

Dr. Muhammad Ismail Khan

Department of Zoology, Islamia College Peshawar, KPK,
Pakistan

ismail@icp.edu.pk

[ResearchGate](#)

+923348802406



Objective

Commendable contribution to the science of Human Genetics & Rare Genetic Disorders. Moreover, carrying forward the teaching excellence and research legacy forever.

Work Experience

Aug, 2018—Till date **Department of Zoology, Islamia College Peshawar, Pakistan**

Assistant Professor

- Teaching various Zoological Sciences courses at Bachelors, Master's & Doctorate level
- Scientific Research
 - Supervising research of Bachelor's, Master's & Doctorate level

2011—2018 **Department of Zoology, Islamia College Peshawar, Pakistan**

Lecturer

- Teaching various Zoological Sciences courses at Inter & Bachelor's level
- Scientific Research
 - Supervising research of Bachelor's Students

2010—2011 **Department of Zoology, Abdul Wali Khan University Mardan, Pakistan**

Lecturer

- Teaching various Zoological Sciences courses at Bachelor's level
- Scientific Research
 - Supervising research of Bachelor's Students

2007—2010 **Department of Zoology, Islamia College Peshawar, Pakistan**

Lecturer

- Teaching various Zoological Sciences courses at Inter & Bachelor's level
- Scientific Research
 - Supervising research of Bachelor's Students

2002—2007 **Institute of Learning & Motivation, Affiliated with British Council Pakistan**

Course Coordinator

- Teaching Biology at O & A levels
- Career Counselling of students

2011—2016 **Hostels, Islamia College Peshawar, Pakistan**

Resident Warden (additional charge)

- Administrative Duties of Hostels

2011—2016 **Adventure & Hiking Society, Islamia College Peshawar, Pakistan**

In Charge (additional charge)

- Administrative Duties

Education

Mar, 2014—Dec, 2019 **Islamia College Peshawar, Pakistan**

Ph.D. in Zoology

- **Specialization:** Human Genetics

- **Thesis entitled:** Analysis and Diagnosis of Targeted Medical and Genetic

Disorders in Human Population of Khyber Pakhtunkhwa, Pakistan Oct, 2011—
Dec, 2013 **Islamia College Peshawar, Pakistan**

M.Phil. in Zoolgy

▪ **Specialization:** Haematology

M.Sc in Zoology



Honour & Awards

Jan, 2022 **Review Editor**

International Journal of Genetics & Genomics

Jan, 2022 **Review Editor**

International Journal of Frontiers in Genetics

Dec, 2021 **Review Editor**

International Journal of Frontiers in Public Health

Nov, 2021 **Executive Member**

Human Genetics Society of Pakistan

Oct, 2021 **HEC Approved Supervisor**

Permitted to supervise 12 research scholars of M.Phil & Ph.D at a time

Mar, 2013 **Award of the Best Organizer of the Year 2013**

Awarded for being the best organizer of events as In Charge of the Adventure & Hiking Society

Feb, 2013 **Member Board of Studies, Department of Zoology, AbdulWali Khan Uni, Mardan**

Formulating the course contents for the Bachelor's of Science in Zoology

Mar, 2012 **Award of the Best Organizer of the Year 2012**

Awarded for being the best organizer of events as In Charge of the Adventure & Hiking Society

Feb, 2012 **Member Board of Studies, Department of Zoology, Abdul Wali Khan Uni, Mardan**

Formulating the course contents for the Bachelor's of Science in Zoology

Jan, 2008 **Award for the Chief Organizer of Diamond Jublie Celebrations**

Awarded for the conduct of jubilating event of Diamond Jublie of Usmania Hostel, Islamia College Peshawar as a Resident Warden



