CURRICULUM VITAE

Dr. Muhammad Badar

Associate Professor

Gomal Center of Biochemistry and Biotechnology

Gomal University

Dera Ismail Khan

PAKISTAN

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Looking for a challenging and growth-oriented opportunity in a dynamic environment, which will give me a chance to explore my complete potential and capabilities.

Higher Education Commission (HEC) Approved Supervisor

Education

2008-2012	PhD in Molecular Biotechnology from Helmholtz Center for Infection Research, Braunschweig, Germany.
2006-2008	M. Phil in Biotechnology from National Institute for Biotechnology & Genetic Engineering (NIBGE), Faisalabad, Quaid-i-Azam University, Islamabad. Pakistan.
2000-2004	Doctor of Veterinary Medicine (DVM) from Gomal University, Dera Ismail Khan, Pakistan.
1996-1998	Higher Secondary School Certificate from Higher Secondary School Paroa, Dera Ismail Khan, Pakistan.
1995	Secondary School Certificate from Higher Secondary School Paroa, Dera Ismail Khan, Pakistan.

Academic and Professional Experience

May 2023 – to date:	**Associate Professor (BPS-20)*** at Gomal Center of Biochemistry and Biotechnology (GCBB), Gomal University, Dera Ismail Khan, on regular basis.
Dec 2021 – Nov 2022:	**Principal** University WENSAM College (Gomal University), Dera Ismail Khan.
Sept 2020 – to March 2022:	**Coordinator** International Program Office (IPO), Gomal University, Dera Ismail Khan.
July 2016 – to July 2017:	**Chairman** Transport Committee, Gomal University, Dera Ismail Khan.
April 2015 – to May 2021:	**Director** Gomal Center of Biochemistry and Biotechnology (GCBB), Gomal University, Dera Ismail Khan.
April 2014 – to May 2023:	**Assistant Professor (BPS-19)*** at Gomal Center of Biochemistry and Biotechnology (GCBB), Gomal University, Dera Ismail Khan, on regular basis.
Nov 2014 – to Oct 2017:	**Internal Controller of Exams** Gomal Center of Biochemistry and Biotechnology (GCBB), Gomal University, Dera Ismail Khan.
Dec 2012 – Dec 2013:	**Post-Doctoral Scientist** at Helmholtz Center for Infection Research, Braunschweig, Germany.
March 2007 – April 2014:	**Lecturer (BPS-18)*** at Gomal College of Vet. Sciences, Gomal University, Dera Ismail Khan, on regular basis.
Oct 2004 – Feb 2006:	**Lecturer (BPS-17)*** at Gomal College of Vet. Sciences, Gomal University, Dera Ismail Khan, on contract basis.

*BPS: Basic Pay Scale

Awards, Distinctions and Major Achievements

- Established the second largest COVID-19 diagnostic lab in KPK Province, 2020.
- Award of recognition (NRPU) 2018-19 from Directorate of ORIC, Gomal University, D. I. Khan. 2019.
- Developed curricula for MPhil and PhD programs in Biochemistry at Gomal University, D. I. Khan, 2016.
- Started MPhil and PhD programs in Biochemistry at Gomal University, D. I. Khan, 2016.
- Higher Education Commission and Deutscher Akademischer Austausch Dienst (DAAD) scholarship for PhD in Germany, 2008
- Gold Medal in Doctor of Veterinary Medicine, 2004.
- Certificate of Honour by Gomal University for 1st Position in Academics, 2004
- Certificate of Honour by Gomal University for 1st Position in Academics, 2003

Publications

1. Akbar, M. U., Khattak, S., Khan, M. I., Saddozai, U. A. K., Ali, N., Al-Asmari, A. F., Zaheer, M.* and **Badar, M.*** (2023) A pH-responsive bi-MIL-88B MOF coated with folic acid-conjugated chitosan as a promising nanocarrier for targeted drug delivery of 5-Fluorouracil. Frontiers in Pharmacology 14, 1265440. **(IF: 5.6)**
   *Corresponding authors
2. Cunha, A. R. et. al. (2023) The Global, Regional, and National Burden of Adult Lip, Oral, and Pharyngeal Cancer in 204 Countries and Territories: A Systematic Analysis for the Global Burden of Disease Study 2019. JAMA Oncology, DOI:10.1001/jamaoncol.2023.2960. **(IF: 28.4)**

3. Wunrow, H. Y. et. al. (2023) Global, regional, and national burden of meningitis and its aetiologies, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. The Lancet Neurology 22(8): 685-711. **(IF: 48)**

4. Ong, K. L. et. al. (2023) Global, regional, and national burden of diabetes from 1990 to 2021, with projections of prevalence to 2050: a systematic analysis for the Global Burden of Disease Study 2021. The Lancet. DOI: https://doi.org/10.1016/ S0140-6736(23)01301-6. **(IF: 202.7)**

