

# MUHAMMAD ADNAN SHEREEN

Ph.D. in Microbiology, HEC Approved Supervisor

Lecturer, Department of Microbiology,

Kohsar University Murree



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**Current Address:** Kohsar university Murree, Kashmir Point, Murree, Pakistan

**Permanent Address:** House #6, Street #1, Amjad Colony Dalazak Road, Peshawar, Pakistan, 25000

## Microbiology / Virology/ Molecular Biology / Immunology Objectives

To explore the respective field of Microbiology, new technologies, and emerging trends in the field of Microbiology for the sake of delivering my knowledge about Microbiology.

### **Research Interest:**

- Microbiology
- Virology
- Molecular Biology
- Immunology
- Innate Immunity
- Animal Modeling
- Cell Biology
- Biomaterials Synthesis
- Host-Pathogen Interaction

### **Projects involved/completed:**

Virology, immunology, Retroviruses, Innate Immunity, Animal modeling, Host-Pathogen Interaction, Exosome's trafficking, Enteroviruses (EV71 virus) Replication and exosomes biogenesis studies.

### **Running project:**

TLRs influence the alteration of brain astrocytic genes upon Zika virus infection in neurodevelopment disorders

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## **Education and Training**

- **Doctor of Philosophy in Microbiology (Virology) (Ph.D.)** (Sept-2017 → Jun-2021)  
State Key Laboratory of Virology, Department of Microbiology, College of Life Sciences, Wuhan University, China

**Dissertation:** “Zika virus dysregulates the expression of astrocytic genes involved in neurodevelopment”

### **Final year projects:**

1. “Zika virus dysregulates the expression of astrocytic genes involved in neurodevelopment”
2. “The TLR3/IRF1/Type III IFN Axis Facilitates Antiviral Responses against Enterovirus Infections in the Intestine”

### **Supervisor: Prof. Dr. Jianguo Wu**

State Key Laboratory of Virology, College of Life Sciences, Wuhan University, China.

Guangdong Key Laboratory of Virology, Department of Medical microbiology, Jinan University, China

- **Master of Philosophy in Microbiology (M.Phil.)** (Sept-2013 → Jun-2015)  
Institute of Basic Medical Sciences, Khyber Medical University, Peshawar, Pakistan

This course provided theoretical and practical knowledge of Pathogens and host interactions, Virology, Different clinical diseases, Immunology, Medical Parasitology, and Molecular Biology.

**Dissertation:** Synthesis and Characterization of Miltefosine Loaded Thiolated Nanoparticles for Leishmaniasis Therapy

### **Supervisor: Prof. Dr. Momin Khan**

Institute of Basic Medical Sciences, Khyber Medical University, Peshawar, Pakistan

- **BS (Hons) Microbiology** (2009 → 2013)  
The University of Peshawar, Pakistan

This course provided theoretical and practical knowledge of Medical Microbiology, Immunology, Virology, Molecular biology, Environmental Microbiology, Parasitology, Cell Biology and Systemic Bacteriology

- **Higher Secondary School Certificate (Pre-Medical)** (2005 → 2007)  
Peshawar Model Degree College, Peshawar, Pakistan

This course provided the basic theoretical knowledge of Biology, Applied sciences and Chemistry

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## Practical Skills and Expertise

- **Scientific Skills:** Excellent scientific and problem-solving skills, especially in Microbiology, Virology, Immunology, and Innate Immunity.
    1. Culturing, Screening, and Morphological/Biochemical identification of different pathogenic microbes from clinical isolates.
    2. Animal Modeling.
    3. Different types of PCRs, blotting assays, ELISA, and other Serological techniques.
    4. DNA, RNA, Protein, and Plasmid extractions.
    5. Transfection and different cell activities including drug activities.
    6. Synthesis of Biomaterials.
    7. Synthesis and Characterization of drug-loaded nanoparticles (Nanomedicine) against different clinical diseases.
  - **Computer and Data Analysis skills:** Competent with MS Office, Excel and PowerPoint used during my research data analysis.
    1. Bioinformatic analysis in preparing RNA sequencing results.
    2. Softwares: DAVID, ImageGP, ToppGene, Heatmapper.
    3. Excellent in technical and research paper writing, and high level of interest in research and development.
  - **Organizational skills and competencies:**
    1. Professionally committed, good communication skills, ability to meet deadlines, enjoy working in a group. Active cooperative and social, responsible, and possess coordination skills
    2. Hands-on experience in Virology, Immunology, and Microbiology related research
    3. Good knowledge of virus-host interaction and host innate immune responses.
  - **Languages:** Pashto (Fluent), English (Fluent), Urdu (Fluent), Punjabi (Fluent), Chinese (basic)
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## Professional Experiences and Educational Projects

