

# Dr. Muhammad Usman Ghani

**Assistant Professor (BPS-19)** (CAMB, University of the Punjab, Lahore)

**Incharge: Precision Genomics Research Lab** (CAMB, University of the Punjab, Lahore)

**Member: DNA Sequencing/Genotyping Facility** (CAMB, University of the Punjab, Lahore)

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## *Qualification:*

**Ph.D Molecular Biology & Forensic Sciences (2021)** University of the Punjab, Lahore.

**PhD Thesis Research:** Evaluation of SNPs in Cytokine Gene Cluster and Risk of Asthma in Pakistani Children.

**M.Phil Molecular Biology (2014)** University of the Lahore, Lahore, Pakistan.

**M.Phil Thesis Research:** Genetic Association of ADAM33 gene with Asthma disease in Pakistan.

## *Professional, Research & Teaching Experience:*

**Assistant Professor/HoD Percision Genomics Research Lab (August 2021-Continued)**

Centre for Applied Molecular Biology (CAMB), University of the Punjab, Lahore-Pakistan.

Services: Teaching academic courses to M. Phil and Ph.D classes and Research guidance to M.Phil/Ph.D thesis students. Career counseling, Coordinator Creative Club (Student Society CAMB) and Events organizer.

**Member DNA Sequencing/Genotyping (DNA Core) Facility (April 2008-Continued)**

Centre for Applied Molecular Biology (CAMB), University of the Punjab, Lahore-Pakistan.

Services: Commercial and in-house DNA Sequencing/Genotyping and Oligonucleotides synthesis.

**Research Officer (April 2008- July 2021)**

Centre for Applied Molecular Biology (CAMB), University of the Punjab, Lahore-Pakistan.

Services: Molecular Biology Research and commercial services of DNA Sequencing, Genotyping and DNA Oligonucleotides synthesis.

**Member Board of Governors/Academic Advisor (2015- Continued)**

Suffa Islamic School System, Qila Kalarwala, Tehsil Pasrur, Sialkot.

Services: Advisor in staff recruitments, curriculum management and organizing curricular/non-curricular healthy activities.

## *Areas of Interest:*

- Precision Genomics.
- Molecular Genetics, Genetic Association Studies.
- DNA Sequencing and Genotyping.
- Genome based Medical Diagnostics.

***Achievements, Awards and Distinctions:***

- 1- Received International Travel Grant of Rs. 0.30 Million by “University of the Punjab” to attend 45<sup>th</sup> European Cystic Fibrosis Conference-2022, Netherlands.
- 2- International Research Support Scholarship (IRSIP) by HEC for PhD research (2019-20) in University of Toronto, Canada.
- 3- Performance Evaluation Award (Punjab University) 2017, 2018, 2019, 2020
- 4- Research Incentive Award (Punjab University) 2016, 2017, 2019, 2020
- 5- Received International Travel Grant of Rs. 0.25 Million by “University of the Punjab” to attend CHEST Congress-2019, Thailand.

***Research Students Supervised:******M.Phil (02 Years)***

Sr. NO	Student Name	Thesis Title	Session	Status	Notification No.
04	Zohair Mehdi	Evaluation of TSLP gene's SNP against asthma patients in Lahore, Pakistan	2021-22	Completed	
03	Ayesha Mumtaz	Development of Low cost to diagnose $\Delta F508$ Mutation in Cystic Fibrosis Patients	2021-22	Completed	
02	Sadia Anjum	Evaluation of Association of Single Nucleotide Polymorphism rs2495636 in IL-13R $\alpha$ Gene with Asthma	2021-22	Completed	
01	Sundus Aslam	Thymic Stromal Lymphopoietin- A Candidate Gene to Study Asthma Associations	2018-19	Completed	

***Research Projects:***

Sr. NO	Project Title	Fiscal Year	Funding	Status	Funding Organization
02	Analysis of Genomic Variants associated with Asthma disease	2021-22	PKR 0.2 Million	Completed	University of the Punjab, Lhr
01	Genetic association of three SNP variants of ADAM33 gene with asthma patients of Northern Punjab-Pakistan	2015-16	PKR 0.15 Million	Completed	University of the Punjab, Lhr

***Publications:*****Technology/Process development publication**

1. **Ghani MU**, Sabar MF, Awan FI. WS21.03 Low-cost chain termination DNA sequencing PCR reaction to diagnose CFTR gene mutations. Journal of Cystic Fibrosis. 2022;21:S41-S2.
2. **Ghani MU**, Sabar MF, Akram M. Smart approach for cost-effective genotyping of single nucleotide polymorphisms. Kuwait Journal of Science. 2021;48(2):1-11.