5. Hashmi, H. B., Farooq, M. A., Khan, M. H., Alshammari, A., Aljasham, A. T, Rashid, S. A., Khan, N. R., Hashmi, I. B, **Badar, M.**,* and Mubarak, M. S.* (2023) Collaterally sensitive β-lactam drugs as an effective therapy against the pre-existing Methicillin Resistant *Staphylococcus aureus* (MRSA) biofilms. Pharmaceuticals 16(687). **(IF: 5.215)**
*Corresponding authors

6. Ikuta, K. S. et al. (2022) Global mortality associated with 33 bacterial pathogens in 2019: a systematic analysis for the Global Burden of Disease Study 2019. The Lancet 400(10369): 2221-2248. **(IF: 202.7)**

7. Khalid, A., Imran, M., Ali, A., Muzammil, S., **Badar, M.**, Hayat, S and Malik, I. R. (2022) Molecular Marker (PCR-RFLP) Assisted Identification of Meat Species by Mitochondrial Cytochrome C Oxidase Subunit I (COI) Gene. Journal of Animal & Plant Sciences 32(6). **(IF: 0.570)**

8. Kyu, H. H. et al. (2022) Age-sex differences in the global burden of lower respiratory infections and risk factors, 1990-2019: results from the Global Burden of Disease Study 2019. The Lancet Infectious Diseases 22(11): 1626-1647. **(IF: 71.421)**

9. Saddozai, U. A. K., Wang, F., Khattak, S., Akbar, M. U., **Badar, M**., Khan, N. H., Zhang, L., Zhu, W., Xie, L., Li, Y., Ji, X and Guo, X. (2022) Define the Two Molecular Subtypes of Epithelioid Malignant Pleural Mesothelioma. Cells 11(18): 2924. **(IF: 7.6)**

10. Akbar, M. U., **Badar, M.*** and Zaheer, M.* (2022) Programmable Drug Release from a Dual-Stimuli Responsive Magnetic Metal-Organic Framework. ACS Omega 7(36): 32588-32598. **(IF: 4.132)**
*Corresponding authors

11. Tran, K. B. et al. (2022) The global burden of cancer attributable to risk factors, 2010-19: a systematic analysis for the Global Burden of Disease Study 2019. The Lancet 400 (10352): 563-591. **(IF: 202.7)**

12. Albarqi, H. A., Alqahtani, A. A., Ullah, I. Khan, N. R., Basit, H. M., Iftikhar, T., Wahab, A., Ali, M and **Badar, M.** (2022) Microwave-Assisted Physically Cross-Linked

Chitosan-Sodium Alginate Hydrogel Membrane Doped with Curcumin as a Novel Wound Healing Platform. AAPS PharmSciTech 23: 72. **(IF: 4.026)**

13. Kattan, S. W., Nafie, M. S., Elmgeed, G. A., Alelwani, W., **Badar, M.**, Tantawy, M. A. (2020) Molecular docking, anti-proliferative activity and induction of apoptosis in human liver cancer cells treated with androstane derivatives: Implication of PI3K/AKT/mTOR pathway. Journal of Steroid Biochemistry and Molecular Biology. 198: 105604 **(IF: 5.011)**

14. Saddozai, U. A. K., Wang, F., Lu, Z., Xie, L., Yan, Z., Khattak, S., Akbar, M. U., **Badar, M.,** Zhu, W., Ji, X., Cuo, X. (2019) Prognostic biomarkers, pathogenic studies and treatment of Merkel Cell Carcinoma. Journal of Advances in Health. 01: 221

15. Saddozai, U. A. K., Khattak, S., Abbas, A., Khan, F. A., Wu, D. D., Ji, X. Y., He, F., Akbar, M. U., **Badar, M.**, Khan, M. A. (2019) PCNP is a Novel Regulator of Neuroblastomas Cancer. Journal of Clinical Neurology and Neurosurgery. 2: 106

16. Muzammal, M., Zubair, M., Bierbaumer, S., Blatterer, J., Graf, R., Gul, A., Abbas, S. **Badar, M.**, Abbasi, A., Khan, M. A., Windpassinger, C. (2019). Exome sequence analysis in consanguineous Pakistani families inheriting Bardet Biedle syndrome determined founder effect of mutation c.299delC (p.Ser100Leufs*24) in BBS9 gene. Molecular Genetics & Genomic Medicine. 7: e834 **(IF: 2.98)**

17. Ullah, I., Ahmad, W., Shah, A. A., Shahzada, A., Tahir, Z., Qazi, O., Hasan, F., Ayub, N., **Badar, M.**, Butt, Z. A., Basit, S. (2019). Detection of rifampicin resistance of Mycobacterium tuberculosis using multiplex allele specific polymerase chain reaction (MAS-PCR) in Pakistan. Infection, Genetics and Evolution. 71: 42-46 **(IF: 4.393)**

