


© +917889964477
Email: iqbaliisc@gmail.com
dr.iqbaliisc@jk.gov.in

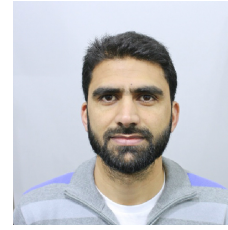
 Current: Nowgam, Srinagar.
Permanent: Shopian, Kashmir, India

Rather Mohammad Iqbal, PhD
Assistant Professor,
Dept. of Biochemistry,
GDC-Kulgam,
University of Kashmir, Kashmir.

ORCID ID: <https://orcid.org/0000-0002-3031-1956>

h-index=6

Areas of research experience: Cellular metabolism, Epigenetics, Cellular- senescence, Cancer genetics, Human Genetics.



Research interest (Briefly)-Senolytics: *Unhealthy Ageing* is the single biggest risk for different age associated diseases. Cellular senescence contributes to the unhealthy ageing and hence age associated diseases like cancer, inflammation-associated disorders leading to dementia and not to mention age associated reduction in regeneration. Therefore, one of the leading research subjects has been to get rid of senescent cells called as Senolytics. One of the ways has been to exploit the differential gene expression of these cells via post treatment (i.e. after the senescent cell formation) targeted therapy. An alternative is to develop a pretreatment strategy to reduce, if not the prevent, senescent cell formation. Small molecule metabolites like epigenetic modulators TSA, Butyrates etc serve as promising agents to do the favor. The vast, cheap and easily available source of these small molecule modulators are the plants that are coincidentally as our main food source.

“Therefore, my research interest is to perform the biochemical study of senescent cells and identify the small molecule modulators that could be used in therapeutic intervention of various age associated diseases including cancer”.

Current Research Project:

“Elucidate the Role of Cellular Senescence in therapeutic intervention to Triple Negative Breast Cancer in Kashmir Valley”

Funded by: Science and Engineering Research Board, DST, Govt Of INDIA, under **TARE** scheme

Duration: Three Years

PI: Dr Mohammad Iqbal Rather

Mentor: Dr Aabid Hamid, Associate professor, Head Department of Biotechnology and Director School of life Sciences, Central University of Kashmir.

File no: TAR/2020/000169

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PFMS unique code: JKLE00000946

Academic and Research Qualifications:

- Assistant professor, Dept. of Biochemistry, Higher education, **Govt of Jammu and Kashmir** since Jan-17.
- Research Associate, University of Glasgow, Glasgow, Scotland, United Kingdom from March-14-Jan17 in **Prof Peter D Adams’** Laboratory-Head Epigenetics unit, University of Glasgow.

- Junior Research Associate in the Department of Molecular Reproduction, Development and Genetics at Indian Institute of Science, Bangalore- India, Since June-2013, in **Prof Arun Kumar's Laboratory, Fellow ABMG.**
- Ph.D. scholar in the Department of Molecular Reproduction, Development and Genetics at Indian Institute of Science, Bangalore- India, August-2007-June-2013.
- 1st grade Ph.D. course work in **Proteomics, Cell Biology, Genetics, Genetic Engineering, Human Molecular Genetics and Immunology** from the Indian Institute of Science, 2007-2008.
- Six months research project performed as a part of my Masters degree to assess the **Antimicrobial and Antioxidant potential of extract from *Cydonia Oblonga***, an apple variety traditionally used for the treatment of Pertussis.
- 1st grade Masters degree in **Biochemistry** from the University of Kashmir, Jammu and Kashmir, India, 2006.
- 1st grade Bachelors degree in **Biochemistry, Chemistry, Zoology and English** from the University of Kashmir, Jammu and Kashmir, India, 2004.
- 1st grade higher secondary education in **English, Zoology, Botany, Chemistry and Physics** from Board of School Education, Jammu and Kashmir, India, 2000-2001.

Publications

- MacKenzie DJ, Robertson NA, **Rather MI**, Adams PD (2020) DNMT3B Oncogenic Activity in Human Intestinal Cancer Is Not Linked to CIMP or BRAFV600E Mutation. **iScience** 23(2): 100838. doi: 10.1016/j.isci.2020.100838. **The paper highlights that DNMT3b does not cooperate with BRAF to induce senescence by-pass in CRC, though the mice come down quite early due to high tumor burden when DNMT3B is induced in BRAFV600E mutant mice. Impact factor= 4.4**
- Rai TS, Glass M, Cole JJ, **Rather MI** et al. (2017) Histone chaperone HIRA deposits histone H3.3 onto foreign viral DNA and contributes to anti-viral intrinsic immunity. **Nucleic Acids Res.** **The paper highlights how a histone chaperone (previously shown lack of it leads to histone loss in senescent cells and cause cancer) contributes to innate immunity against viral infection. Impact factor=11.5**
- Cole JJ*, Robertson JN*, **Rather MI** et al. (2017) Diverse interventions that extend mouse lifespan suppress shared age-associated epigenetic changes at critical gene regulatory regions. * co-1st. **Genome Biology.** **The main outcome of this study is to highlight the role of small molecule epigenetic regulators, fasting (or caloric restriction) and catabolism inhibitors (like Rapamycin) in healthy ageing. Impact factor=10.8**
- Kapoor S, Shah MH, Singh N, **Rather MI** et al. (2016) Genetic Analysis of