## Research Articles

3. **Ghani MU**, Farooq Sabar M, Shahid M, Akram M, Anwar B, Anwar MB. Snp Variants of Il-27 Gene as Genomic Predictors against Effectiveness of Vitamin-D Therapy in Copd Patients. *Chest*. 2021;160(4):A1453.
4. Aslam R, Shahid M, Bano I, Ayoub M, Sabar MF, Altaf S, **Ghani MU**, et al. Major histocompatibility complex class II polymorphic variants are associated with asthma predisposition in the Punjabi population of Lahore, Pakistan. *Clin Respir J*. 2021;15(4):374-81.
5. Khan MU, Sabar MF, Baig AA, Naqvi A-u-N, **Ghani MU**. Forensic and Genetic Characterization of mtDNA Lineages of Shin, a Unique Ethnic Group in Pakistan. *Pakistan Journal of Zoology*. 2020;53(1):133-41.
6. Naeem F, Sabar MF, **Ghani MU**, Ain Q, Zafar QUA. Identification of Diagnostic and Therapeutic Target Genes to Address Asthma Disease in Pakistan. *Chest*. 2020;157(6):A213.
7. Sabar MF, **Ghani MU**, Ramzan K, Hussain M. Whole Exome Sequencing Identifies the Asthma Susceptible Variants in the Punjab Province of Pakistan. *Chest*. 2020;157(6):A17.
8. **Ghani MU**, Sabar MF, Bano I, Shahid M, Akram M, Khalid I, et al. Evaluation of ADAM33 gene's single nucleotide polymorphism variants against asthma and the unique pattern of inheritance in Northern and Central Punjab, Pakistan. *Saudi Med J*. 2019;40(8):774-80.
9. Shahid M, Tayyab U, Kousar S, **Ghani MU**, Sabar MF, Husnain T. Rs153109 as Possible Indicator of Effectiveness of Vitamin D Supplements for Suppressing Copd Symptoms. *Chest*. 2019;155(4):219A.
10. **Ghani MU**, Sabar MF, Bano I, Shahid M, Akram M, Khalid I, et al. Inheritance Pattern of Rs2280089, Rs2280090, Rs2280091 Snp Variants in Punjabi Population and Association with Asthma Disease. *Chest*. 2019;155(4):168A.
11. Sabar MF, Akram M, Awan FI, **Ghani MU**, Shahid M, Iqbal Z, et al. Awareness of Asthma Genetics in Pakistan: A Review with Some Recommendations. *Advancements in Life Sciences*. 2018;6(1):1-10.
12. Sabar MF, Shahid M, Bano I, **Ghani MU**, Akram M, Iqbal F, et al. rs12603332 is associated with male asthma patients specifically in urban areas of Lahore, Pakistan. *The Journal of asthma*. 2017;54(9):887-92.
13. **Ghani MU**, Sabar MF, Shahid M, Awan FI, Akram M. A report on asthma genetics studies in Pakistani population. *Advancements in Life Sciences*. 2017;4(2):33-8.
14. Sabar MF, **Ghani MU**, Shahid M, Sumrin A, Ali A, Akram M, et al. Genetic variants of ADAM33 are associated with asthma susceptibility in the Punjabi population of Pakistan. *The Journal of asthma*. 2016;53(4):341-8.
15. Shahid M, Sabar MF, Bano I, Rahman Z, Iqbal Z, Fatim Ali SS, **Ghani MU**, et al. Sequence variants on 17q21 are associated with the susceptibility of asthma in the population of Lahore, Pakistan. *The Journal of asthma*. 2015;52(8):777-84.
16. Sabar MF, **Ghani MU**, Shahid M, Sumrin A, Ali A, Akram M, et al. Genetic association of ADAM33'S SNP variants with asthma in the population of Lahore region, Pakistan. *Asian Journal of Agriculture and Biology*. 2015;03(Special Issue-2015 ):57.
17. Sabar MF, Awan FI, **Ghani MU**, Shahid M, Yaqub M. Synthesis and bioactivity study of 30KDa linear PEG-interferon and its comparison with tri-branched PEG-interferon. *Journal of the Chemical Society of Pakistan*. 2013;35(1):119-24.
18. Sabar MF, Yaqub M, Khan MA, Ahmad N, **Ghani MU**, Shahid M. Synthesis of a New Tri-Branched PEG-IFN $\alpha$ 2 and Its Impact on Anti Viral Bioactivity. *International Journal of Peptide Research and Therapeutics*. 2010;16(4):239-45.