- **Lecturer at the University of Haripur**, Haripur, Pakistan (01-october 2021 – till date)  
Teaching different subjects at the department of Microbiology, University of Haripur.
  - Worked as a **Research Associate** in Professor Kailang Wu and Professor Jianguo Wu's lab "State Key Laboratory of Virology" during Ph.D. (2017-2021)
  - **The CSCB Training Course on Mouse Genetics and Phenotyping** (Sept 17-21, 2018)  
This Training Course was organized and hosted by, Model Animal Research center, Nanjing University, China, and Chinese Society for Cell Biology.
  - **Demonstrator at Jinnah Medical College, Peshawar, Pakistan** (Jan 2015-Jan 2016)  
Taught General Bacteriology, Immunology, and Parasitology at the Department of Pathology.
  - **Internee at Govt. Lady Reading Hospital, Peshawar, Pakistan** (Jun 2012– Dec 2012)  
Gained essential field experience as an Internee at Pathology department (Microbiology, Serology, PCR, and ELISA) at Post Graduate Medical Institute, Govt. Lady Reading Hospital, Peshawar, Pakistan
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## Academic Achievements (Awards)

1. Won **Chinese Government Scholarship** under CSC NO. 2016GX42, for my Ph.D. studies (Fully Funded Scholarship) from 2016-2021.
  2. The First Prize Winner in Academic Achievement “**Excellent International Student Scholarship for the Year 2020, Wuhan University**” (Reward and certificate)
  3. Won “**Virology Youth Innovation Award**” for the highest number of publications during Ph.D. 2021 (Reward and certificate)
  4. Stood among one of the “**Wuhan University 8 Outstanding Individuals to Fight against Coronavirus**”. (Certificate)
  5. The First Prize Winner in Academic Achievement “**Excellent International Student Scholarship for the Year 2018**”, Wuhan University. (Reward and certificate)
  6. **The CSCB Training Course on Mouse Genetics and Phenotyping** (September 17-21, 2018). This Training Course was organized and hosted by, Model Animal Research center, Nanjing University, China, and the Chinese Society for Cell Biology (Reward and certificate)
  7. Received “**Acceptance/Invitation Letter for Ph.D. at Huazhong University of Science and Technology in the Department of Biomedical Sciences**”
  8. Received “**Acceptance/Invitation Letter for Ph.D. at Wuhan University in the Department of Microbiology**”
  9. **Stood 2<sup>nd</sup> position holder** in M.Phil. batch. (2013-2015)
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## Management Experience

### **The University of Haripur**

Assistant Controller of Examination

- Conducted internal exam of 300 students at undergraduate level

Program Coordinator

- Planned and implemented workshops, Seminars, program events

**Haripur, Pakistan**

Oct 2021 – March 2022

Oct 2021 – March 2022

## NCBI Submissions (Gene Bank)

Sequence Read Archive (SRA) submission: **BioProject: PRJNA692303**

Titled: Muhammad Adnan Shereen

Project type: Raw sequence Reads

Accession Number:

- **SRR13448311 (Control)**
  - **SRR13448312 (Zika Virus Treated)**
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## **Research Publications**

