

CURRICULUM VITAE

Name: Saima Iftikhar
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EDUCATION

Bachelor of Science (BSc)

Islamia College for Women, Cooper Road Lahore, Pakistan [1997-1999]

Fields of study: Botany, Zoology, Chemistry

Master of Science (MSc)

University of the Punjab, Lahore, Pakistan [1999–2001]

Fields of study: Botany

Doctor of Philosophy (PhD)

School of Biological Sciences, University of the Punjab (PU), Lahore, Pakistan [2003-20010]

Field of study: Molecular Biology

FOREIGN TRAINING

DNA Sequencing and Fragment analysis by Thermo Fisher Scientific, **Dubai** [7-9 May, 2018]

POSITIONS

Principal Experimental Officer (BS-19)

School of Biological Sciences, University of the Punjab, Lahore, Pakistan [5/12/2019 -To date]

Senior Experimental Officer (BS-18)

School of Biological Sciences, University of the Punjab, Lahore, Pakistan [1/06/2015– 4/12/2019]

Experimental Officer (BS-17)

School of Biological Sciences, University of the Punjab, Lahore, Pakistan [1/04/ 2010 - 31/ 05/ 2015]

Research Officer

School of Biological Sciences, University of the Punjab, Lahore, Pakistan [1 /07/ 2009 – 15/03/ 2010]

RESEARCH PROJECTS

1. **Principal Investigator:** Characterization of Immunogenic Regions of Dengue Virus for Potential Vaccine awarded by *Higher Education Commission* under National Research Program for Universities (NRPU) at Rs 6.17 million for 2018-2022 (NRPU#7136). **Successfully completed**
2. **Principal Investigator:** Molecular detection of mutations in possible genetic elements in Leukemia awarded by *University of the Punjab, Lahore. Pakistan* at Rs 0.2 million for year 2021-02022. **Successfully completed**
3. **Principal Investigator:** Cloning and Expression of DNA Ligase from a Novel Thermophilic Archaeon *Thermococcus radiotolerans sp. nov* awarded by *University of the Punjab, Lahore. Pakistan* at Rs 0.18 million for year 2022-02023. **Successfully completed**

4. **Principal Investigator:** Expression and characterization of Carboxypeptidase enzyme from *Thermococcus sicuti* submitted to *University of the Punjab, Lahore, Pakistan* at Rs 0.2 million for year 2024-2025. **In process**
- 5.

HONORS AND AWARDS

- HEC approved PhD supervisor
- University of the Punjab Pakistan, First position in M.Sc Botany and University gold medal [2001]
- University of the Punjab Pakistan, First position in B.Sc Chemistry subject [1999]
- First position in matriculation, Tehsil level and achieved Gold Medal and cash prize [1995]
- First prize in poster competition on dengue fever at Institute of Public Health, Lahore

ADMINISTRATIVE ASSOCIATIONS AND FOCAL PERSON

- Superintendent SBS Girls Hostel, University of the Punjab, Lahore, Pakistan [2015- to date]
- Assistant Superintendent in Girls Hostel, University of the Punjab, Lahore, Pakistan [2010-2015]
- Member of the Hall Council, under Chapter “X” clause (b) University of the Punjab, Lahore, Pakistan [2023-2024]
- Focal person for Punjab University hostels from School of Biological sciences, Lahore, Pakistan [2022- to date]
- Focal person for Punjab University Alumni association from School of Biological sciences, Lahore, Pakistan [2023- to date]

TECHNICAL SKILLS

Skilled in Molecular Biology techniques, recombinant DNA technology, recombinant protein expression and purification. Recombinant enzymes characterization, DNA sequencing. Familiar with vaccine design for infectious diseases like dengue. Proficient in many aspects of antibody raising and ELISA and immunogenic study.