18. Akbar, M. U., Saadullahkhattak., Saddozai, U. A. K., Ahmad, R., **Badar, M.**, Zaman, S., Daud, M., Ali, I., Ahmad, W. (2018) Antibacterial activity of *Azadirachta indica* and *Citrullus colocynthis* against different microorganisms. Int J Biosci. 12(6):85-90

19. Hameed, S., Ullah, I., Mahmood, N., Ullah, A., Chaudhry, M. N., Ahmad, W., Rehman, M. A., Khan, M. A., **Badar, M.** (2017) Pattern of drug resistance in multi drug resistant tuberculosis patients in Punjab, Pakistan. Int J Biosci. 11(1):372-379

20. Lipps, C.*, **Badar, M.***, Butueva, M.*, Dubich, T., Singh, V. V., Rau, S., Weber, A., Kracht, M., Köster, M., May, T., Schulz, T., Hauser, H. and Wirth, D. (2017) Proliferation status defines functional properties of endothelial cells. Cell Mol Life Sci. 74(7): 1319-1333. **(IF: 9.207)**
    *Equal contribution

21. Gul, H., Ali, M. Z., Khan, E., Zubair, M., **Badar, M.**, Khan, S., Shah, A. H. and Khan, M. A. (2017) Ophthalmo-genetic analysis of Pakistani patients with nonsyndromic oculocutaneous albinism through whole exome sequencing. J Pak Med Assoc. 67(5):790-792 **(IF: 1.002)**

22. Khan, M.A., Windpassinger, C., Ali, M.Z., Zubair, M., Gul, H., Abbas, S., Khan, S., **Badar, M.**, Mohammad, R.M. and Nawaz, Z. (2017) Molecular genetic analysis of consanguineous families with primary microcephaly identified pathogenic variants in the ASPM gene. J Genet. 96(2): 383-387 **(IF: 1.508)**

23. Khan, M. A., Khan, S., Windpassinger, C., **Badar, M.**, Nawaz, Z. and Mohammad, R. M. (2016) The Molecular Genetics of Autosomal Recessive Nonsyndromic Intellectual Disability: a Mutational Continuum and Future Recommendations. Ann Hum Genet. 80(6): 342-368. **(IF: 2.18)**

24. **Badar, M.**, Kieke, M., Rahim, M.I., Rohde, M., Ebel, T., Behrens, P., Hauser, H., Mueller, P.P. (2015) Controlled drug release from antibiotic loaded layered double hydroxide coatings on porous titanium implants in a mouse model. Journal of Biomedical Materials Research: Part A, 103(6): 2141-2149. **(IF: 4.854)**

25. Duda, F., Kieke, M., Waltz, F., Schweinefuß, M.E., **Badar, M.**, Müller, P.P., Esser, K-H., Lenarz, T., Behrens, P., Prenzler, N.K. (2015) Highly biocompatible behaviour and slow degradation of a LDH (Layered Double Hydroxide)-coating on implants in the middle ear of rabbits. J Mater Sci Mater Med. 26(1): 5334. **(IF: 4.727)**

26. Buttler, K., **Badar, M.**, Seiffart, V., Laggies, S., Gross, G., Wilting, J., Weich. H. (2014) De novo hem- and lymphangiogenesis by endothelial progenitor and mesenchymal stem cells in immunocompetent mice. Cellular and Molecular Life Sciences. 71(8): 1513-1527. **(IF: 9.207)**

27. Peuster, M., Arnold, S., Hassel, T., Meyer-Lindenberg, A., Hauser, H., Bach, F. W., **Badar, M.**, Drynda, A and Mueller, P. P. (2013) A novel murine model for the in vivo assessment of corrodible cardiovascular implants: Determination of iron implant degradation kinetics, corrosion product localization, and transcriptional response after implantation of iron tubes in the tail vein of the mice. Catheterization and Cardiovascular Interventions. 81(1):195–196. **(IF: 2.60)**

28. Kieke, M.D., Weizbauer, A., Duda, F., **Badar, M.**, Budde, S., Flörkemeier, T., Diekmann, J., Prenzler, N., Rahim, M.I., Müller, P.P., Hauser, H., Behrens, S., Dellinger, P., Möhwald, K., Lenarz, T., Windhagen, H., Behrens, P. (2013) Evaluating a Novel Class of Biomaterials: Magnesium-Containing Layered Double Hydroxides. Biomed Tech (Berl). DOI: 10.1515/bmt-2013-4072. **(IF: 1.65)**

29. Reifenrath, J., **Badar, M.**, Dzuiba, D., Müller, P. P., Heidenblut, T., Bondarenko, A., Lindenberg, A.M. (2013) Assessment of cellular reactions to magnesium as implant material in comparison to titanium and to glyconate using the mouse tail model. J Appl Biomater Funct Mater. 11(2): 89-94. **(IF: 2.744)**

30. Ehlert, N., Lüßenhop, T., Krueger, I., Feldhoff, A., **Badar, M.**, Mueller. P. P., Sieve, M., Lenarz, T., Behrens, P. (2013) Nanoporous silica coatings on implant surfaces: characterization, stability, biocompatibility and drug release properties. BioNanoMaterials. 14(1-2): 89-100.