**(Total IF: 170+ / 5000+ citations)**

1. **Shereen M.A**, Bashir N, Su R, Liu F, Wu KL, Luo Z\*, Wu JG\*, 2021. Zika virus dysregulates the expression of astrocytic genes involved in neurodevelopment. *PLOS Neglected Tropical Diseases* 15(4): e0009362. **(IF: 4.41)**
2. **Shereen M.A**, Bashir N, Khan M.A, Kazmi A, Khan S, Zhen L, Wu J. Covid-19 Management: Traditional Chinese Medicine Vs. Western Medicinal Antiviral Drugs, A Review and Meta-Analysis. *Fresenius Environmental Bulletin*, 30(5), Pp.5537-5549. 2021. **(IF: 0.5)**
3. Tian M.F, Liu W, Li X, Zhao P.Y, **Shereen M.A**, Zhu C, Huang S, Liu S, Yu X, Yue M, Pan P, Wang W, Li Y, Chen X, Wu K, Luo Z, Zhang Q, Wu J. HIF-1 $\alpha$  promotes SARS-COV-2 infection and aggravates inflammatory responses to COVID-19. *Sig Transduct Target Ther* 6, 308 (2021). <https://doi.org/10.1038/s41392-021-00726-w> **(IF: 18. 187)**
4. Yang, Y., Liu, W., Hu, D., Su, R., Ji, M., Huang, Y., **Shereen, M.A.**, Xu, X., Luo, Z., Zhang, Q. and Liu, F., 2020. HIV-1 Nef Interacts with LMP7 To Attenuate Immunoproteasome Formation and Major Histocompatibility Complex Class I Antigen Presentation. *Mbio*, 11(5). **(IF: 7.86)**
5. **Shereen, M.A.**, Khan, S., Kazmi, A., Bashir, N. and Siddique, R., 2020. COVID-19 infection: Emergence, transmission, and characteristics of human coronaviruses. *Journal of advanced research*, 24, pp.91-98. **(IF: 10.47)**
6. Luo Z, Zhu C, Ruan Z, Cui X, **Shereen MA**, Pan P, Huang J, Wang F, Su H, Xia Y, Wu J. Longitudinal Characterization of Cytokine Overproduction: A Case Report in Critically Ill COVID-19 Patients With Hyperinflammation in Bronchoalveolar Lavage. *Frontiers in Medicine*. 2021;8. **(IF: 5.09)**
7. Pan P, Li G, Shen M, Yu Z, Ge W, Lao Z, Fan Y, Chen K, Ding Z, Wang W, Wan P, **Shereen MA**, Luo Z, Chen X, Zhang Q, Lin L, Wu J. DENV NS1 and MMP-9 cooperate to induce vascular leakage by altering endothelial cell adhesion and tight junction. *PLoS Pathog*. 2021 Jul 26;17(7): e1008603 **(IF: 6.82)**
8. Hu D, Wang Y, Li A, Li Q, Wu C, **Shereen MA**, Huang S, Wu K, Zhu Y, Wang W, Wu J. LAMR1 restricts Zika virus infection by attenuating the envelope protein ubiquitination. *Virulence*. 2021 Dec;12(1):1795-1807. **(IF: 5.5)**
9. Khokhar M, **Shereen MA**, Khan M, Khan RU, Sohail A, Khan IU, Khan IU, Khattak S. In vitro efficacy of polymer coated miltefosine drug against leishmania tropica. *Journal of Parasitic Diseases*. 2021 Sep 23:1-1. **(IF: 0.35)**
10. Huang, S.; Wan, P.; Huang, S.; Xiang, Q.; Yang, G.; **Shereen, M.A.**; Pan, P.; Liu, W.; Wu, K.; Wu, J. Anapc10 Orchestrates the NLRP3 Inflammasome Activation during Cell Cycle Control. *Preprints* 2021, 2021020112 (doi: 10.20944/preprints202102. 0112.v1). **(IF: 4.12)**
11. Ullah, H., Sajid, M., Kun, Y., Feng, J., He, M., **Shereen, M.A.**, Li, Q., Xu, T., Hao, R., Deyin, G. and Chen, Y., 2021. Antiviral activity of Interferon alpha-inducible protein 27 against Hepatitis B virus gene expression and replication. *Frontiers in Microbiology*, 12, p.552. **(IF: 5.64)**
12. Sajid, M., Ullah, H., Yan, K., He, M., Feng, J., **Shereen, M.A.**, Hao, R., Li, Q., Guo, D., Chen, Y. and Zhou, L., 2021. The Functional and Antiviral Activity of Interferon Alpha-Inducible IFI6 Against Hepatitis B Virus Replication and Gene Expression. *Frontiers in Immunology*, 12, p.1028. **(IF: 7.56)**
13. Khan S, Siddique R, Huanfei D, **Shereen MA**, Nabi G, Bai Q, Manan S, Xue M, Ullah MW, Bowen H. Perspective applications and associated challenges of using nanocellulose in treating bone-related diseases. *Frontiers in Bioengineering and Biotechnology*. 2021 May 7; 9:350. **(IF: 5.89)**
14. Su, R., **Shereen, M.A.**, Zeng, X., Liang, Y., Li, W., Ruan, Z., Li, Y., Liu, W., Liu, Y., Wu, K. and Luo, Z., 2020. The TLR3/IRF1/Type III IFN Axis Facilitates Antiviral Responses against Enterovirus Infections in the Intestine. *Mbio*, 11(6). **(IF: 7.86)**