COMPLETE LIST of PUBLICATIONS

1. Rasool N, Rashid N, **Iftikhar S**, Akhtar M. N-terminal deletion of Tk1689, a subtilisin-like serine protease from *Thermococcus kodakaraensis*, copes with its cytotoxicity in *Escherichia coli*. *J Biosci Bioeng*. 2010 Oct;110(4):381-5. doi: 10.1016/j.jbiosc.2010.04.005
2. Jalal A, Rashid N, Ahmed N, **Iftikhar S**, Akhtar M. *Escherichia coli* signal peptidase recognizes and cleaves the signal sequence of xylanase from a newly isolated *Bacillus subtilis* strain R5. *Biochemistry (Mosc)*. 2011 Mar;76(3):347-9. doi: 10.1134/s0006297911030084
3. Rasool N, **Iftikhar S**, Amir A, Hussain W. Structural and quantum mechanical computations to elucidate the altered binding mechanism of metal and drug with pyrazinamidase from *Mycobacterium tuberculosis* due to mutagenicity. *J Mol Graph Model*. 2018 Mar;80:126-131. doi: 10.1016/j.jmgm.2017.12.011
4. Qaiser H, Aslam F, **Iftikhar S**, Farooq A. Construction and recombinant expression of *Pseudomonas aeruginosa* truncated exotoxin A in *Escherichia coli*. *Cell Mol Biol (Noisy-le-grand)*. 2018 Jan 31;64(1):64-69. doi: 10.14715/cmb/2018.64.1.12.
5. Nasar S, Rashid N, **Iftikhar S**. Dengue proteins with their role in pathogenesis, and strategies for developing an effective anti-dengue treatment: A review. *J Med Virol*. 2020 Aug;92(8):941-955. doi: 10.1002/jmv.25646.
6. Aslam F, Latif K, Waseem R, Naz S, **Iftikhar S**. Recombinant Human Proinsulin Expression in *E. Coli* by Altering 5' Untranslated and Translated Region. *Gene Technol*. 2019; 8:147 DOI: 10.4172/2329-6682.1000147.
7. Aslam F, Farooq A, Qaiser H, **Iftikhar S**, Saleem F, Naz S. Molecular Detection and Expression of Azurin: An Anti-Cancer Protein from Local Isolates of *Pseudomonas* species. *Gene Technol*. 2019; 8:146. DOI: 10.4172/2329-6682.1000146.
8. Aslam F, Younas H, **Iftikhar S**. Genomic sequencing and recombinant expression of proinsulin isolated from cow and buffalo in Pakistan. *Afr. J. Biotechnol*. 2019; 18(27), 664-669. doi.org/10.5897/AJB2019.16827.

