

Dr. Umar Ahmad Sheikh, Ph.D.

Postdoctoral Research Associate

Web address;

(<https://dermatology.wisc.edu/research/laboratory-research/chang-lab/#team>)

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Objective(s);

- My current research interests are focused at understanding the “**Developmental Genetics of Planar Cell Polarity in Mammalian Skin**”.
- I am also interested in understanding the role of “**Wnt/Frizzled signaling in melanomagenesis**”.

Current position

August 2022 - Continuing: **Postdoctoral Research Associate**, Department of Dermatology, Wisconsin Institutes For Medical Research - School of Medicine and Public Health, University of Wisconsin-Madison, United States.

Previous employment roles

January 2022 – March 2022: **Research Scientist**, Govt Medical College Anantnag, Virology Division - Department of Microbiology, Janglatmandi Anantnag-192101, Jammu & Kashmir, (IN).

Education

2017-2021: Ph.D. (Biotechnology & Molecular Biology), CSIR-Indian Institute of Integrative Medicine, Canal road Jammu-180001, Jammu & Kashmir, India.

Dissertation Title: “**Understanding the Interplay of Autophagy and DNA Damage Response Mechanism in the Regulation of Ultraviolet-(B) -Induced Skin Photodamage**”.

2013-2015: MS Biotechnology, Baba Ghulam Shah Badshah University, Rajouri, Jammu & Kashmir, India
(University Topper & Gold Medalist).

Dissertation Title: “**Exploring the Involvement of PI3K/AKT/mTOR Pathway in Pentylene-tetrazol Kindled Mice Model of Epilepsy**”.

2010-2013: BS (Biotechnology, Chemistry & Zoology), University of Kashmir, Srinagar, Jammu & Kashmir, India.

Research experience

Research Scientist (January 2022 – March 2022): Govt Medical College Anantnag, Virology Division - Department of Microbiology, Janglatmandi Anantnag-192101, Jammu & Kashmir, India.

DST-INSPIRE, Senior Research Fellow (May 2019 - September 2021): Worked on my PhD research proposal "*Understanding the Interplay of Autophagy and DNA Damage Response Mechanism in the Regulation of Ultraviolet-(B) –Induced Skin Photo-damage*".

DST-INSPIRE, Junior Research Fellow (May 2017 - May 2019): Worked on my PhD research proposal "*Understanding the Interplay of Autophagy and DNA Damage Response Mechanism in the Regulation of Ultraviolet-(B) –Induced Skin Photo-damage*".

Pre PhD-Research Fellow (November 2015 - March 2017): Explored the therapeutic efficacy and molecular mechanism of a chemically modified derivative of Glycyrrhetic acid; 3-O-prenyl glycyrrhetic acid in B16F10 melanoma cells *In-vitro* and C57BL/6J *In-vivo*.

International/National level Awards/Fellowships/Scientific roles

- Associate Member American Association for Cancer Research (AACR).
- Associate Member International Society for Development and Sustainability (ISDS).
- Member European Society for Photobiology.
- Member Health Physics Society.
- Member National Postdoctoral Association, United States
- Review editor Frontiers for Young Minds (Understanding Health Section).
- Reviewer for international scientific journals; The FASEB Journal, Cell Death Discovery-Nature, Journal of Exposure Science & Environmental Epidemiology-Nature, Environmental Research, Food and Chemical Toxicology, Aging, Frontiers in Pharmacology, Frontiers in Oncology, RSC Advances, American Journal of Bioscience and Bioengineering.
- Postdoctoral Fellowship Offers; University of Wisconsin-Madison, United States (Availed), Georgia Cancer Center - Augusta University, United States (Not joined), University College Dublin, Ireland (Not joined).
- Visiting Fellowship offer; Department of Dermatology, University of Alabama at Birmingham, AL, United States.
- Best Paper Award (2nd Prize) at Annual Awards held on CSIR-IIIM Foundation Day Celebrations 2021.