## *Research Techniques Practical/ Hand-on Trainings:*

- DNA Sequencing/Genotyping on Capillary based ABI sequencers including ABI-3100, ABI-310XL, ABI-3730 and ABI-3730XL.
- Technical troubleshooting of the capillary based Genetic Analyzers.
- Multiplex PCR, Sequencing PCR, SNaPshot PCR, ARMS PCR, RealTime PCR.
- Intensive use of Biological softwares, Biostatistics and Biological Databases for analysis of DNA/RNA/Protein. DNA sequencing & genotyping data analysis using the software like Sequencing Analysis, GeneScan, GeneMapper, Mutation Surveyor, SeqScap, Chromas etc.
- Oligonucleotides synthesis using ABI- 3900 synthesizer and post synthesis processing.
- Installation of Dr.Oligo synthesizers and post synthesis processing.

- Optimization of low-cost DNA extraction processes from different samples.

### *Administrative Experience:*

- Coordinator “Creative Club-CAMB” for 2022-23.
- Secretary/Coordinator to organize social events for CAMB employees.
- Member “BoG” of Suffa Islamic School System, Qila Kalarwala.
- Member purchase committee-CAMB for 2015-16.
- President “Wahdat Blood Donors Society” for 2007.
- Information Secretary “Chemical Society of Government College of Science, Lahore” for 2007.

### *Workshops & Trainings Organized:*

- Organized one day seminar on “**Biosafety Training for Young Researchers**” by joint collaboration of CAMB & American Society of Microbiology on November 29, 2018.
- Organized one day awareness seminar on “**Advances in PCR Technology, Power to detect single copy without standard curve**” by joint collaboration of CAMB & Chemical House Lahore-Pakistan on April 05, 2017.
- Organized one day awareness seminar on “**Lungs and Bronchial Diseases**” on November 17, 2016 in CAMB-University of the Punjab Lahore.

### *Workshops & Trainings Attended Abroad:*

- Three day “CHEST Congress-2019”, organized by American College of Chest Physicians in Bangkok-Thailand on April 10-12, 2019.

### *Workshops & Trainings Attended in Pakistan:*

- Participated in one day training workshop on “**Plagiarism: How do I avoid it? Use of Turnitin**” organized by PITAC on December 18, 2018.
- Participated in one day symposium on “**Industrial Biotech & Biorefining**” organized by CAMB, University of the Punjab on January 01, 2018.
- Participated in first national conference on “**Emerging Trends in Bioinformatics & Biosciences**” organized by Hazara University on July 20-22, 2017.
- Participated in “**2nd Invention to Innovation Summit**” organized by University of Balochistan, Quetta on April 25-26, 2017 to present scientific outputs of CAMB-Punjab University.
- Participated in “**6th Invention to Innovation Summit-2017**” organized by University of the Punjab on March 08-09, 2017 to present scientific outputs of CAMB-Punjab University.
- Participated in “**2nd International Biennial Cardiorespiratory Conference-2017**” organized by Gulab Davi Chest Hospital-Lahore on March 03-05, 2017.
- Participated in three day hands on workshop “**Next Generation Sequencing Data Analysis**” organized by COMSATS Institute of Information Technology-Islamabad on February 01-03, 2017.
- Attended on day seminar and hand-on training on “**Advances in Nucleic Acid Technology**” organized Scientific Supplies (PVT) LTD in collaboration with CAMB. September 01, 2016.
- Participated in one day “**National Workshop on CRISPR/Cas9 Genome Editing Technology**” jointly organized by NAYS and Congress of Molecular Biology on June 02, 2016.
- Attended one day seminar and hand-on training on “**Real time PCR results for Real time patient management**” **28 October 2015** at CAMB, University of the Punjab, Lahore.
- Attended “**4th International Molecular Biology and Biotechnology Congress & Conference on Life Science Research-2015; 04-06 Sept 2015**” arranged by Life Science Society of Pakistan at Al-Nafees Medical College & Hospital, Islamabad, Pakistan.
- Participated in pre-conference workshop on “**How to write an Effective Research Grant**” 04 Sept 2015 at Al-Nafees Medical College & Hospital, Islamabad, Pakistan.
- Workshop on young Researcher’s Skill Development and NAYS Emerging Ideas conference (NAYS-EIC) on 7th January, 2012.

- Attended five day training course entitled “**Advances in Application of Molecular Biology**” organized by Centre of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan from 19-23 December 2011.
- Workshop entitled “**Fluorescent Microscopy: introduction and Application**” organized by Department of Microbiology and Molecular Genetics (MMG), University of the Punjab, Lahore on 24th September 2011.

### *Memberships:*

- Asthma Ambassador of “The Asthma Society of Canada”
- Member of “Asthma Society of Ireland”.
- Member as an advocate for the action center of “Asthma and Allergy Foundation of America (AAFA)”.
- Member of the “National Asthma Patient Alliance- Canada”.
- Junior Member of “European Academy of Allergy and Clinical Immunology” EAACI16338.

### *References:*

Will be furnished when requested