31. **Badar, M.**, Lünsdorf, H., Evertz, F., Rahim, M.I., Glasmacher, B., Hauser, H., Mueller, P.P. (2013) Formation of an organic coat and release of corrosion microparticles from metallic magnesium implants. Acta Biomaterialia 9(7): 7580-7589. **(IF: 10.633)**

32. Hesse, D., **Badar, M.**, Bleich, A., Smoczek, A., Glage, S., Kieke, M., Behrens, P., Müller, P.P., Esser, KH., Stieve, M., Prenzler, NK. (2013) Layered double hydroxides as efficient drug delivery system of ciprofloxacin in the middle ear: an animal study in rabbits. J Mater Sci Mater Med. 24(1): 129-136. **(IF: 4.727)**

33. Alious, P., Reich, U., Fadeeva, E., **Badar, M.**, Mueller, P.P., Warnecke, A., Chichkov, B., Lenarz, T., Reuter, G. (2013) Evaluation of single-cell force spectroscopy and fluorescence microscopy to determine cell interactions with femtosecond-laser microstructured titanium surfaces. Journal of Biomedical Materials Research: Part A 101(4): 981-990. **(IF: 4.854)**

34. Mueller, P.P., Arnold, S., **Badar, M.**, Drynda, A., Meyer-Lindenberg, A., Hauser, A., Peuster, M. (2012) Histological and molecular evaluation of iron as degradable medical implant material in a murine animal model. Journal of Biomedical Materials Research: Part A 100(11): 2881-2889. **(IF: 4.854)**

35. Wöhl-Bruhn, S., **Badar, M.**, Bertz, A., Tiersch, B., Koetz, J., Menzel, H., Mueller, P.P., Bunjes, H. (2012) Comparison of in vitro and in vivo protein release from hydrogel systems. Journal of Controlled Release 162(1): 127-133. **(IF: 11.467)**

36. Ehlert, N.*, **Badar, M.***, Christel, A., Stieve, M., Lenarz, T., Mueller, P.P., Behrens, P. (2011) Mesoporous Silica Coatings for Controlled Release of Ciprofloxacin from Implants. Journal of Materials Chemistry 21: 752-760. **(IF: 14.511)**
    *Equal contribution

37. Schniedermann , J., Rennecke, M., Richter, G., Städtler, A. M., Buttler, K., Norgall, S., **Badar, M.**, Barleon, B., May, T., Wilting, J., Weich, H. A. (2010) Mouse lung contains endothelial progenitors with high capacity to form blood and lymphatic vessels. BMC Cell Biology 11:50. **(IF: 4.241)**

38. **Badar, M.**, Hemmen, K., Nimtz, M., Stieve, M., Stiech, M., Lenarz, T., Hauser, H., Vogt, S., Schnabelrauch, M., Möllmann, U., Mueller, P.P. (2010) Evaluation of Madurahydroxylactone as a slow release antibacterial implant coating. The Open Biomedical Engineering Journal 4: 263-270.

39. **Badar, M.**, Stieve, M., Möllmann, U., Schnabelrauch, M., Stiesch, M., Lenarz, T., Hauser, H., Mueller, P. P. (2010) Comparison of in vitro and in vivo test systems for controlled antibiotic-releasing medical implant coatings. Biomaterialien 11: 102

40. Lüßenhop, T., Ehlert, N., Kufelt, O., Vogt, C., Kittel, S., **Badar, M.**, Mueller, P. P., Behrens, P. (2010) Silver release and antimicrobial properties of silver sodalites and silver zeolite A. Biomaterialien 11: 101

Patents

1. Title: Artificial intelligence device for prediction of diabetes.

   Inventors: Chinnam, S., Farid, A., Ullah, A., **Badar, M.**, Al Mohaini, M. A., Lakkaboyana, S. K., Mushtaq, S., Alsalman, A. J., Khan, A., Al Hawaj, M. A., Almuhaini, R. A., Ramaiah, M. S.

   Status: Granted on 14 August, 2023

   Patent number: 6301395

   Patent office: UK

   Web link: https://www.registered-design.service.gov.uk/find/6301395

2. Title: Portable ultrasonic device for the development of nanoemulsions.

   Inventors: Chinnam, S., Madhu, G. M., Farid, A., Chidambaram, K., Ullah. A., **Badar, M**., Al mohaini, M. A., Alsalman, A. J., Al Hawaj, M. A., Almuhaini, R. A.

