D., Committee members: Younggeon Jin, Ph.D. and Andrew Schiffmacher, Ph.D.

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## TEACHING EXPERIENCE

Spring 2026      **Teaching Assistant for Principles of Animal Science (ANSC 101)**  
& Spring 2024      *University of Maryland-College Park*

MD, United States

- Graded assignments and provided feedback to students (50-60 students)
- Delivered 2 guest lectures on The Science of Animal Science: 1. Navigating and Understanding the Research Article, and 2. Interpreting Data in Research Articles and Evaluating Research Quality
- Held discussion and term-review sessions for students
- Prepared comprehensive course review sheets for students
- Managed course website, including lecture materials, announcements, and grades

Fall 2025 **Guest lecturer for Nutritional aspects of metabolic disorders (ANSC454/6880)** MD, United States  
*University of Maryland-College Park*

- Guest lecture on topic: Fe homeostasis in animals

Spring 2025 **Teaching Assistant for Applied Animal Physiology Lab (ANSC 214)** MD, United States  
*University of Maryland-College Park*

- Assisted in lab instruction, experiment setup, and student support during weekly sessions (40 students)
- Independently led lab section, delivered lectures, guided experiments, and graded assignments (20 students)
- Managed course website, including lecture materials, announcements, and grades

Fall 2022 **Teaching Assistant for Eating with Eyes Wide Open (ANSC 227)** MD, United States  
*University of Maryland-College Park*

- Graded assignments and journal entries (59 students)
- Provided feedback to students on their journal entries to help improve their writing and analytical abilities
- Guest lecture on gut microbiome and animal health aspects

## SCHOLARSHIPS, FELLOWSHIPS AND AWARDS

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- **Best Oral Presentation Award** for short talk at Red Cell Club (RCC) and East West Iron Club (EWIC) meeting at School of medicine, University of Maryland, Baltimore, MD, USA, October, 2025.
- **ARPAS-ANSC Travel Award** for presenting at 2024 FASEB Meeting - Trace Elements in Biology and Medicine, Melbourne, FL, USA, April, 2024.
- **Summer Research Fellowship** from UMD Graduate School for carrying out summer research project "Iron boosts a secondary messenger cAMP to burn the white fat", March 2024.
- **Dean's Fellowship Award** from UMD Graduate School, awarded to outstanding graduate students, October 2022.
- **Undergraduate Poster Presentation (First prize)**, CancerBio conference, Department of Microbiology and Molecular Genetics, University of the Punjab, Lahore, Pakistan, Feb 19, 2020.
- **Undergraduate Merit Scholarship**, Department of Microbiology and Molecular Genetic, University of the Punjab, Lahore, Pakistan, Sep 2019.
- **Scientific Essay Writing Award (Second prize)**, SUNMAC, Sundas Foundation, Lahore, Pakistan, Sep 2019.
- **Undergraduate Merit Scholarship**, Department of Microbiology and Molecular Genetic, University of the Punjab, Lahore, Pakistan, Sep 2018.
- **Poster Presentation Award (First prize)**, Department of Microbiology and Molecular Genetic, University of the Punjab, Lahore, Pakistan, Mar 2018.
- **Scientific Essay Writing Award, (Second prize)**, Astrobiology Network of Pakistan, Lahore, Pakistan, Aug 2018.
- **Undergraduate Merit Scholarship**, Department of Microbiology and Molecular Genetic, University of the Punjab, Lahore, Pakistan, Sep 2017.
- **Primary School Distinction Merit Scholarship**, Government of Punjab, Pakistan, July 2013.

## TECHNICAL SKILLS

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- Microbiology techniques: bacterial culture, enumeration of bacteria, identification of bacterial strains, antibiotic sensitivity testing, agar well diffusion assay, bacterial growth curve determination, bacteriophage isolation, plaque assay

- Animal experiments: Mouse handling, ear tagging, toe clipping, IP, Sub-Q injections in C57BL/6J mice
- Cell culture: primary cells (human and mouse adipocytes) isolation and cell line generation, Assays for cell viability and proliferation, cell-cycle analysis
- Molecular biology techniques: cloning, transformation, transfection, transduction, DNA and RNA isolation, genotyping/SNP genotyping (PCR based), PCR, qPCR, digital PCR, Protein extraction and quantification, SDS-PAGE, western blotting
- Histology and imaging: cryotome and microtome, H&E and picosirius red staining, immunofluorescence staining, confocal, fluorescence and light microscopic imaging
- ELISA assays for virus proteins and cyclic AMP
- RNA sequencing and bioinformatics analysis: Bulk RNA sequencing, Analysis of RNA-sequencing, single cell RNA-sequencing datasets using hpgltools, and Seurat on R studio respectively.
- Software and tools for analysis of biological information: Alpha fold, NCBI, UCSC genome browser, promoter analysis, primer3, snppgene, Rstudio.