15. Tian, M., Liu, W., Zhang, Q., Huang, Y., Li, W., Wang, W., Zhao, P., Huang, S., Song, Y., **Shereen, M.A.** and Qin, M., 2020. MYSM1 Represses Innate Immunity and Autoimmunity through Suppressing the cGAS-STING Pathway. *Cell Reports*, 33(3), p.108297. **(IF: 9.42)**
16. Duan, P., Khan, S., Ali, N., **Shereen, M.A.**, Siddique, R., Ali, B., Iqbal, H.M., Nabi, G., Sajjad, W. and Bilal, M., 2020. Biotransformation fate and sustainable mitigation of a potentially toxic element of mercury from environmental matrices. *Arabian Journal of Chemistry*, 13, pp.6949-6965. **(IF: 5.16)**
17. Khan, S., Siddique, R., **Shereen, M.A.**, Ali, A., Liu, J., Bai, Q., Bashir, N. and Xue, M., 2020. Emergence of a novel coronavirus, severe acute respiratory syndrome coronavirus 2: biology and therapeutic options. *Journal of clinical microbiology*, 58(5). **(IF: 5.94)**
18. Liu, R., Liu, X., Yuan, L., Han, H., **Shereen, M.A.**, Zhen, J., Niu, Z., Li, D., Liu, F., Wu, K. and Luo, Z., 2020. Analysis of adjunctive serological detection to nucleic acid test for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection diagnosis. *International immunopharmacology*, 86, p.106746. **(IF: 4.93)**
19. Zhu, C., Liu, W., Su, H., Li, S., **Shereen, M. A.**, Lv, Z., Niu, Z., Li, D., Liu, F., Luo, Z., & Xia, Y. (2020). Breastfeeding Risk from Detectable Severe Acute Respiratory Syndrome Coronavirus 2 in Breastmilk. *The Journal of infection*, 81(3), 452–482. **(IF: 6.07)**
20. Khan, S., Siddique, R., Li, H., Ali, A., **Shereen, M. A.**, Bashir, N., & Xue, M. (2020). Impact of coronavirus outbreak on psychological health. *Journal of Global Health*, 10(1). **(IF: 4.41)**
21. Khan, S., Siddique, R., Ali, A., Bai, Q., Li, Z., Li, H., **Shereen, M.A.**, Xue, M. and Nabi, G., 2020. The spread of novel coronavirus has created an alarming situation worldwide. *Journal of infection and public health*, 13(4), p.469. **(IF: 3.71)**
22. Wang, W., Hu, D., Feng, Y., Wu, C., Li, A., Wang, Y., Cheng, K., Tian, M., Xiao, F., Zhang, Q. and **Shereen, M.A.**, 2020. STING promotes NLRP3 localization in ER and facilitates NLRP3 deubiquitination to activate the inflammasome upon HSV-1 infection. *PLoS pathogens*, 16(3), p.e1008335. **(IF: 6.82)**
23. Khan, S., Nabi, G., Han, G., Siddique, R., Lian, S., Shi, H., Bashir, N., Ali, A. and **Shereen, M.A.**, 2020. Novel coronavirus: how things are in Wuhan. *Clinical Microbiology and Infection*, 26(4), p.399. **(IF: 8.06)**
24. Siddique, R., Bai, Q., **Shereen, M.A.**, Nabi, G., Han, G., Rashid, F., Ahmed, S., Benzhanova, A., Xue, M. and Khan, S., 2020. Evidence and speculations: vaccines and therapeutic options for COVID-19 pandemic. *Human Vaccines & Immunotherapeutics*, pp.1-9. **(IF: 3.45)**
25. Luo Z, Su R, Wang W, Liang Y, Zeng X, **Shereen MA**, et al. (2019) EV71 infection induces neurodegeneration via activating TLR7 signalling and IL-6 production. *PLoS Pathog* 15(11): e1008142. **(IF: 6.82)**
26. Luyao S, Wenbiao W, Aixin i, Pinan, Weiyong L, **Shereen MA**, et al. (2019). SUMO1 SUMOylates and SENP3 DeSUMOylates NLRP3 to Orchestrate the Inflammasome Activation. *SSRN Electronic Journal*, DOI: 10.2139/ssrn.3275284. **(IF: 5.19)**
27. Pan P, Zhang Q, Liu W, Wang W, Yu Z, Lao Z, Zhang W, Shen M, Wan P, Xiao F, **Shereen MA**, Zhang W, Tan Q, Liu Y, Liu X, Wu K, Liu Y, Li Gand Wu J (2019) Dengue Virus Infection Activates Interleukin-1 $\beta$  to Induce Tissue Injury and Vascular Leakage. *Front. Microbiol.* 10:2637 **(IF: 5.64)**
28. Shereen, M. I., Shah, M., Siraj, S., Ali, M., Kazmi, A., & **Shereen, M. A.** (2020). Association of Vitamin D and its Receptor (VDR) Gene Single Nucleotide Polymorphism (Apal and Taql) with Risk of Psoriasis. *Annals of Jinnah Sindh Medical University*, 6(2), 37-43. (HEC recognized "Y"; ISSN: 2523-1316)
29. Asnad, Afridi M.T.I, Tahir M, **Shereen M.A.** 2014. Placebo-Controlled Trail of Pharmaceutical Optimized Lisinopril 10mg (F-5) in Patients with Essential Hypertension for Efficacy and biochemical Evaluation. *Medical Forum*, vol. 25(12): 11-14. (HEC recognized "Y"; Switzerland, ISSN: 1029-385X)