   Status: Granted on 7 August, 2023

   Patent number: 202023103892

   Patent office: Germany

Web link: https://register.dpma.de/DPMAregister/pat/register?AKZ=2020231038921

Books and Book Chapters

1. Akhlaq, M., Babar, Z. U., Ajaz, M., Khan, M. A., Kilinc, E., Adeel, M., **Badar, M.**, Nawaz, A., Jalil, A. (2022) Covid-19 Pandemic and Coronaviruses from Discovery to Treatment: A Tale of Two Decades of 21st Century. In: Azar A.T., Hassanien A.E. (eds) Modeling, Control and Drug Development for COVID-19 Outbreak Prevention. "Studies in Systems, Decision and Control", vol 366. Springer, Cham. https://doi.org/10.1007/978-3-030-72834-2_30.

Conferences, Colloquia and Symposia

1. Organized the International Conference on Life Sciences, Gomal University, Dera Ismail Khan, Pakistan (2023) (Role: Coordinator).

2. Asian Federation of Biotechnology Symposium on Advances in Biotechnology towards Circular Economy, Government College University, Faisalabad, Pakistan (2023) (Role: Founding Member of AFOB).

3. International Symposium on Mental Health and Stress Management, Virtual University, Lahore, Pakistan (2020). (Role: Participant).

4. **Badar, M.**, Khan, M. A., Rashid, A., Gul, H., Khan, M. A. The heterozygosity and allelic diversification of microsatellite markers in Khyber Pakhtoonkhuwa population; a forensic science study. Directorate of Science and Technology Expo, Peshawar, Pakistan (2015).

5. Kieke, M. D. K., Weizbauer, A., Duda, F., Rahim, M. I., Dellinger, P., Budde, S., Flörkemeier, T., Diekmann, J., Prenzler, N. K., **Badar, M.**, Müller, P. P., Hauser, H., Behrens, S., Möhwald, K., Bach, F. W., Lenarz, T., Windhagen, H., Behrens, P. On the Applicability of Magnesium-containing Layered Double Hydroxides (Mg-LDHs) as Novel Implant Coating Materials. 26th Annual Conference of the European Society for Biomaterials (ESB), Liverpool, UK (2014).

6. Wöhl-Bruhn, S., **Badar, M.**, Bertz, A., Menzel, H., Müller, P.P., Bunjes, H. Hydrogel drug delivery systems for the controlled release of antibodies – Release studies in vitro and in vivo. 8th World Meeting on Pharmaceutics, Biopharmaceutics and Pharmaceutical Technology, Istanbul, Turkey (2012).

7. Lüßenhop, T., Besd, S., Doniga-Crivat, L., Wriggers, P., Mueller, P.P., **Badar, M.**, Behrens, P. Anpassung der mechanischen Eigenschaften von Silicon für den Einsatz im Mittelohr. DGBM, Hamburg, Germany (2012).

8. Lüßenhop, T., Kufelt, O., **Badar, M.**, Mueler, P.P., Behrens, P. Polymer based antibacterial coatings for biomedical applications. Hybrid Materials, Strasbourg, France (2011).

9. **Badar, M.**, Kieke, M., Mueller, P.P., Behrens, P., Stieve, M., Windhagen, H., Möhwald, K., Hauser, H. Evaluation of layered double hydroxides as controlled drug release implant coatings. Jahrestagung Deutsche Gesellschaft für Biomatialien (DGBM), Gießen, Germany (2011).

10. Aliuos, P., Fadeeva, E., **Badar, M.**, Müller, P.P., Chichkov, B., Lenarz, T., Reuter, G., Reich, U. Investigation of the cell adhesion force on micro/nano-structured surfaces. Jahrestagung Deutsche Gesellschaft für Biomatialien (DGBM), Gießen, Germany (2011).

11. Kieke, M., **Badar, M.**, Behrens, P., Bach, F. W., Mueller, P.P., Behrens, P. Evaluating Layered Double Hydroxides as a Novel Biomaterial. Jahrestagung Deutsche Gesellschaft für Biomatialien (DGBM), Gießen, Germany (2011).

12. Buttler, K., Hemmen, K., Reinl, T., **Badar, M.**, Schniedermann, J., Wilting, J., Weich, H.A. In vitro and in vivo potential of bipotent endothelial progenitor cells (EPCs) from adult mouse lung. 4th International Meeting on Angiogenesis, Amsterdam, Netherlands (2011).

13. Ehlert, N., Luessenhop, T., Christel, A., Hoffmann, A., Gross, G., **Badar, M.**, Mueller, P.P., Lenarz, T., Stieve, M., Brandes, G., Hlozanek, I., Behrens, P. Biofunctionalization of nanoporous silica. Hybrid Materials, Strasbourg, France (2011).