- Qualified Joint CSIR-UGC National Eligibility Test for Junior Research Fellowship & Assistant Professorship in December 2018 (All India Rank 68).
- Qualified Graduate Aptitude test in Engineering (GATE) in Biotechnology in 2016.
- Qualified Graduate Aptitude test in Engineering (GATE) in Biotechnology in 2017.
- University level Gold Medal of Excellence in Biotechnology.
- DST-INSPIRE Fellowship Award from Department of Science & Technology, Ministry of Science & Technology, Government of India (Batch 2016) for carrying out doctoral research studies in basic & applied sciences.
- Secured first position at post-graduation level degree examination in Biotechnology.
- Received Department of Biotechnology, Ministry of Science & Technology, Government of India studentship during master's program in Biotechnology.
- Second prize in Science Quiz competition organized by CSIR-IIIM Jammu on the eve of CSIR foundation day celebrations 2018.

Research areas

Photobiology, Autophagy, DNA Damage Response (DDR), Toxicology, Oxidative and Endoplasmic Reticulum Stress, Melanoma, Planar Cell Polarity, Wnt/Frizzled signaling in Melanoma

Techniques

DNA/RNA extraction, western blotting, rtPCR, qPCR, ELISA based assays, cell culture, confocal microscopy, siRNA-mediated gene silencing, *In-vitro* assays for invasion and metastasis, *In-vivo* models for cutaneous melanoma, skin photodamage and pigmentation biology, xenograft models for angiogenesis and metastasis, oral and intra-peritoneal drug administration in mice.

Computer (Technical)

Microsoft Office (Word, Excel and PowerPoint), ImageJ, Endnote, Prism, Image Lab software's.

Languages

English, Urdu & Kashmiri.

Publications

1. Sheikh A. Umar, Sheikh A. Tasduq*, Ozone Layer Depletion and Emerging Public Health Concerns - An Update on Epidemiological Perspective of the Ambivalent effects of Ultraviolet Radiation Exposure. *Frontiers in Oncology* 2022; 11:1-11, <https://doi.org/10.3389/fonc.2022.866733>
2. Sheikh A. Umar, Naikoo H. Shahid, Lone A. Nazir, Malik, A. Tanveer, Gupta Divya, Sajida Archoo, Sharma R. Raghu, Sheikh A. Tasduq*, Pharmacological Activation of Autophagy

Restores Cellular Homeostasis in Ultraviolet-(B) –induced Skin Photodamage. *Frontiers in Oncology* 2021; 11:1-19, <https://doi.org/10.3389/fonc.2021.726066>.