Scientific Conferences & Workshops

Mar 01, 2021 **Rare Disease Day, Awareness Workshop**

**Rare Disease Day Organization, Pakistan with collaboration
Pakistan Science Foundation**

Islamia College University, Peshawar

- Organizer of the Workshop
- Actively participated in the research discussion

Mar 04-06, 2019 **39th Pakistan Congress of Zoology,**

The Zoological Society of Pakistan

Islamia College University, Peshawar

- Organizer of the Conference
- Actively participated in the research discussion

Mar 06-08, 2012 **32nd Pakistan Congress of Zoology (International),**

The Zoological Society of Pakistan

Government College University, Lahore, Pakistan

- Actively participated in the research discussion

Apr 19-21, 2011 **31st Pakistan Congress of Zoology,**

The Zoological Society of Pakistan

University Of Azad and Jammu Kashmir

- Actively participated in the research discussion



Reference Books Authorship

- Reference Book for Biology Grade XI, KPK Text Book Board
- Reference Book for Biology Grade XII, KPK Text Book Board



Curricular Courses

Teaching the following courses at B.S. Level:

- Biochemistry I & II
- Taxonomy
- Animal Behavior
- Immunology
- Physiology I & II

M.Phil. & Ph.D. Courses:

- Haematology
- Human Genetics
- Molecular Biology



Research Interests

My scientific research includes the following fields

- Human Genetics (Rare genetic disorders)
- Haematology
- Immunology
- Endocrinology



Scientific Publications

1. **Khan, Muhammad Ismail**, et al. "Whole-exome sequencing analysis reveals co-segregation of a COL20A1 missense mutation in a Pakistani family with striate palmoplantar keratoderma." *Genes & Genomics* 40 (2018): 789-795.
2. **Khan, Muhammad Ismail**, et al. "Whole exome sequencing identified a novel missense alteration in CC2D2A causing Joubert syndrome 9 in a Pakhtun family." *The Journal of Gene Medicine* 23.1 (2021): e3279.
3. Jelani, M., Dooley, H.C., Gubas, A., Mohamoud, H.S.A., Khan, M.T.M., Ali, Z., Kang, C., Rahim, F., Jan, A., Vadgama, N. and **Khan, Muhammad Ismail**., 2019. A mutation in the major autophagy gene, WIPI2, associated with global developmental abnormalities. *Brain*, 142(5), pp.1242-1254.
4. Khan, Atta Ullah, Ibrar Khan, **Muhammad Ismail Khan**, Muhammad Latif, Muhammad Imran Siddiqui, Shafi Ullah Khan, Thet Thet Htar et al. "Whole exome sequencing identifies a novel compound heterozygous GFM1 variant underlying developmental delay, dystonia, polymicrogyria, and severe intellectual disability in a Pakhtun family." *American Journal of Medical Genetics Part A* 188, no. 9 (2022): 2693-2700.
