

Mohammad Haroon Qureshi

Curriculum Vitae

Education and Association

- Postdoctoral Researcher, KUTTAM Vision Research Lab June 2020 – January 2024
- Postdoctoral Researcher, Cell Biology and Proteomics Lab Nov 2018-April 2020
- PhD, Koç University, Istanbul, Turkey
Biomedical Sciences and Engineering October 2018
- M.S. Biological Sciences, Kent State University, US 2013
- M.S. Biological Sciences, Carnegie Mellon University, US 2009
- M.Sc. Biotechnology, Jawaharlal Nehru University, India 2007
- B.Sc. Human Biology (Biochemistry Honors)
All India Institute of Medical Sciences, India 2005

Research Experience

1. Koç University, Koç University Translational Medicine Research Center

Working with **Dr. Afsun Sahin**

- **Effects of Covid-19 infection on the proteome of Corneal Epithelial Cells**

We aim to study the overall changes in the proteome of the Corneal Epithelial Cells upon Covid-19 infection. Corneal and Conjunctival cells are susceptible to Covid-19 infection and increasing evidences suggest a subset of Covid-19 patients facing conjunctivitis. Our work focuses on comparing the altered proteomics of infected corneal cells with the reported changes in other cell types, such as Vero E6, or Caco-2 cells.

2. Koç University, Biomedical Sciences and Engineering

Graduate student with **Dr. Nurhan Ozlu**, Associate Professor Molecular Biology and Genetics

- Role of Protocadherins in Mammalian Cells
- Examined subcellular location dynamics of δ -protocadherins in Mammalian cells
- Examined roles of δ -protocadherins in cell motility and migration

3. Kent State University, Biological Sciences

Graduate student with **Dr. Hamza Balci**, Associate Professor, Department of Physics

- DNA and protein interactions using single molecular FRET
- Replication Protein A mediated unfolding dynamics of DNA G-Quadruplexes *in-Vitro*

4. Jawaharlal Nehru University, School of Biotechnology

Graduate student with **Dr. Rajiv Bhat**, Professor, School of Biotechnology

- Protein osmolyte interaction studies; protein thermostability with osmolytes interactions

Publications and preprints

1. Khan SU, Eren GO, Atac N, Onal A, **Qureshi MH**, Cooper FK, Almammadov T, Koleman S, Sahin M, Can F, Nizamoglu S. Antibacterial type-II InP/ZnO quantum dots via multimodal reactive oxygen species. *Chemical Engineering Journal* (2024) 480, 148140
2. Özkan-Küçük NE, Yiğit BN, Değirmenci BS, **Qureshi MH**, Gamze Nur Yapici, Kamacıoğlu A, Bavili N, Kiraz A, Özlü N. Cell cycle-dependent palmitoylation of protocadherin 7 by ZDHHC5 promotes successful cytokinesis. *Journal of Cell Science, J Cell Sci* (2023) 136(6):JCS260266.
3. Bhosale SR, Jagadhane KS, Bhosale RR, Vanalakar SA, **Qureshi MH**, Patil DN, Dhavale RP, Shimpale VB, Kolekar GB, Anbhule VB. Mesoporous carbon encapsulated zinc oxide nanorods derived from plant species '*Argyrea sharadchandraji*' for live cell imaging of drug delivery and multimodal bioactivities. *New J. Chem.*, 2023,47, 12739-12751.
4. Harmanda B., Kaya O., **Qureshi MH**, Nesvizhskii A., Mitchison T., and Ozlu N. Aurora B Kinase Dependent Phosphorylation of Keratin 8 is required for Cytokinesis in Mammalian Cells of Epithelial Origin. *bioRxiv* 2023.01.22.525045
5. **Qureshi MH**, Ozlu N, Bayraktar H. Adaptive tracking algorithm for trajectory analysis of cells and layer-by-layer assessment of motility dynamics. *Computers in Biology and Medicine*. 2022, Volume 150, 106193.
6. **Qureshi MH**, Cinko MT, Bayraktar H, Kamacioglu A, Sanal E, Uretmen-Kagiali ZC, Bozluolcay E, Yunt ZS, Ozlu N. PCDH7 Promotes Cell Migration by Regulating Myosin Activity. *bioRxiv* 2021.09.21.460794.
7. Han M, Jalali H, Yildiz E, **Qureshi MH**, Kesim C, Şahin A. Nizamoglu S. Photovoltaic Neurointerfaces Based on Aluminium Antimonide Crystals. *Communications Materials* 2, 19, 2021.
8. Ijaz A, Topcu G, **Qureshi MH**, Miko A, Demirel AL. Refillable anti-icing SBS composite films. *Colloids and Surfaces A: Physicochemical and Engineering Aspects*. 2021 Volume 615, p. 126203.
9. Akdag M., Yunt ZH, Kamacioglu A, **Qureshi MH**, Akarlar B, Ozlu N. Proximal biotinylation based combinatory approach for isolating integral membrane proteins. *J Proteome Res*. 2020 Aug 7;19(8):3583-3592.
10. Uretmen Kagiali ZC, Senturk A, Ozkan Kucuk NE, **Qureshi MH**, Ozlu N. Proteomics in Cell Division. *Proteomics*. 2017;17(20). **Article featured on the cover page of the issue**
11. Ozlu N, **Qureshi MH**, Toyoda Y, Renard BY, Mollaoglu G, Ozkan NE, Bulbul S, Poser I, Timm W, Hyman AA, Mitchison TJ, Steen JA, Quantitative comparison of a human cancer cell surface proteome between interphase and mitosis. *EMBO J*. 2015;34(2):251-65.
12. Ray S, Bandaria JN, **Qureshi MH**, Yildiz A, Balci H. G-quadruplex formation in telomeres enhances POT1/TPP1 protection against RPA binding. *Proc Natl Acad Sci U S A*. 2014;111(8):2990-5.
13. Ray S, **Qureshi MH**, Malcolm DW, Budhathoki JB, Celik U, Balci H. RPA-mediated unfolding of systematically varying G-quadruplex structures. *Biophys J*. 2013;104(10):2235-45.
14. **Qureshi MH**, Ray S, Sewell AL, Basu S, Balci H. Replication protein A unfolds G-quadruplex structures with varying degrees of efficiency. *J Phys Chem B*. 2012;116(19):5588-94.