3. Umar, S. A., & Tasduq, S. A.* Integrating DNA damage response and autophagy signalling axis in ultraviolet-B induced skin photo-damage: a positive association in protecting cells against genotoxic stress. *RSC Advances* 2020, 10(60), 36317-36336. <https://doi.org/10.1039/D0RA05819J>.
4. Sheikh A. Umar, Malik A. Tanveer, Lone A. Nazir, Gupta Divya, Ram A. Vishwakarma, Sheikh A. Tasduq*, Glycyrrhizic Acid Prevents Oxidative Stress Mediated DNA Damage Response through Modulation of Autophagy in Ultraviolet-B -Irradiated Human Primary Dermal Fibroblasts. *Cell Physiol Biochem* 2019; 53:242-257, DOI: 10.33594/00000013.
5. Nissar A. Ul, Sharma Love, Malik A. Mudasir, Lone A. Nazir, Sheikh A. Umar, et al., Chemical Chaperone 4-phenyl butyric acid (4PBA) reduces hepatocellular lipid accumulation and cell death through induction of autophagy. *Journal of Lipid Research*, 2017. doi:10.1194/jlr.M077537.
6. Lone A. Nazir, Malik A. Tanveer, Sheikh A. Umar, Sharma Love, Gupta Divya, Sheikh A. Tasduq*, Inhibition of Ultraviolet-B radiation induced Photodamage by Trigonelline through modulation of Mitogen Activating Protein Kinases and Nuclear Factor- κ B signaling axis in skin model. *Photochemistry and Photobiology* 2021, 97(4), 785-794. <https://doi.org/10.1111/php.13369>.
7. Umar, Sheikh Ahmad, and Sheikh Abdullah Tasduq*. Deciphering the Genome Protection Roles of Autophagy in Primary Human Dermal Fibroblasts (HDFs) against Ultraviolet-(B)–Induced Skin Photodamage. *bioRxiv* (2020). <https://doi.org/10.1101/2020.09.28.316273>.
8. Sheikh A. Umar, Mir R. Rayees, Sheikh A. Tasduq*, Poor Lung Hygiene in Kashmiri Population as Increased Risk Factor in Aggravating COVID-19 Disease Condition. *International Journal for Research in Applied Sciences and Biotechnology*, Volume-7, Issue-4 (July 2020). <https://doi.org/10.31033/ijrasb.7.4.1>.
9. Maqbool Majid, Sheikh A. Umar*, On Rise of Cancer in Kashmir. *International Journal for Research in Applied Sciences and Biotechnology*, Volume-7, Issue-3 (May 2020). <https://doi.org/10.31033/ijrasb.7.3.3>.
10. Nazir, Lone A., Naikoo H. Shahid, Kumar Amit, Sheikh A. Umar, Sharma Rajni, Sandip Bharate, Pyare L. Sangwan, and Sheikh Abdullah Tasduq*. Synthesis and anti-melanoma effect of 3-O-prenyl glycyrrhetic acid against B16F10 cells via induction of endoplasmic reticulum stress-mediated autophagy through ERK/AKT signaling pathway. *Frontiers in Oncology*, August 2;12 (2022). doi: 10.3389/fonc.2022.890299

Book chapters published

1. Ahmad SU*. Enhancing Consumer Traits in Floriculture Crops Through Genetic Manipulation for Production of Skin Medico-Cosmetics. *The Global Floriculture Industry: Shifting Directions, New Trends, and Future Prospects*. 2020, Nov 18:117. doi: 10.1201/9781003000723-6.

Books edited

1. Modern Biotechnology in Healthcare; Advances and Applications, Editor: Sheikh Umar Ahmad, PhD, In Production with Apple Academic Press, Taylor & Francis Group, ([Hard ISBN: 9781774913628](#))

Posters presented/ Oral talks delivered in Conferences/Symposia

1. Participated and presented the poster entitled as “NPC-402 induces B16F10 murine melanoma cell death through dysregulation of major cell survival signaling pathways” in International Conference namely Skin Genmed – Genomic Medicine in Skin held on 25th-26th June 2016 at CSIR – Institute of Genomics & Integrative Biology at New Delhi, India.
2. Participated & presented the poster entitled as “GA mediated modulation of autophagy enhances DNA damage repair response in UV-B induced photodamage in Human dermal fibroblast cells” in International Conference namely 14th Indo Australian Biotechnology Conference held on 22nd & 23rd October 2018 at ACTREC TMC Mumbai, India.
3. Participated & presented the poster entitled as “NPC-402, a triterpenoid ether derivative of Glycyrrhizic acid induces B16F10 melanoma cell death via induction of autophagy” in International Conference on recent advances in Interdisciplinary Sciences held on 11th & 12th of January 2019 at University of Jammu, Jammu & Kashmir.
4. Delivered an oral talk entitled “Pharmacological Activation of Autophagy Restores Cellular Homeostasis in Ultraviolet-(B)-Induced Genotoxic Stress Response in Skin” at the 11th Congress of Toxicology in Developing Countries (CTDC11) - Multidisciplinary Approaches in Toxicology Towards Supporting Sustainable Development Goals held jointly by Malaysian Society of Toxicology & International Union of Toxicology virtually at Kuala Lumpur Malaysia on 13-16th June 2021.