9. **Iftikhar S**, Akhtar M. Variability in the immunogenic preS region of Pakistani hepatitis B virus isolates. *Virusdisease*. 2019 Sep;30(3):329-335. doi: 10.1007/s13337-019-00518-5.
10. Bakht A, Rasool N, **Iftikhar S**. Characterization of plastic degrading bacteria isolated from landfill sites. *Int J Clin Microbiol Biochem Technol*. 2020; 3: 030-035. DOI: 10.29328/journal.ijcmbt.1001013
11. **Iftikhar S**, Aslam F, Akhtar M. Serodiagnosis of Hepatitis B Virus Using PreS Antigen from Pakistani Isolate SBS001. *J. Pharm. Res. Int*. 2021; 33, 246-255. DOI: 10.9734/jpri/2021/v33i42A32411.
12. Qaiser H, Farooq A, **Iftikhar S**. Study on the Optimized Expression of Pseudomonas Aeruginosa Truncated Exotoxin A (PE38KDEL) in Escherichia Coli. *LGU J Lif. Sci*. 2021 Jul; 5 (3): 186-200. DOI: 10.54692/igujls.2021.0503177.
13. Aslam F, MRasheeda M, Iftikhar S. A REVIEW ON PROTEASES: THEIR SOURCES, TYPES AND APPLICATIONS. *IJMPR* 2021; 5(6): 01-04 doi: https://ijmpromline.com/home/article_abstract/535
14. Nasar S, Nasar Z, **Iftikhar S**. A novel strategy for developing a tetravalent vaccine (dvac) against dengue utilizing conserved regions from all DENV proteins. *Microb Pathog*. 2022 Mar;164:105447. doi: 10.1016/j.micpath.2022.105444.
15. Afzal O, Dalhat MH, Altamimi ASA, Rasool R, Alzarea SI, Almalki WH, Murtaza BN, **Iftikhar S**, Nadeem S, Nadeem MS, Kazmi I. Green Tea Catechins Attenuate Neurodegenerative Diseases and Cognitive Deficits. *Molecules*. 2022 Nov 6;27(21):7604. doi: 10.3390/molecules27217604.
16. Afzal O, Altamimi ASA, Nadeem MS, Alzarea SI, Almalki WH, Tariq A, Mubeen B, Murtaza BN, **Iftikhar S**, Riaz N, Kazmi I. Nanoparticles in Drug Delivery: From History to Therapeutic Applications. *Nanomaterials (Basel)*. 2022 Dec 19;12(24):4494. doi: 10.3390/nano12244494.
17. Alharbi KS, Nadeem MS, Afzal O, Alzarea SI, Altamimi ASA, Almalki WH, Mubeen B, **Iftikhar S**, Shah L, Kazmi I. Gingerol, a Natural Antioxidant, Attenuates Hyperglycemia and Downstream Complications. *Metabolites*. 2022 Dec 16;12(12):1274. doi: 10.3390/metabo12121274.
18. Ahmad S, Ali SF, **Iftikhar S**, Rashid N. Engineering a DNA polymerase from *Pyrobaculum calidifontis* for improved activity, processivity and extension rate. *Int J Biol Macromol*. 2023 Apr 1;233:123545. doi: 10.1016/j.ijbiomac.2023.123545.
19. Albalawi H, Altayeb HN, **Iftikhar S**, Al-Ghamdi M.A, Khan J.A, Nadeem M.S. Biochemical and *in silico* evaluation of a recombinant, glucose tolerant, and highly thermostable β -glucosidase from *T. radiotolerans* DSM-15228. *Electron J Biotechnol* 2023; 64:10-17. doi.org/10.1016/j.ejbt.2023.03.002.
20. Albalawi H, Nadeem M.S, Altayeb H.N, **Iftikhar S.**, Al-Ghamdi M.A, Khan, J.A, Usman Ahmad. Studies on the biochemical and in silico characterization of a recombinant, highly thermostable α Glucosidase from *Thermococcus radiotolerans* DSM-15228. *Pakistan J of zool* 2023 Oct 13; 1-10 doi: doi.org/10.17582/journal.pjz/20230405100451
21. Khan F, Aziz Uddin, Altayb H. N, Murtaza B.N, Ghafoor S. Ul, Imam F, **Iftikhar S**, Tabassum S, Muhammad K, Nadeem, M.S. Studies on the Mitochondrial tRNA Gene Variants in Patients with Coronary Artery Disease and Pathogenicity Assessment by in silico Analysis. *Pakistan J of zool* 2024 Apr 24; 1-10 doi: <https://dx.doi.org/10.17582/journal.pjz/20231226090544>
22. Nasar S, **Iftikhar S**, Saleem R, Nadeem MS, Ali M. The N and C-terminal deleted variant of the dengue virus NS1 protein is a potential candidate for dengue vaccine development. *Sci Rep*. 2024 Aug 14;14(1):18883. doi: 10.1038/s41598-024-65593
23. Nadeem M.S, Hayat S, Rahim F, Khan J.A, Hayat Ullah , Taha M, Gupta G, Abdul Wadood, Shah A.A.S, Kazmi I, **Iftikhar S**, Muhammad K. Synthesis, Biological Evaluation, Molecular Docking and Dynamic Simulation of Novel Benzofuran Derivatives as Potential Agents against Alzheimer's disease. *J. Mol. Struct* 2024 Oct 5; 140279. <https://doi.org/10.1016/j.mol.struc.2024.140279>
24. Ahmed Osman A, Hosawi S, **Iftikhar S**, Murtaza N. B, Tayeb N.H, Eid M.T, Kazmi. I. DNA ligase from *Thermococcus radiotolerans*: recombinant production, characterization, up-scale fermentation and in silico evaluation. . *Int J Biol Macromol*. 2024. In revision Process.
25. Nasar S, **Iftikhar S**, Nadeem M.S. Individuality and intactness of the epitopes of in-silico synthesized tetravalent dengue vaccine (dvac) confirmed through In-lab cloning, expression and immunogenic analysis. *Microb Pathog*. 2024. Manuscript # YMPAT-D-24-02639. In process
26. Maida Wahid M, **Iftikhar S**, Nadeem M.S, Muhammad K. Recombinant production and characterization

of novel carboxypeptidase from thermophilic archaeon *Thermococcus siculi*, J Biotech 2024. Manuscript # JBIOTEC-D-24-00975 .In Proces

