

Qulsum Akhter
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Department of Biochemistry
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BIOGRAPHICAL SKETCH					
NAME Qulsum Akhter				Assistant Professor	
EDUCATION/TRAINING					
Institute			Degree	Year	Field of Study
University of Kashmir, India			B.Sc	2001	Biology, Chemistry
University of Kashmir, India			M.Sc	2004	Biochemistry
University of Kashmir, India			Mphil	2009	Molecular Biology
University of Kashmir, India			Ph.D	2013	Biochemistry, Molecular Biology, Molecular Medicine.
University of Nebraska Medical Centre. Omaha USA			Postdoc-Research Fellow	2013-2015	Stem cell based therapy for Retinal Degenerative Disease like Age Related Macular Degeneration
University of Nebraska Medical Centre. Omaha USA			Research Technologist	2016-2017	Role of Fbxo9 ubiquitin ligase in reprogramming of mouse fibroblasts into stem cells.
Department of Biochemistry All India Institute of Medical Sciences			Research Associate	2017-2019(Feb)	Role of hnRNP/D/Auf1 in oral cancer.
Dr.Rajinderprasad Ceter for Ophthalmology AIIMS New Delhi			Scientist	2019 Feb to 2019	Stem Cell Biology and retinal De/regeneration

Department of Higher Education JK India	Assistant Professor	2019 May Present	Stem cells and regenerative medicine.
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Presently: Working as an Assistant Professor Department of Biochemistry, Government Degree College Pulwama (Higher Education) Jammu and Kashmir India.

August 2017-December 2018: Worked as a Research Associate in the Department of Biochemistry All India Institute of Medical Sciences New Delhi.

April 2016 to February 2017: Worked as Research Technologist at Department of Genetics Cell Biology and Anatomy University of Nebraska Medical Center Omaha Nebraska USA, in Dr. Shannon Buckley's Lab.

September 2013 to March 2015: Worked as a postdoctoral research associate in Department of Ophthalmology and Visual Sciences under the supervision of Dr. Iqbal Ahmad University of Nebraska Medical Centre Omaha USA

May2013 to August2013: Worked as a volunteer on a project CD44 isoform profile in mammary epithelial cells, stem progenitor cells and tumor derived cell lines in Dr.Vimla Band's Lab at University of Nebraska Medical Centre USA.

Ph.D: Biochemistry(Nov 2009-April 2013),University of Kashmir, Srinagar, India.

M.Phil: Biochemistry (Oct 2007-Nov 2009), University of Kashmir, Srinagar, India.

Publications

1. Moien Lone, MahaiwonShadang, **Qulsum Akhter**, Mithilesh Kumar, Saumyaranjan Mallick, Ajay Gogia, NilimaNilima, Shyan S Chauhan, Riyaz A Mir. The Expression of the RUVBL1 Component of the R2TP Complex Correlates with Poor Prognosis in DLBCL.2021.**Pathobiology**.
2. Moien Lone , **Qulsum Akhter** , Mithilesh Kumar , Umar Maqbool, MahaiwonShadang, Dhiraj Kumar , Shyam S. Chauhan and Riyaz A. Mir. Role of r2tp complex in lymphoma and its therapeutic potential.2021. **Int. J. Adv. Res.** 8(11), 300-303
3. **Mir Q**, Del Debbio CB, , Parameswaran S, Mathews S, Xia X, Zheng L, Neville AJ, Ahmad I. Notch Signalling Activates Stem Cell Properties of Müller Glia through Transcriptional Regulation and Skp2-mediated Degradation of p27Kip1 2016.**PLoS One**.24:11(3):e0152025).
4. **QulsumAkhter**,Akber Masood, RuhiAhraf, SabiaMajid, SabhaRasool, Tanzeela Khan Bashir.A.Ganie. (2012). Polymorphism in the 3'UTR of humanleptin gene andtheir role in hypertension. **Molecular Medicine Reports** (5),1058-1062.
5. Tanzeela Khan, FalakQazi, Sabha Rasool, Samia Rashid, **Qulsum Akhtar**, Akbar Masood, Bashir Ahmad Ganai (2012). Genetic Variants at the Apo-A1 Gene in Association with Coronary Artery Disease. **IJSBAR** (5): 1.

6. Rasool Sabha, Kadla Showkat Ahmad, Khan Tanzeela, Qazi Falak, Shah Nisar Ahmad, Basu Javeid, Khan Bilal Ahmad, **Ahktar Qulsum**, Sameer Aaga Syed, Ganai Bashir Ahmad. Association of a VDR gene polymorphism with risk of colorectal cancer in Kashmir. Asian Pacific Journal of Cancer Prevention. 14(10), 5833-5837.

Oral presentation

Muller Glia a promising therapeutic targeted for age related macular degeneration. In a Gifford-Truhlsen conference held by Dept of Ophthalmology and Visual Sciences UNMC Omaha Nebraska USA, June 13th 2014.