14. **Badar, M.**, Weizbauer, A., Hauser, H., Müller, P.P. Layered double hydroxides as a controlled drug release system for medical implant coatings. 8. Thüringer Biomaterial-Kolloquium, Zeulenroda-Triebes / Thüringen (2011).

15. Rahim, M.I., **Badar, M.**, Mueller, P.P. Development of biological test systems for novel implant materials and interactions with bacteria, cells and tissues. 5th International Ph D symposium, Helmholtz Center for Infection research, Braunschweig (2011).

16. **Badar, M.**, Reifenrath, J., Rittershaus, D., Seitz, J.M., Bormann, D., Bach, F.W., Hauser, H., Lindenberg, M., Mueller, P.P. In vitro und in vivo Testmodelle zur Untersuchung der biologischen Eigenschaften von Magnesium. Kolloquium des Sonderforschungsbereich 599, Hannover (2010).

17. **Badar, M.**, Stieve, M., Stiesch; M., Hauser, H., Möllmann, U., Vogt, S., Mueller, P.P. Comparison of in vitro and in vivo test systems for controlled antibiotic-releasing medical implant coatings. Jahrestagung Deutsche Gesellschaft für Biomatialien (DGBM), Heilbad Heiligenstadt (2010).

18. Ehlert, N., Lüßenhop, T., Kufelt, O., Lensing, R., Hesse, D., Prenzler, N., Stieve, M., Lenarz, T., **Badar, M.**, Mueller, P.P., Doniga-Crivat, L., Besdo, S., Wriggers, P., Behrens, P. Functionlized Middle Ear Prosthese. Kolloquium des Sonderforschungsbereich 599, Hannover (2010).

19. **Badar, M.**, Reifenrath, J., Rittershaus, D., Seitz, J. M., Bormann, D., Bach, F.W., Hauser, H., Meyer-Lindenberg, A., Mueller, P.P. In vitro and in vivo models for the molecular evaluation of cellular responses to magnesium. Jahrestagung der Deutschen Gesellschaft für Biomedizinische Technik (DGBMT), Rostock-Warnemünde (2010).

20. **Badar, M.** Evaluation of Magnesium as a degradable implant material for biomedical applications in in vitro and in vivo test systems. 4th International Ph D symposium of the Helmholtz International Graduate School for Infection Research, Helmholtz Center for Infection research, Braunschweig, Germany (2010).

21. Hemmen, K., **Badar, M.**, Müller, P.P., Kauer, G. Charakterisierung von antimikrobiellen Implantatmaterialien. Poster presentation at Fachhochschule Emden/Leer, Emden, Germany (2010).

22. Lüßenhop, T., Ehlert, N., Kufelt, O., Vogt, C., Kittel, S., **Badar, M.**, Mueller, P.P., Behrens, P. Silver release and antimicrobial properties of silver sodalites and silver zeolite A. Jahrestagung Deutsche Gesellschaft für Biomatialien (DGBM), Heilbad Heiligenstadt, Germany (2010).

23. Christel, A., Ehlert, N., **Badar, M.**, Stieve, M., Lenarz, T., Müller, P., Behrens, P. Chemical functionalizations for tailoring the drug release behavior of nanoporous silica

films. Jahrestagung der Deutsche Gesellschaft für Biomatialien (DGBM), Tübingen (2009).

24. **Badar, M.**, Ehlert, N., Dötsch, A., Müsken, M., Häußler, S., Behrens, P., Lienenklaus, S., Weiss, S., Mueller, P.P. Real Time Imaging of Inflammatory Reactions to Implant-Associated Biofilms in a Murine Model. 2nd International Ph D symposium of the HIRSIB, Helmholtz Center for Infection research, Braunschweig, Germany (2008).

Research Grants

1. The role of Notch and TGF-beta signaling in Endothelial to Mesenchymal Transition and associated Cancer Metastasis —— Funded by the Higher Education Commission of Pakistan. **(Amount Allocated PKR. 5.25 million). Principle Investigator. (In progress)**

2. Effect of Neurokinin B administration on hypothalamic pituitary gonadal axis and accessory sex glands in prepubertal male rats —— Funded by the Higher Education Commission of Pakistan. **(Amount Allocated PKR. 7.1 million). Co-Principle Investigator. (In progress)**

3. Effect of variable kisspeptin doses on biochemical parameters of seminal vesicles and prostate —— Funded by the Higher Education Commission of Pakistan. **(Amount Allocated PKR. 0.5 million). Co-Principle Investigator. (Completed)**

4. Distribution of Zinc solubilizing bacteria under different Zinc content of soil **(Amount Allocated PKR. 0.5 million). Co-Principle Investigator. (Completed)**

Memberships and Professional Activities

2023 – to date:	**Member,** Anomaly Committee for Semester System Rules & Regulations, Gomal University, D. I. Khan.
2022 – to date:	**Member,** Asian Federation of Biotechnology (Pakistan Chapter).
2019 – to date:	**Academic Peer List/Referee,** Applied Higher Education Program, University of Airlangga, Indonesia.