5. Pastore, S. F., T. Muhammad, R. Harripaul, R. Lau, M. T. M. Khan, **Muhammad Ismail Khan**, O. Islam et al. Biallelic inheritance in a single Pakistani family with intellectual disability implicates new candidate gene RDH14. *Sci Rep* 11: 23113. 2021.
6. Khan, Amjad, Rongrong Wang, Shirui Han, Muhammad Umair, Safdar Abbas, **Muhammad Ismail Khan**, Mohammad A. Alshabeeb, Majid Alfadhel, and Xue Zhang. "Homozygous missense variant in the TTN gene causing autosomal recessive limb-girdle muscular dystrophy type 10." *BMC Medical Genetics* 20 (2019): 1-8.
7. Khan, Amjad, Muhammad Umair, Rania Abdulfattah Sharaf, **Muhammad Ismail Khan**, Amir Ullah, Safdar Abbas, Nargis Shaheen, Muhammad Bilal, and Farooq Ahamd. "Novel homozygous variant in the TPO gene associated with congenital hypothyroidism and mild-intellectual disability." *Human Genome Variation* 7, no. 1 (2020): 41.
8. Ihsan, Madeeha, Najeeb Ullah Khan, Noreen Asim, **Muhammad Ismail**, Mikhlid H. Almutairi, Ijaz Ali, and Brian D. Adams. "Significant Association of Candidate Genes (AGTR1 and TGF-B1) Polymorphism with Diabetic Nephropathy in Diabetes Mellitus Type 2 Patients." *Cellular Physiology & Biochemistry (Cell Physiol Biochem Press GmbH & Co. KG)* 58, no. 3 (2024).
9. Nazmina, Gul, Amjad Khan, Jiuhong Jiang, Zhichao Miao, Shahid Niaz Khan, **Muhammad Ismail Khan**, Abdul Haleem Shah, Ayesha Haleem Shah, Muhammad Khisroon, and Tobias B. Haack. "Exome sequencing identifies homozygous variants in MBOAT7 associated with neurodevelopmental disorder." *Clinical Genetics* 105, no. 4 (2024): 423-429.
10. Zaman, Q., Khan, J., Ahmad, **Muhammad Ismail**, **Khan**, H., Chaudhary, H.T., Rehman, G., Rahman, O.U., Shah, M.M., Hussain, J., Jamal, Q. and Khan, B.T., 2024. Unveiling genetics of non-syndromic albinism using whole exome sequencing: A comprehensive study of TYR, TYRP1, OCA2 and MC1R genes in 17 families. *Gene*, 894, p.147986.
11. Rasool, M., Zahid, M., Khan, Q., Khan, K., & **Ismail, Muhammad**. (2017). Vespine Wasps (Vespidae: Hymenoptera) of Swat Khyber Pakhtunkhwa Pakistan. *Wulfenia J, Klagenfurt, Australia*.
12. Sombal, Wafa, Najeeb Ullah Khan, Bibi Maryam **Khan**, **Muhammad Ismail**, Mikhlid H. Almutairi, Samiullah Khan, Aakif Ullah Khan, Adeela Mustafa, Bushra Iftikhar, and Ijaz Ali. "Human epidermal growth receptor polymorphisms (HER1-rs11543848 and HER2-rs1136201) exhibited significant association with breast cancer risk in Pashtun population of Khyber Pakhtunkhwa, Pakistan." *Health Science Reports* 7, no. 2 (2024): e1846.
13. Jawad, Muhammad, Muhammad Zahid, Faheem Ullah, Mudassir Shah, Abdul Wahab, and **Muhammad Ismail Khan**. "Assessment of DNA damage in the heroin addicted population of Khyber Pakhtunkhwa, Pakistan using alkaline comet assay." *Songklanakarin Journal of Science & Technology* 44, no. 2 (2022).