Conferences attended

- Attended International conference on “Genomic Instability and Cancer” held by Ohio State University in collaboration with University of Kashmir India July 21-27, 2007.
- Attended CME on “Updates on Hypertension” held at Government Medical College Srinagar India on 16th May 2009
- Attended International Conference on “New Trends in Statistics and Optimization” held at University of Kashmir Srinagar India on Oct 20, 2008
- Attended the workshop on “Advanced Computing for Statistics and Optimization for Young Statisticians and Scientists using various Softwares” held at Gulmarg India on Oct 22, 2008

Scholarships and Fellowships

Fundings: DST sponsored project 2018-2021 entitled “role of microRNA’s in masking the regenerative potential of Muller Glia in Mammalian Retina”

- **Research Fellowship** awarded by the **Department of Science and Technology, Govt. of India** New Delhi, India for the period Nov 2008 –Oct 2011.
- **Awarded** Young Women Scientist fellowship by the Department of Science and technology Govt. of India.
- **Supervised** Research Project sponsored by Department of Science and Technology Govt. of India for the period Nov 2008 –Oct 2011.
- **Awarded** Women Scientist fellowship grant (30 lac Rs) 2018-20

Exams qualified

- Qualified **National Eligibility Test** (NET) for Lectureship and Junior Research Fellowship for Research in Indian Universities (JRF-CSIR) in Life Sciences conducted by Council of Scientific and Industrial Research – University Grants Commission (CSIR – UGC), New Delhi, India in 2005.

Summary of postdoc work

Müller glia (MG) have emerged as a viable cellular target for therapeutic regeneration in degenerative blinding diseases, as they possess stem cell properties. However, the neurogenic potential of the mammalian MG is low, precluding their practical clinical use. The answer to this barrier may be found in two interlinked processes underlying the neurogenic potential, i.e., the activation and neural conversion of MG. Here, we have focused on the first and demonstrate that Notch signaling influence MG activation through two regulatory axes, Notch-p27Kip1 and Notch-Skp2-p27. The role of Notch-regulatory axes in MG activation was examined in hypoxia-enriched rat MG. The expression of axes' components was confirmed by Q-PCR and immunocytochemical analyses. Notch influence on p27Kip1/Skp2 expression and MG proliferation was determined in response to perturbation in Notch signaling. The involvement of p27Kip1/Skp2 in MG activation was determined by the loss of function approach, using shRNA. Notch signaling led to MG activation, accompanied by a decrease and an increase in p27Kip1 and Skp2 expression, respectively. Conversely, attenuation of Notch signaling compromised MG activation with an inverse correlation between p27Kip1 and Skp2 expression. ChIP analysis of p27Kip1 and Skp2 promoters confirmed Hes1 and CSL binding sites, respectively, providing the molecular basis for their reciprocal Notch-mediated regulation. Notch-mediated MG activation was enhanced and abrogated in response to shRNA-mediated attenuation of p27Kip1 and Skp2 expression, respectively. Thus, Notch signaling facilitated re-entry of MG into cell cycle by inhibiting p27Kip1 expression both transcriptionally and post-transcriptionally. **This study has been published in PLoS One.**

Summary of Ph.D work

Title: SNP screening in 3'UTR of Leptin Gene and its relation with Essential Hypertension in Kashmiri Population.

The recent trends in prevalence of hypertension are alarming worldwide. Kamili *et al* (2009) have reported that about one third of Kashmiri population is suffering from hypertension. In our last study we do find the positive correlation of polymorphism in 3'untranslated region of leptin with hypertension. Another mutation (C538T) has been reported to have high frequency in leptin gene. However there has been no study delineating the correlation between this mutation with essential hypertension. Therefore the aim of our present study was to determine the correlation between the above mentioned mutation with essential hypertension in

Kashmiri population. To achieve this aim, the polymorphism was screened in Kashmiri population and the prevalence of leptin gene polymorphism was correlated with serum leptin, serum angiotensin II and other biochemical and anthropometric parameters.

Technical skills:-

Animal experience: transgenic mice and rat handling, Retinal dissections, (E14 embryos to adult), embryo collection, Rat and mice surgeries, Cardial perfusion, sub-retinal and intravitreal injections. Electroretinogram, opt kinetics. Gene Cloning, Transduction and transfection. DNA and RNA isolation, Real time PCR. Protein expression and purification), Immunoblotting and Immunoprecipitation. Invitro HAT and Kinase assay. Chromatin immunoprecipitation, GST pulldown. Promoter analysis. Flow Cytometry, Cryosectioning, Immunocytochemistry and immunohistochemistry. Confocal and Fluorescent microscopy. Invasion, Migration, Soft agar colony formation, Matrigel. Cell culture (cell lines and primary cells), Muller Glia cell enrichment from rat retina, neutrospheres formation and differentiation to generic neurons. Mouse and Human IPSC and ES cell maintenance EB formation and differentiation to different lineages. CRISPR-Cas9 mediated genome editing gene knock in and knock out.