Manuscripts Under Communication

15. **Qureshi MH**, Metin E, Kesim C, Gargari Z, Rumman B, Sahin A, Tasoglu S, Hasanreisoglu M, Sokullu E. A hydrogel based multiplex co-culture platform for Retinal component cells. *ACS Applied Materials & Interfaces*.

16. Vanalakar SA, **Qureshi MH**, Srivastava SB, Khan SU, Kaya L, Kaleli HN, Pehlivan C, Şahin A, Hasanreisoglu M, Nizamoglu S. Stable Perovskite Quantum Dots-based Biointerface to Stimulate the Retinal Neurons. IEEE Transactions on Biomedical Engineering (TBME).

Research Techniques

Experimental Skills

- DNA routine analysis techniques
- Site-Directed mutagenesis
- Gene editing and knockout using CRISPR/Cas9 system
- Modulation of gene expression using RNAi
- qPCR and RT-PCR
- Protein routine analysis techniques; Large scale protein expression and purification
- Mammalian Cell Culture
- Stable cell line generation through viral transduction and transient transfection.
- Subcellular/Organelle fractionation using gradient ultracentrifugation
- Immunofluorescence
- Flow Cytometry for cell cycle analysis
- Fluorescence Assisted Cell Sorting
- Live cell imaging with wide-field and confocal imaging systems
- Single cell tracking for migration analysis
- SILAC based Quantitative Proteomics
- BioID based proximity labeling and affinity purification for interactors identification
- Single Molecule FRET using TIRF imaging of immobilized biomolecules
- Animal handling for manipulation including Immunization, Intravenous perfusion fixation
- Primary neuronal cultures including subtypes cortical and hippocampal cultures
- Calcium Imaging from cultured cells using calcium sensitive dyes

Conference/Meeting

- EMBO-MBD winter retreat research talks – Ankara, 16-17 January 2015.
Title: Cell surface proteins involved in cell migration and metastasis
- Turkish Molecular Biology Association - data sharing meeting – Istanbul, 11 March 2017
Title: Proteomic Analysis of Cell Surface Proteins

Academic Awards and achievements

- **Outstanding Teaching Assistant Award** from Koç University, Graduate School of Sciences and Engineering, Spring 2017.
- Koç University Fellowship from Graduate School of Sciences and Engineering for PhD studies, 2013-2018.
- Travel award from ICAM/I2CAM for internship in the laboratory of **Dr. Aziz Sancar, (Nobel Laureate 2015)**, November 2009-January 2010.
- Selected for Junior Research Fellowship (for graduate studies in India) from Department of Biotechnology, Government of India, 2007.

- Selected through National Eligibility Test (NET) for Lectureship and Junior Research.
- Fellowship (for graduate studies in India) 2007, Conducted by University Grants Commission (UGC) and Council for Scientific and Industrial Research, New Delhi.
- Research Fellowship Award from National Brain Research Center, India May-July 2006.
- Scholarship from Department of Biotechnology, Government of India for M.S. in Biotechnology 2005-2007.
- Earned Rank -1 in National Level Entrance Test for admission to Master of Biotechnology at All India Institute of Medical Sciences, New Delhi, July 2005 in an exam conducted for candidates from across India.

Teaching Experience

- Passed International Teaching Assistant test with highest score in April 2008 (Certificate of Teaching Assistant Placement Test) and qualified to teach undergraduate classes at Carnegie Mellon University.
- Teaching Assistant for **Mammalian Physiology** (Sophomore) at **Carnegie Mellon University**
- Teaching assistant for **Advanced Cell Biology** (Graduate Level) at **Koc University**
- Teaching Assistant for **Advanced Molecular Biology laboratories** (Sophomore-Senior) at **Koc University**.
- **Outstanding Teaching Assistant Award** from Koç University, Graduate School of Sciences and Engineering, Spring 2017.