14. Rasool, Muhammad, Muhammad Zahid, **Muhammad Ismail Khan**, Qadeem Khan, and Khalid Khan. "Nucleotide Sequence of the Hypervariable Pre-S2 Surface Antigen Region of Pakistani HBV Isolates." *Pakistan Journal of Zoology* 50, no. 2 (2018).
15. Sajid, Muhammad, Muhammad Zahid, Sobia Attaullah, **Muhammad Ismail Khan**, Riaz Ahmad, Abida Butt, Muhammad Tariq Khan, and Mudassar Shah. "Faunistic and DNA barcoding of the recorded spiders (Araneae: Gnaphosidae, Hersiliidae and Salticidae) from Lower Dir (Pakistan)." (2022): 23-30.
16. Saif Ullah, Muhammad Zahid, Rahmat ali, Muhammad Shimran Khan Afridi, **Dr. Muhammad Ismail Khan**, Shahid Ali Shah, Amir Zeb, & Asad Ullah. (2024). DNPH OF ISOSTEVIOL VIA SIRT 1/ NRF2 SIGNALING PATHWAY ABROGATES NEURONAL SYNAPSE & MEMORY DEFICITS IN AGING MOUSE MODEL. *Journal of Population Therapeutics and Clinical Pharmacology*, 31(6), 572-590.
17. Khan, Jamshid, Nazish Shah, Farmanullah Dawar, Iqra Irfan, Adil Jan, **Muhammad Ismail Khan**, and Muhammad Khisroon. "Comet Assay and Micronucleus Test in Circulating Erythrocytes of *Ctenopharyngodon idella* Exposed to Nickel Oxide Nanoparticles." *Biological Trace Element Research* 203, no. 2 (2025): 1064-1074.
18. Khan, Najeeb Ullah, Lubna Danish, Hydayat Ullah Khan, Maryam Shah, **Muhammad Ismail**, Ijaz Ali, Arnolfo Petruzzello et al. "Prevalence of dengue virus serotypes in the 2017 outbreak in Peshawar, KP, Pakistan." *Journal of Clinical Laboratory Analysis* 34, no. 9 (2020): e23371.
19. Adnan, F., Khan, N. U., Iqbal, A., Ali, I., Petruzzello, A., Sabatino, R., ... & **Khan, Muhammad. Ismail.** (2020). Interleukin-6 polymorphisms in HCC patients chronically infected with HCV. *Infectious agents and cancer*, 15, 1-7.
20. Shah, Maryam, Lubna Danish, Najeeb U. Khan, Fakhar Zaman, **Muhammad Ismail**, Mehfooz Hussain, Ruqiya Pervaiz, and Aqib Iqbal. "Determination of mutations in iron regulating genes of beta thalassemia major patients of Khyber Pakhtunkhwa, Pakistan." *Molecular Genetics & Genomic Medicine* 8, no. 9 (2020): e1310.
21. Khan, Fahim Ullah, Waqar Younas, Yueyong Shang, Zhihan Tu, **Muhammad Ismail Khan**, Amina Zuberi, and Youji Wang. "Effects of acclimation temperature on growth, physiology and thermal tolerance of the juvenile grass carp *Ctenopharyngodon idella*." *Aquaculture* 581 (2024): 740421.
22. Kunyuan Wanghe ^{a 1}, Shahid Ahmad ^{b g 1}, Xin Zhou ^{e 1}, Fei Tian ^a, Sijia Liu ^a, Bingzheng Zhou ^e, Ghulam Nabi ^c, Guojie Wang ^d, Kemaoli Li ^d, Shenglong Jian ^d, Huamin Jiang ^f, Shengxue Chen ^a, Yimeng Niu ^a, **Muhammad Ismail Khan** ^h, Kai Zhao ^a "Spatially explicit estimation of freshwater fish stock biomass with limited data: A case study of an endangered endemic fish on the Tibetan Plateau, China." *Science of The Total Environment* 912 (2024): 168717.
23. Rasoola, Muhammad, Muhammad Zahida, Khalid Khana, **Muhammad Ismail Khana**, and Mujeeb Ahmada. "Species richness and diversity of Vespidae (Insecta: Hymenoptera) of Swat Khyber Pakhtunkhwa Pakistan." *Science Asia* 44, no. 5 (2018): 319-324.
24. Nooreen, N., M. Zahid, M. Jawad, S. A. Ullah, **Muhammad. Ismail. Khan**, K. Khan, M. Shah et al. "Studying biodiversity of spiders species in seven different localities of Charsadda District, Khyber Pakhtunkhwa, Pakistan." *Brazilian Journal of Biology* 84 (2022): e260515.
25. Rasool, Muhammad, Muhammad Zahid, Qadeem Khan, Khalid Khan, and **Muhammad Ismail.** "Vespine Wasps (Vespidae: Hymenoptera) of Swat Khyber Pakhtunkhwa Pakistan." *Wulfenia J, Klagenfurt, Australia* (2017).
26. Younas, S., M. Zahid, M. Ullah, M. Sajid, **Muhammad. Ismail. Khan**, S. Attaullah, and K. Khan. "Spider diversity in different habitats at District Mardan, Khyber Pakhtunkhwa Pakistan." *Brazilian Journal of Biology* 84 (2024): e283767.
27. Ullah, Ateeq, Kamran Khan, Muhammad Shuaib, Zial Islam, Abubakar Sufyan, Shahrood AhmedSiddiqui, **Muhammad Ismail Khan**, Obaid Ullah, and Muhammad Shahkar Uzair. "Effect of Ivermectin and Permethrin on *Sarcoptes scabiei* in Indigenous Rabbits (*Oryctolagus cuniculus*)." *Pak J. Zool* (2024): 1-4.