2017 – to date:	**Member** International Association of Innovation Professionals (IAOIP), Texas, USA.
2017 – to date:	**Member** International Society for Infectious Diseases (ISID), Brooklyn, USA.
2017 – to date:	**Member** International Association of Advanced Materials (IAAM), Linkoping, Sweden.
2017 –2021:	**Convener** MPhil/PhD Supervisory Committee GCBB, Gomal University, Dera Ismail Khan.
April 2017 – March 2018:	**Member** University Purchase Committee, Gomal University, Dera Ismail Khan
Dec 2017 – to date:	**Member** Monitoring Committee, Gomal University, Dera Ismail Khan.
Sept 2015 – to May 2021:	**Member** Advanced Studies and Research Board (ASRB), Gomal University, Dera Ismail Khan.
Sept 2015 – to date:	**Member** NOC Committee, Gomal University, Dera Ismail Khan.
April 2015 – to May 2021:	**Member** Academic Council, Gomal University, Dera Ismail Khan.

Postdoctoral Mentoring

1. **Dr. Muhammad Muzammal (PhD):** Assistant Professor (IPFP*) at Gomal Center of Biochemistry & Biotechnology, Gomal University, D. I. Khan, since March 2023.

*IPFP: Interim Placement of Fresh PhDs

PhD Theses supervised

1. The role of TGF-beta in Endothelial Cell Fate and Cancer Metastasis. **Maria Faraz: Session 2023-26**

2. Development and Characterization of 5-Fluorouracil Decorated Pegylated Ethosomes for Management of Melanoma. **Muhammad Hashim Khan: Session 2020-23**

3. The role of Notch signaling in Endothelial to Mesenchymal Transition and associated Cancer Metastasis. **Soahil Ahmad: Session 2020-23**

4. Synthesis and Characterization of Mixed-Metal Metal-Organic Frameworks (MOFs) for Controlled Drug Delivery. **Muhammad Usman: Session 2016-19**

MPhil Theses supervised

1. N-acetylcysteine mediated alteration of *Pseudomonas aeruginosa* resistance patterns to various antibiotics. **Zaida: Session 2021-2023.**

2. The inhibitory role of Aptamers against Methicillin resistant *Staphylococcus aureus*. **Zafar Ullah Khan: Session 2021-2023.**

3. Evaluation of antibacterial and antifungal activity of biologically synthesized Sulphur nanoparticles from *Cucumis sativus* (Cucumber). **Riddah Danish: Session 2021-2023**

4. Evaluation of N-acetylcysteine as a potential resensitizing agent against Methicillin Resistant Staphylococcus aureus (MRSA) biofilms. **Muneebat ur Rehman: Session 2020-2022**

5. N-acetylcysteine mediated re-sensitization of *Pseudomonas aeruginosa* biofilms to various classes of antibiotics. **Anum Abbas: Session 2020-2022**

6. Effect of sub-lethal drug concentrations on antibiotic sensitivity patterns of multispecies biofilms. **Seerat uz Zahra: Session 2019-2021**

7. Impact of long-term exposure to sub-lethal drug concentrations on eDNA production in multi-species biofilms. **Sundas Gul: Session 2019-2021**

8. Impact of long term exposure of sub-lethal drug concentrations on Staphylococcus aureus and Pseudomonas aeruginosa dual species biofilm formation. **Maria Faraz: Session 2019-2021**

9. Effects of *Staphylococcus aureus* exoproducts on growth kinetics and biofilm production of *Pseudomonas aeruginosa*. **Muhammad Arshad: Session 2018-2020**

10. Impact of Biofilm Forming and Non-biofilm Forming *Staphylococcus aureus* on Biofilm Production and Drug Resistance Patterns of *Pseudomonas aeruginosa* Biofilms. **Shahzadi Raheela Anum: Session 2018-2020**

11. Alteration of drug resistance patterns in *Pseudomonas aeruginosa* biofilms by *Staphylococcus aureus*. **Aqsa Gul: Session 2017-2019.**

12. Molecular Genetic Analysis of Pakistani families suffering from Autosomal Recessive Primary Microcephaly. **Sohail Ahmad: Session 2017-2019**

13. Prevalence of Methicillin Resistant *Staphylococcus aureus* and Methicillin Sensitive *Staphylococcus aureus* in D.I.Khan City. **Aiman Salahuddin: Session 2016-2018.**

14. Resensitization of Methicillin Resistant *Staphylococcus aureus* (MRSA) by N-Acetyl Cysteine. **Anum Akhtar: Session 2016-2018**

15. Effect of N-Acetylecysteine on permanent or temporary alterations in sensitivity patterns of Methicillin Resistant *Staphylococcus aureus* against various antibiotics. **Maryam Muhammad Khan: Session 2016-2018.**