30. Afridi M.T.I, Chaudary I.A, Shereen M.I, Asnad, **Shereen M.A.** 2014. Outcome of Internal Fixation of Fractures in a Tertiary Care Hospital Peshawar. Medical Forum, vol. 25(12): 172-176. (HEC recognized "Y"; Switzerland, ISSN: 1029-385X)
31. **Shereen, M.A.**, Ullah, H., Khan, S., Bashir, N., Kazmi, A., Saif, K. and Qudus, M.S., 2020. COVID-19 around the world and the Chinese strategy to cope with SARS-CoV-2. Biomedical Research and Therapy, 7(7), pp.3890-3897.
32. **Shereen, M.A.** and Kazmi, A., 2020. SARS-CoV-2 pandemic: causes and current situation, historical lessons, and strategical therapeutic interventions. Biomedical Research and Therapy, 7(5), pp.3807-3812.
33. Bashir, N., **Shereen, M. A.**, Kazmi, A., Sajid, M., & Ullah, H. (2020). A retrospective analysis of pyogenic liver abscess and antibiotic resistivity of common pathogens in Peshawar. Biomedical Research and Therapy, 7(12), 4190-4196.

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### **Technical Reports and Presentations**

1. **"Zika virus can alter brain cortical cells (astrocytes)"** presented at College of Life Sciences, Wuhan University, China.
2. **"Enteroviruses can replicate in Neural cells"** presented at College of Life Sciences, Wuhan University, China.
3. **"TLR7 induces dysregulation of glial cells (astrocytes) upon Zika virus infection"** presented at College of Life Sciences, Wuhan University, China.
4. Master of Philosophy thesis seminar entitled **"Synthesis and Characterization of Miltefosine Loaded Thiolated Nanoparticles for Leishmaniasis Therapy"** presented in IBMS, Khyber Medical University.