PLA2G6 in 22 Indian Families with Infantile Neuroaxonal Dystrophy, Atypical Late-Onset Neuroaxonal Dystrophy and Dystonia Parkinsonism Complex. **PLoS One**. 2016 May-2nd Author. *Impact factor=2.7*

- Pradhan SA, **Rather MI**, Tiwari A, Bhat VK, Kumar A. Evidence that TSC2 acts as a transcription factor and binds to and represses the promoter of Epiregulin. **Nucleic Acids Res**. 2014 Jun. **Co-1st author**. *Impact factor=11.5*
- **Rather MI**, Shivananda S. Swamy, Kodaganur S. Gopinath, and Arun Kumar (2014). Transcriptional repression of tumor suppressor *CDC73*, encoding an RNA polymerase II interactor, by WT1 promotes cell proliferation: implication for cancer therapeutics. **J. Biol. Chem.** 289, 968-976 *Impact factor=4.2*
- **Rather MI**, Shivananda S. Swamy, Kodaganur S. Gopinath, and Arun Kumar. (Jan 2013) Oncogenic microRNA-155 downregulates tumor suppressor *CDC73* and promotes oral squamous cell carcinoma cell proliferation: Implications for cancer therapeutics. **J. Biol. Chem.** 288, 608–618. *Impact factor=4.2*

Manuscripts Submitted

Exome sequencing and functional studies in *zebra fish* identify the *WDR8* as a causative gene in Isolated microspherphakia in Indian families, **Human Molecular Genetics**, submission date: 07th Jan-21, Impact factor =4.5

Manuscripts under preparation

- **Rather MI** et al., Role of Histone chaperone HIRA in regulating senescence associated secretory phenotype (SASP): Implication for age associated inflammation driven health complications.
- Bhat V, **Rather MI**, Tiwari A and Kumar A. Whole exome sequencing approach to identify novel genes as the cause of autosomal recessive disorder microcephaly in Indian families. **Submitted**

Honors, Scholarships, Ranks and Prizes

- Honored for organizing one-day state level seminar on “ **Role of Biochemistry in health, industry, science and education**” at my host Institute (GDC-Kulgam, University of Kashmir).
- Awarded Research grant under **TARE** scheme by SERB, DST, Govt of INDIA.
- Awarded **CSIR travel grant** to attend an international conference on ‘Non coding RNAs in development and Cancer’ held in British Columbia, Canada, 20th -25th Jan-2013.
- Awarded **DST travel grant** to attend an international conference on ‘Non coding RNAs in development and Cancer’ held in British Columbia, Canada, 20th -25th Jan-2013.

- Elected as a secretary of the **Department of Molecular Reproduction Development and Genetics**, Indian Institute of Science, Bangalore- India for the year 2009-2010.
- One time fellowship received for achieving **1st rank** in state level entrance examination conducted for selection in M.Sc. in the Department of Biochemistry, University of Kashmir, Srinagar, Jammu and Kashmir.
- Qualified NET (national level eligibility test for lecturer-ship and the award of research fellowship) under CSIR-JRF (Council of scientific and industrial research-junior research fellowship) category **twice (June & Dec)** during the year 2007.

Abstracts submitted in Conferences/ meetings attended

- Role of Histone chaperone HIRA in cellular senescence. **Weizmann Institute of Science, Rehovot, Israel**, July 3-6,2016.
- Role of DNA methylation in healthy ageing. **Sanger's Institute, Cambridge, United Kingdom**, July 5-7, 2015.
- Upregulation of mir-155 causes OSCC by targeting tumor suppressor CDC73: keystone symposium on Non-coding RNAs in development and cancer at **Vancouver, British Columbia, Canada-2013**.
- Use of array based comparative hybridization to find out molecular markers and therapeutic targets in oral squamous cell carcinoma: Society for biological chemists **India conference at Bangalore-2016**.
- Attended international conference of cancer organized by Indian association of cancer research in 2010- **Bangalore**.
- Attended international conference on human infertility and stem cell research organized by Dept of MRDG, **Indian institute of Science, Bangalore-2010**.

Teaching/Mentoring skills

- Guiding Masters students, both national and international, in their summer internship and help them to identify potential research labs.
- Teaching Biochemistry Subject at UG level
- Reviewer Scientific reports journal

References:**Prof Arun Kumar, PhD**

Professor, Dept of MRDG, IISc, Bangalore.

Email: karun.mrdg.iisc.ernet.in

Dr Syed Mir, PhD

Sr Asst Professor, Dept of Clinical Biochemistry,

Email: syedmir@kashmiruniversity.ac.in

Prof Peter D Adams, PhD

Professor and head, Dept of Epigenetics,

University of Glasgow, Glasgow, UK.

Email: padams@sbpdiscovery.org