BOOK CHAPTERS PUBLISHED

1. Book Title: Genetic Engineering, 1st Edition.2023 Rida Saleem Sitara Nasar, **Saima Iftikhar***. Introduction of Recombinant DNA in to Host Cells. Apple Academic press. eBook ISBN9781003378266.
2. Book Title: Genetic Engineering. 1st Edition.2023 Sitara Nasar and **Saima Iftikhar***. Linking of desired gene with DNA vector / gene cloning vector. Apple Academic Press. eBook ISBN9781003378266.
3. Book Title: Molecular Genetics, Structures, Mechanisms, and Functions, Volume 2; Applications and Exploring the Nucleus. Maida Wahid, **Saima Iftikhar***, and Muhammad Shahid Nadeem. Chromosomal Aberrations. Apple Academic Press. Hard ISBN: 97817749194
4. Book Title: "Advanced Research in Medical Science and Technology Volume 4; Introduction to a Diagnostic Laboratory. Farheen Aslam, Aliza Fatima, **Saima Iftikhar**. Integrated Publications. Ref: ARMST-04-07

ABSTRACTS PUBLISHED IN CONFERENCE

1. Characterization of NS1 protein of dengue virus for vaccine development (2019). Muhammad Faisal, Sitara Nasar and **Saima Iftikhar**. Poster presented and abstract published in ICPU international conference on Recent innovations in Molecular sciences
2. Developing A Tetravalent Vaccine Utilizing Conserved Regions From All Dengue Proteins: A Step Towards A Universal Dengue Vaccine Sitara Nasar, **Saima Iftikhar**. Poster presented and abstract published in ICABS 2023 international conference on advances in Biological sciences
3. Isolation, Expression, and In Silico Characterization of Carboxypeptidase B Enzyme from a Novel Bacterial Sp. *Thermococcus Siculi*. Maida Wahid, **Saima Iftikhar**. Oral talk was presented and abstract published in ICABS 2023 international conference on advances in Biological science

NOVEL SEQUENCES SUBMITTED TO GENBANK

1. **Iftikhar,S.**, Rasool,N. and Akhtar,M. Hepatitis B virus isolate PSBS001 large S protein (S) gene, partial cds.Submitted on 12-May-2011. **Accession No.JF957160.NCBI GenBank Resource**, <https://www.ncbi.nlm.nih.gov/nuccore/352963313>.
2. **Iftikhar,S.**, Rasool,N. and Akhtar,M. Hepatitis B virus isolate PSBS002 in Pakistan population. Submitted on 21-June-2011. **Accession No. JN165098. NCBI GenBank Resource**, <https://www.ncbi.nlm.nih.gov/nuccore/JN165098>.
3. **Iftikhar,S.** and Akhtar,M. Hepatitis B virus isolate PSBS003 large S protein (S) gene, partial cds. Submitted on 11-June-2012. **Accession No.JX173071. NCBI GenBank Resource**, <https://www.ncbi.nlm.nih.gov/nuccore/401880554>.
4. **Iftikhar,S.** and Akhtar,M. Hepatitis B virus isolate PSBS004 large S protein (S) gene, partial cds. Submitted on 11-June-2012. **Accession No. JX173072. NCBI GenBank Resource** <https://www.ncbi.nlm.nih.gov/nuccore/401880556>.
5. **Iftikhar,S.** and Akhtar,M. Hepatitis B virus isolate PSBS005 large S protein (S) gene, partial cds. Submitted on 11-June-2012. **Accession No. JX173073. NCBI GenBank Resource**, <https://www.ncbi.nlm.nih.gov/nuccore/JX173073>.
6. **Iftikhar,S.** and Akhtar,M. Hepatitis B virus isolate PSBS006 large S protein (S) gene, partial cds. Submitted on 12-June-2012. **Accession No. JX173074. NCBI GenBank Resource**, <https://www.ncbi.nlm.nih.gov/nuccore/JX173074>.
7. **Iftikhar,S.** and Akhtar,M. Hepatitis B virus isolate PSBS007 large S protein (S) gene, partial cds. Submitted on 12-June-2012. **Accession No. JX173075. NCBI GenBank Resource**, <https://www.ncbi.nlm.nih.gov/nuccore/JX173075>.

8. **Iftikhar,S.** and **Akhtar,M.** Hepatitis B virus isolate PSBS008 large S protein (S) gene, partial cds. Submitted on 12-June-2012. **Accession No. JX173076.** **NCBI GenBank Resource,** <https://www.ncbi.nlm.nih.gov/nuccore/JX1730756>.