### **Conference/Seminars/Work Shops: Organized /Attended**

- International Workshop on **"Biosafety Laboratory Management and Techniques"** (December 16-17<sup>th</sup>,2021) Wuhan, China, organized by Wuhan Institute of Virology, Chinese Academy of Sciences.
- Successfully organized a workshop on **"Applications of Biostatistics in Life Sciences Research Based Data"** (January 18<sup>th</sup>, 2022) organized by Department of Microbiology, The University of Haripur.
- Shared knowledge and expertise as a **Guest Speaker** during the workshop entitled **"Synopsis Writing"** (November 12<sup>th</sup>, 2021) organized by Department of Microbiology, Jinnah University for Women, Karachi.
- Successfully organized a **"one Day Dengue Awareness Campaign"** (December 30<sup>th</sup>, 2021) organized by Department of Microbiology, The University of Haripur.
- Successfully organized a seminar on **"Emotional Resilience: A step forward to optimize self-awareness self-control and performance"** (November 4, 2021) organized by Department of Microbiology, The University of Haripur.
- Successfully organized a workshop on **"Hands on training, Application of Real time PCR in the Era of Molecular Diagnosis"** (October 13-15<sup>th</sup>, 2021), organized by Department of Microbiology, The University of Haripur.
- Successfully organized a workshop on **"Curriculum Vitae Composition Skills"** (October 5<sup>th</sup>, 2021), organized by Department of Microbiology, The University of Haripur.
- Participated in a workshop on **"Curriculum Vitae Composition Skills"** (October 5<sup>th</sup>, 2021), organized by Department of Microbiology, The University of Haripur.
- International Workshop on **"Biosafety Laboratory Management and Techniques"** (December 17-18<sup>th</sup>,2020) Wuhan, China, organized by Wuhan Institute of Virology, Chinese Academy of Sciences.

- **The CSCB Training Course on Mouse Genetics and Phenotyping** (September 17-21, 2018). This Training Course was organized Cell and hosted by, Model Animal Research center, Nanjing University, China, and the Chinese Society for Biology
- **2 Days workshop on Recent Advances and New Horizons in Chemistry (Nanotechnology and Chromatography techniques)** organized by the National Center of Excellence in Physical Chemistry, the University of Peshawar on April 6-7, 2015.
- **National Workshop on Hepatitis C**, organized by Department of Microbiology on 6<sup>th</sup> March 2008 at KUST Kohat.
- **International Workshop on Biotechnology for Development** organized by department of Biotechnology and Genetic Engineering on March 4<sup>th</sup> -5<sup>th</sup> 2008 at KUST Kohat.
- **3<sup>rd</sup> One Day Workshop on Young Researchers Skill Development and Muslim Scientists Day Poster Exhibition** organized by NAYS on March 10<sup>th</sup>, 2012 at agriculture university Peshawar.
- **One Day Workshop on Minds to Market**, 1<sup>st</sup> December 2012 organized by NAYS at COMSATS institutes of information and technology Abbottabad.
- **NAYS Science Forum** 2013 held at the University of Peshawar on 9<sup>th</sup> April 2013, organized by NAYS.
- **A Public health campaign** at Peshawar University on 16<sup>th</sup> March 2012 organized by Asian Medical Students Association Pakistan.

### Students Under Supervision

S.NO	Student Names	Program	Status
1.	Kamila Yaseen	BS Honors	In Progress
2.	Talha Obaid	BS Honors	In Progress
3.	Aatika	BS Honors	In Progress
4.	Kiran	BS Honors	In Progress

### References

- **Prof. Jianguo Wu**, Professor, State Key Laboratory of Virology, College of Life Sciences, Wuhan University, China.  
Email: [jwu@whu.edu.cn](mailto:jwu@whu.edu.cn) Contact: +86-13807107795
- **Prof. Luo Zhen**, Assistant Professor, Guangdong Key Laboratory of Virology, Department of Medical microbiology, Jinan University, China,  
Email: [lz88mvp@163.com](mailto:lz88mvp@163.com) Contact: +86-13627222364
- **Prof. Dr. Jawad Ahmad**, Director IBMS, Khyber Medical University, Peshawar, Pakistan  
Email: [j6ahmed@yahoo.com](mailto:j6ahmed@yahoo.com) Contact: +92-91-9217838
- **Prof. Momin Khan**, Assistant Professor, IBMS, Khyber Medical University, Peshawar, Pakistan  
Email: [mominkhan.ibms@kmu.edu.pk](mailto:mominkhan.ibms@kmu.edu.pk) Contact: +92-3479803912