## SCIENTIFIC CONTENT WRITING EXPERIENCE

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Dec 2019- Jan 2022	<b>Scientific Content Writer (Remote)</b> <i>Eurofins Genomics</i>	Ebersberg, Germany
	<ul style="list-style-type: none"><li>• Wrote scientific articles related to biotechnology, molecular biology, and diagnostics under the supervision of Dr. Andreas Ebertz</li><li>• Wrote introductory articles for products launched by Eurofins Genomics</li></ul>	
Sep 2020- Oct 2020	<b>Scientific Content Writer</b> <i>Pakistan Aging Research Society</i>	Islamabad, Pakistan
	<ul style="list-style-type: none"><li>• Organized events to raise awareness about aging in general public</li><li>• Presented theories of aging and recent advancements in the field of anti-aging</li><li>• Wrote blog articles on challenges faced by aging population</li></ul>	
Summer 2020	<b>Intern (Writing Track)</b> <i>Spectra Online Science Magazine</i>	Pakistan
	<ul style="list-style-type: none"><li>• Interviewed Entrepreneur Emily Hicks about her start-up FREDsense and published it</li><li>• Learnt communicating science to masses by getting training in the scientific writing track</li></ul>	
Spring 2018	<b>Guest Blog Writer</b> <i>Bioscience Pakistan</i>	Pakistan
	<ul style="list-style-type: none"><li>• Wrote guest blog articles, managed, and published them on website</li></ul>	

## SCIENCE OUTREACH AND BLOG ARTICLES

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- Tamseel Fatima and Andreas Ebertz, Microarrays Accelerate Blue Biotechnology to The Next Stage, Sep 2021, The DNA Universe blog.
- Tamseel Fatima and Andreas Ebertz, The Future of RNA Applications: Diagnostics, Therapeutics and Research, Apr 2021, The DNA Universe blog.
- Tamseel Fatima, Girl's and Boy's Day 2021: Become The Next Generation of Biologists, Apr 2021, The DNA Universe blog.
- Tamseel Fatima and Andreas Ebertz, International Women's Day 2021. We Are Celebrating The Women In Biology, Mar 2021, The DNA Universe blog.
- Tamseel Fatima and Andreas Ebertz, The history of mRNA applications, Apr 2021, The DNA Universe blog.
- Tamseel Fatima, What Why and How of mRNA Vaccines, Feb 2021, The DNA Universe blog.
- Tamseel Fatima and Andreas Ebertz, A Journey Through the History of DNA Sequencing, Nov 2020, The DNA Universe blog.
- Tamseel Fatima and Andreas Ebertz, Who Won the Race to Solve the DNA Structure? June 2020, The DNA Universe blog.
- Andreas Ebertz and Tamseel Fatima, SARS-CoV-2 Genomics Facts, May 2020, The DNA Universe blog.

- [Tamseel Fatima](#) and Andreas Ebertz, [Why You Need to Authenticate Your Cell Line – Your Research Could Depend on It](#), Mar 2020, The DNA Universe blog.
- [Tamseel Fatima](#), Gut feeling induced by gut flora, March, 2018, BioScience.pk.

## OTHER EXPERIENCES

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2024-2025	<b>ASGSA (Animal Science Graduate Student Association) vice president</b> <i>University of Maryland-College Park</i> <ul style="list-style-type: none"><li>• Participated in quarterly meetings to kick start the organization</li><li>• Organized and participated in events for ANSC graduate community</li></ul>	MD, United States
2023-2024	<b>ANSC DEIR (Diversity, Equity, Inclusion, Respect) member</b> <i>University of Maryland-College Park</i> <ul style="list-style-type: none"><li>• Part of the DEIR sub-committee to promote DEIR practices for recruiting, retaining, and developing diversity</li><li>• Gathered information about scholarships and fellowships that promote DEIR</li><li>• Contributed to poster design for DEIR efforts and presented it at annual ANSC symposium 2024.</li></ul>	MD, United States