28. Qadeem khan^{1*}, Muhammad Zahid¹ , Muhammad Rasool¹ , Khayyam¹ , Khalid khan¹ , **Muhammad Ismail Khan¹** , Mahboob-ul-Haq² , Sahibzada Muhammad Jawad¹"Serum prolactin and reproductive hormones in female autoimmune thyroid patients-a case-control study."
29. Ujan JA, Majeed S, Maqaddas S, Afzal W, Habib SS, Mushtaq A, Naz S, Zahid M, Khan K, **Ismail Muhammad**, Mohany¹⁰ M. Individual and Combined Effects of Sublethal Cadmium and Lead on Tissue Accumulation, Hemato-Biochemical Parameters and Neurotoxicity in *Channa marulius*. Polish Journal of Environmental Studies.
30. Mushtaq, Muhammad, Muhammad Shuaib, Aamir Iqbal, Abubakar Sufyan, Muqader Shah, Noor Ul Ain Nawaz, **Muhammad Ismail Khan** et al. "Antibacterial and Immuno-Modulatory Effects of Probiotics and Phytobiotics in Spent Rhode Island Red Layers." (2024).
31. Mushtaq, Muhammad, Muhammad Shuaib, Muhammad Abdullah, Aamir Iqbal, Abubakar Sufyan, **Muhammad Ismail Khan**, Muqader Shah et al. "Biochemical Assessment of Oxidative Status and Liver Biomarkers in Acetaminophen Associated Hepatic-Toxicity in Broiler Chicks." (2024).
32. Shams, Waqas Ahmad, Gauhar Rehman, **Muhammad Ismail**, Rahmul Kabir, and Abdul Qahar. "Antioxidant Activities of Aqueous, Methanolic, Ethanolic and Ethyl Acetate Extracts of Himalayapotamon emphysetum Crab." Punjab University Journal of Zoology 39, no. 2 (2024): 135-140.
33. Ullah, Mujeeb, Ali Muhammad Yousafzai, Ijaz Muhammad, Sobia Atta Ullah, Muhammad Zahid, **Muhammad Ismail Khan**, Khalid Khan et al. "Effect of cypermethrin on blood hematology and biochemical parameters in fresh water fish *Ctenopharyngodon idella* (Grass Carp)." Cellular and molecular biology (Noisy-le-Grand, France) 68, no. 10 (2022): 15.
34. Nabi, Ghulam, Shahid Ahmad, Sana Ullah, Sahib Zada, Maliha Sarfraz, Xinle Guo, **Muhammad Ismail**, and Kunyuan Wanghe. "The adverse health effects of increasing microplastic pollution on aquatic mammals." Journal of King Saud University-Science 34, no. 4 (2022): 102006.
35. Alkhiary, Yaser M., Anum Ramzan, Muhammad Ilyas, Ubaidullah Khan, Abdul Nasir, **Muhammad Ismail. Khan**, Habib Ahmad, and Musharraf Jelani. "Whole exome sequencing analysis identifies a missense variant in COL1A2 gene which causes osteogenesis imperfecta Type IV in a family from Saudi Arabia." Journal of Musculoskeletal Surgery and Research 1 (2017): 33.
36. Ullah, Irfan, Muhammad Zahid, **Muhammad Ismail Khan**, and Mudassir Shah. "Prevalence of anemia in pregnant women in district Karak, Khyber Pakhtunkhwa, Pakistan." International Journal of Biosciences 3 (2013): 77-83.
37. Ullah, Irfan, Muhammad Zahid, Aftab Alam Sthanadar, Iram Alam Sthanadar, Pir Asmat Ali, **Muhammad Ismail Khan**, Muhammad Kaleem, Muhammad Aslam, and Wasif Ullah. "Iron deficiency anemia in school age children in District Karak Khyber Pakhtunkhwa Province, Pakistan." Open Journal of Blood Diseases 4, no. 2 (2014): 9-15.
38. Zahid, Muhammad, Aftab Alam Sthanadar, Muhammad Kaleem, Muhammad Latif, Iram Alam Sthanadar, Pir Asmat Ali, Irum Alam Sthanadar, **Muhammad Ismail**, Noreen Imtiaz, and Mudassir Shah. "Prevalence and perceptions about migraine among students and patients in Khyber Pakhtunkhwa Province, Pakistan." Advances in Bioscience and Biotechnology 2014 (2014).
39. Rahman, Hamid Ur, Tayyab Ur Rehman, Abid Ali, Syed Aizaz Ali Shah, and **Muhammad Ismail**. "In vitro anti-leishmanial activity of Polygonum glabrum stem extract on Leishmania tropica (KWH23) Strain." J. Adv. Biol. Biotechnol 3 (2015): 23-28.
40. Adnan Ullah, Adnan Ullah, Khalid Khan Khalid Khan, **Muhammad Ismail Khan**, Ahsan Khan Ahsan Khan, and Aftab Alam Aftab Alam. "Prevalence of Fasciola hepatica in domesticated cattle of Distt: Lower Dir, Khyber Pakhtunkhwa, Pakistan." (2013): 73-80.
41. Zahid, Muhammad, Minhas Akbar, Aftab Alam Sthanadar, Pir Asmat Ali, Mudassir Shah, Iram Alam Sthanadar, Muhammad Kaleem, Muhammad Aslam, Khayyam Nasrullah, **Muhammad**

