Curriculum Vitae

Muhammad Ilyas
PhD- Biotechnology
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Teaching: 6 Years of Teaching Experience

Education

2015-2020 **Ph.D. Biotechnology (Medical Genetics)**
International Islamic University H-10 Islamabad 44000, Pakistan
C.GPA: 3.91/4.00
Doctoral dissertation title: "Mapping Autosomal Recessive Intellectual Disability in Consanguineous families"
Supervisor: Dr. Asif Mir (Professor of Biochemistry & Molecular Biology), Prof. Henry Houlden (Professor of Neurology, ION, UCL London)

2013-2015 **MS in Biotechnology**
International Islamic University H-10 Islamabad 44000, Pakistan
C.GPA: 3.90/4.00

2007-2011 **BS Biotechnology and informatics**
Baluchistan University of Engineering & technology management sciences Quetta, Baluchistan. Pakistan.
C.GPS: 3.82/4

Research and Professional Experience

- **Postdoctoral Researcher (2022–2023):** Human Molecular Genetic Lab, Department of Biological Sciences at International Islamic University, Pakistan.
- **Visiting Assistant Professor (January, 2020–2024)**: Taught different courses to undergraduate students Biotechnology, biochemistry and cell biology.
- **Visiting Research Scholar (05/2018 to 11/2018)**: University College London Institute of Neurology, London UK.
- **Research Assistant (01/2014 to 02/2015)**: Work as a research assistant at the Institute of Biomedical and Genetic engineering (IBGE) KRL hospital Islamabad.

Research Summary

Research Work

My focus is the use of high-throughput sequencing for diagnosis of hereditary disorders. I am engaged in collaborative research with a variety of investigators inside Pakistan and elsewhere who use exome or genome sequencing to understand the basis of human diseases. Further I want to combines expertise's in genetics, neuroscience, and stem cells, in order to identify the mechanism that underlie brain diseases, cancer and other genetic diseases. My focus lies in resolving the convergence of, and complex interplay between, the many risks variants linked to disease, towards the goal of facilitating the clinical translation of genetic findings.

Skill Highlights

- Molecular Biology techniques
- DNA and RNA Extraction
- Southern blotting
- Sanger Sequencing
- Cloning and gene Expression
- GCMS
- Microscopy
- LCMS
- Western blotting
- WES data analysis
- Python
- single-cell RNA sequencing
- R Language
- qPCR
- Cell culture
- Data analysis

Publications

First author research articles

1. **Ilyas M**, Efthymiou S, Salpietro V, Noureen N, Zafar F, Rauf S, Mir A, Houlden H. Novel variants underlying autosomal recessive intellectual disability in Pakistani consanguineous families. **BMC medical genetics**. 2020 Dec; 21:1-8. **(I.F: 1.48).**

2. **Ilyas M,** Mir A, Efthymiou S, Houlden H. The genetics of intellectual disability: advancing technology and gene editing. **F1000Research**. 2020; 9. **(I.F: 2.30).**

3. **Ilyas M**, Mir A, Rauf S, Nazir S, Javed H. Huntington Gene ontological Study And Orthological Analysis. **World Journal of Biology and Biotechnology**. 2016; 1(2): 65-9.

Co-author research articles

1. Stephanie Efthymiou[1], WENYAN HAN[2], **Muhammad Ilyas[3]**, Jun Li2, Yichao Yu1, Marcello

Scala4. Human mutations in SLITRK3 implicated in GABAergic synapse development in mice. **Front. Mol. Neurosci. Sec. Neuroplasticity and Development, Volume 17. (I.F: 6.21).**

2. Ralf A. Husain,[1,2] Xinfu Jiao, [3] J. Christopher Hennings, [4] Jan Giesecke, [5] Geeta Palsule, [3] Stefanie Beck-Wödl, [6] Dina Osmanović, [4] Kathrine Bjørgo, [7] Asif Mir, [8] **Muhammad Ilyas**, 8 Saad M. Abbasi, [8] Stephanie Efthymiou, [9]. NUDT2 variants devoid of mRNA decapping activity are associated with a recessive neurodevelopmental disease with neuropathy**. BRAIN-2023 (I.F:14)**

3. Cortese A, Simone R, Sullivan R, Vandrovcova J, Tariq H, Yau WY, Humphrey J, Jaunmuktane Z, Sivakumar P, Polke J, **Ilyas M,** *et al*. Biallelic expansion of an intronic repeat in RFC1 is a common cause of late-onset ataxia. **Nature genetics**. 2019 Apr; 51(4):649-58. **(I.F: 27.60).**

4. Harripaul R, Vasli N, Mikhailov A, Rafiq MA, Mittal K, Windpassinger C, Sheikh TI, Noor A, Mahmood H, Downey S, Johnson M,Vleuten K, Bell L, **Ilyas M**, Sher F. Mapping autosomal recessive intellectual disability: combined microarray and exome sequencing identifies 26 novel candidate genes in 192 consanguineous families. **Molecular psychiatry.** 2018 Apr; 23(4):973-84. **(I.F: 11.97).**

5. Manole A, Efthymiou S, O'Connor E, Mendes MI, Jennings M, Maroofian R, Davagnanam I, Mankad K, Lopez MR, Salpietro V, Harripaul R, Badalato L, Walia J, Francklyn S.C, Fragkouli A, Sullivan R, Desai S, Baranano K, Zafar F, Rana N, **Ilyas M**, Horga A. De Novo and Bi-allelic Pathogenic Variants in NARS1 Cause Neurodevelopmental Delay Due to Toxic Gain-of-Function and Partial Loss-of-Function Effects. **The American Journal of Human Genetics**. 2020 Jul 31. **(I.F: 11).**

6. Iftikhar Ahmed, **Muhammad Ilyas**, Gaurav V Harlalka, Asif Mir. A Novel hemizygous Variant in the AFF2 gene Causing Fragile XE (FAXE) Syndrome: First Report from Pakistan. **Pak Journal of Medical Research**. Vol.60, No 2, 2021.

7. Ullah, Najeeb, Faiza Munir, Sana Iqbal, **Muhammad Ilyas**, Jahangir Khan Achakzai, Abdul Bari, and Munir Ahmad Bhinder. "Exome sequencing as a tool of molecular screening of cataract affected families." **Journal of Population Therapeutics and Clinical Pharmacology** 31, no. 2 (2024): 849-859.

8. Azad B, **Ilyas M**, Mir A, Naheed S, Bint-e-Irshad S. Haemolacria bloody tear in young girl: A case study. **World Journal of Biology and Biotechnology**. **2024** Dec 15;9(3):1-2.

9. Azad B, **Ilyas M**, Naheed S, Irshad SB, Malik SB. Clinical Presentation of Congenital Heterochromia Iridis in Pakistani Patients. **Pakistan Journal of Medicine and Dentistry**. **2024** Oct 24;13(4):195-7.

Research Grants and Reviewer

1. Higher Education Commission Pakistan (HEC), Research Project Reviewer.
2. Editor in Pediatric Neurology (Frontiers in Neurology)
3. Mapping Autosomal Recessive Intellectual Disability in Consanguineous families. IRSIP grant worth 1.5 million by higher Education Commission of Pakistan (HEC) for Ph.D.