16. Mutation Analysis of a D. I. Khan Resident Saraiki Language Family Inheriting Congenital Stationary Night blindness. **Muhammad Ikram: Session 2016-2018.**

17. Synthesis and Antibiofilm activity of Dopamine capped Ferrite and mixed Ferrite nanoparticles. **Misbah Rahat: Session 2015-2017**

18. *In vitro* efficacy of collaterally sensitive β-lactam drugs against Methicillin Resistant *Staphylococcus aureus* (MRSA) biofilms. **Aisha Sahar: Session 2015-2017**

19. Isolation and characterization of *Glycine max* associated bacteria. **Hikmat Ullah Khan: Session 2014-2016.**

20. Inhibition of *Pseudomonas aeruginosa* biofilms using *Azadirachta indica* and *Citrullus colocynthis* extracts in combination with Ciprofloxacin. **Umair Ali Khan Saddozai: Session 2013-2015.**

Bachelor Theses supervised

1. Evaluation of *in vitro* antibacterial activity of lemon peel extract against *E. coli*, *B. subtilits* and *S. aureus*. **Seerat uz Zahra: Session 2013-2017**

2. Determination of Genetic diversity in maize plants using SSR genetic markers. **Nabeela Qayyum: Session 2013-2017.**

3. In vitro growth screening of Potato (Solamun tuberosum L.) using different salt concentrations. **Inshaullah: Session 2013-2017**

4. Prevalence of anemia in antenatal population of Dera Ismail Khan. **Hamna Batool Hashmi: Session 2012-2016.**

5. Assessment of stripe rust resistance gene in Pakistani wheat lines. **Maryam Muhammad Khan: Session 2012-2016.**

6. Genetic diversity in Mung bean (Vigna Radiata L.) Germplasm using SDS-PAGE Electrophoresis. **Mehran Khan: Session 2012-2016**

7. Genetic study of a Pakistani family segregating Pre-Axial Polydactyly. **Muhammad Javed: Session 2012-2016.**

8. Prevalence of Typhoid fever in District Dera Ismail Khan. **Attiya Tul Noor: Session 2011-2015**

9. Optimization of multiplication of Banana in liquid medium without shaking. **Tahir Muhammad: Session 2011-2015**

10. Optimization of callus induction media for peanut Arachis Hypogeae L. **Shamsa Ali: Session 2011-2015**

11. Detection and expression analysis of BT gene in transgenic cotton genotypes. **Shams Ud Din: Session 2011-2015.**

12. Prevalence of Pulmonary Tuberculosis in District D. I. Khan. **Muhammad Shafiq: Session 2010-2014.**

13. Prevalence of Diabetes and associated complications in District D. I. Khan. **Atta ur Rehman: Session 2010-2014.**

14. Prevalence of Malarial parasites in District Dera Ismail Khan. **Waheed Shah: Session 2010-2014.**

Workshops and Trainings

1. Organized a workshop on "Fundamental Techniques in Biotechnology" December 9th-10th, Gomal University, Dera Ismail Khan, Pakistan (2017).
2. Research Innovation, Commercialization & University-Industry Linkage. South Asia Triple Helix Association (SATHA) and Higher Education Commission. April 19th, Gomal University, Dera Ismail Khan, Pakistan (2016).
3. Developing and Assessing Proposals. Higher Education Commission Tertiary Education Support Program, "Capacity building of staff of HEIs/HEC". October 9-10, Islamabad, Pakistan (2015).
4. One day Training of Presiding Officers and Assistant Presiding Officers-LGE, KPK. May 25th, organized by the Election Commission of Pakistan (2015)
5. 50 Jahrestagung der Deutschen Gesellschaft für Plastische und Wiederherstellungschirurgie e. V. October 12th, Hannover Medical School, Hannover, Germany (2012)
6. Ways to easier and more effective communication. Helmholtz Center for Infection Research, June 24-25, Braunschweig, Germany (2010).
7. Writing the scientific paper in English. Helmholtz Center for Infection Research, May 4-5, Braunschweig, Germany (2009).
8. Training in presentation and public speaking. WSR Seminare- Beratung, March 5-6, Hamburg, Germany (2009).

Teaching Experience

Prepared course outlines, presented lectures, and wrote and graded examinations in the following theory and laboratory courses at both undergraduate and postgraduate levels between 2004 and 2023:

Advances in Cell Biology, Regulation of Gene Expression, Advances in Health Biotechnology, Cellular Signaling, Biosafety and Bioethics, and Molecular Biology.

Language Proficiency

English : Excellent

Urdu : Excellent

Saraiki : Native

Punjabi : Very good

Hindi : Very good

Hindko : Up to some extent

Pashto : Up to some extent

German: B1 (Intermediate level)