Ismail Khan, and Syeda Mahreen Ul Hassan. "Isolation and Identification of Multi-Drug Resistant Strains of Non-Lactose Fermenting Bacteria from Clinical Refuses in Major Hospitals of Khyber Pakhtunkhwa, Pakistan." Open Journal of Medical Microbiology 2014 (2014).

42. Akbar, M., Zahid, M., Ali, P. A., Sthanadar, A. A., Shah, M., Sthanadar, I. A., ... & **Khan, Muhammad. Ismail.** (2014). Isolation and identification of multi-drug resistant strains of non-lactose fermenting bacteria from clinical isolates. Open Journal of Medical Microbiology, 4(2), 115-123.
43. Qadeer, A., H. Ahmad, A. Wajid, S. Khan, A. Khan, Q. Ullah, S. Ahmad, A. Khan, S. A. Siddiqui, and **Muhammad. Ismail.** "Recent advances in the diagnosis of schistosomiasis." Zoonosis, Unique Scientific Publishers, Faisalabad, Pakistan 2 (2023): 126-139.
44. Khan, Aamir, Abdul Qadeer, Noor Muhammad Khan, **Muhammad Ismail Khan**, and Qismat Ullah. "Use of Traditional Chinese Medicine in Cancer Treatment." Complementary and Alternative Medicine: Chinese: 272.



Research Titles Supervised at M.Phil. Level

S#	Name	Session	Registration #	Title
1	Scholar	2020-22	2020/ICP-5303	Clinical and Molecular Assessment of Osteoporosis-pseudoglioma Syndrome in a Pakhtun Consanguineous Family
2	Scholar	2020-22	2020/ICP-5280	Clinical and Molecular Characterization of X-linked Ectodermal Dysplasia Caused by Nemo Mutation
3	Scholar	2020-22	2020/ICP-5307	Identification of Gene Through Whole Exome Sequencing Causes Osteogenesis Imperfecta in A Family, Khyber Pakhtunkhwa Pakistan)
4	Scholar	2020-22	2012/ICP/BS-883	Front Line sufferers amid covid-19 and their suffering types
5	Sholar	2020-22	2020/ICP-5293	Growth Comparison of Brown Trout(<i>Salmo trutta</i>) and Rainbow Trout(<i>Oncorhynchus mykiss</i>) in Fathpur Valley Swat
6	Scholar	2021-23	2021/ICP-5614	Clinical and Molecular Investigation of TYR Gene of Oculocutaneous Albinism Type 1A in a Pakhtun Family
7	Scholar	2021-23	2016/ICP-3785	Assessment of Oxacillin Susceptible Methicillin Resistant <i>Staphylococcus aureus</i> , The Antibiotic Susceptibility Profiles And Molecular Typing Isolated From Cow Milk Samples In District Peshawar
8	Scholar	2021-23	2021/ICP-5590	Sero-prevalence of <i>Toxoplasma gondii</i> In Human Population of District Charsadda, Khyber Pakhtunkhwa Pakistan
9	Scholar	2021-23	2021/ICP-5613	Clinical and Molecular Investigation of Ectodermal Dysplasia in Pakhtun Families
10	Scholar	2023-25	2018/ICP-8171	Anti Neuroinflammatory Potential of Pentanoic Acid Derivative in Streptozotocin Induced Neuroinflammation in Mice Models
11	Scholar	2023-25	2023/ICP-5316	DNA Damage Analysis of Auto Mechanics

				Worker in Response to GSTM1 and GSTT1 Gene Polymorphism
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