WORKSHOPS & CONFERENCES

- Workshop on “problem-based learning” in Genomics and proteomics in Health & Agriculture organized by **Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB)** at the School of Biological Sciences, University of Punjab, Lahore, Pakistan during November 19, 2005
- Participation as an active member of Scientific Committee, working in organizing 18th **Federation of Asian and Oceanian Biochemists and Molecular Biologists (FAOBMB)** Symposium being held at Lahore during November 20-23, 2005
- Contributed as an active member of organizing committee of an international symposium on "Nanochemistry of Enzymes" held in School of Biological Sciences, University of the Punjab, Lahore on September 20–21, 2006
- Participated in the annual congresses of **Pakistan Society of Hepatology** and won the shield and cash prize for outstanding research paper presentation
- Participation as a member, organizing committee and instructor in First National Workshop on **DNA Recombinant Technology** on April 22-29,2013
- Participation as a member, organizing committee and instructor in Second National Workshop on **DNA Recombinant Technology** on April 25-30,2016
- Participation in **4th In-Service faculty training program**, university of the Punjab, on (Monday 21- Friday 25 November,2016)
- Participation as a member, organizing committee and instructor in National Workshop on **DNA Recombinant Technology** on April 3-8,2017
- Participation as a member, organizing committee and instructor in National Workshop on **Recombinant Protein Production** on November 06-11,2017
- Participation as a member, organizing committee and instructor in National Workshop on **Recombinant Protein Production** on November 12-17,2018
- Successfully completed “**Countering violent Extremism Orientation**” organized by Center for Health and Gender equality (CHANGE) ,University of the Punjab, Lahore, Pakistan on 22nd January, 2019
- Participation as a member, organizing committee at International Conference on **Recent Innovations in Molecular Sciences** on November 06-08, 2019
- Participation as a member, organizing committee and instructor in National Workshop on **Recombinant Protein Production** on November 11-16, 2019
- Participation in the seminar on **Genomic application of PCR, qPCR and NGS held by Thermofisher Scientific** on 12th December, 2019
- Participation as organizer at the International Conference on **Recent Innovations in Molecular Sciences** on 6-8 November, 2019 at University of the Punjab, Lahore-Pakistan.
- Participation as organizer at the International Conference on **Advances in Biological Sciences (ICABS)** on 6-8 March, 2023 at University of the Punjab, Lahore-Pakistan
- Participation as a member, organizing committee and instructor in National Workshop on **HANDS ON TRAINING Recombinant DNA Technology and its Applications-2024** on March 04-07, 2024

RESEARCH SUPERVISION

PhD Student:

1. **Sitara Nasar** PhD (2023) Study of Novel Multi-Epitope Peptides to Unravel their Potential as Vaccine against Dengue .**Completed**

M.Phil Students:

1. **Mahnoor Habib** Mphil (2024). Purification and refolding of the SUMO fused knob domain of Fiber-2 protein of fowl adenovirus-4. **Co-Supervisor**
2. **Alishba Khaliq** MS (2024). Screening and Characterization of pectinase Producing Bacteria From banana

peel. **Co-Supervisor**

3. **Maida Wahid** Mphil (2023). Expression and Characterization of Carboxypeptidase B from *Thermococcus sicuti*. **Supervisor**
4. **Saeeda Tariq** M.phil (2022). Molecular Detection of Various Genetic Alterations in Acute Myeloid Leukemia (AML). **Supervisor**
5. **Rida saleem** M.phil (2021). Study of conserved B and T-cell epitopes of nonstructural protein1 from dengue virus. **Supervisor**
6. **Shanza Zafar** M.phil (2020). Cloning and Expression of Gene segment Encoding Exotoxin A activity in *Pseudomona aeruginosa* **Supervisor**
7. **Afifa Butt** M.phil (2020). Cloning and Expression of Anti-Cancer Azurin Gene from Local Isolate of *Pseudomonas* Sp. **Supervisor**
8. **Muhammad Faisal** M.phil (2019). Expression and Purification of NS1 protein from Dengue Virus. **Supervisor**
9. **Samrina Hussain**. MS (2019). Molecular detection of genes mutations in possible genetic elements (CEBPA, NPM1) in Leukemia patients. **Co-Supervisor**
10. **Zaib Sadiq**. MS (2019). Molecular detection of genes mutations in possible genetic elements (WTI, IDH1) in Leukemia patients. **Co-Supervisor**
11. **Sidra Jamil**. MS (2018). Characterization of Alkaline Hydrolases from Alkaliphile. **Co-Supervisor**
12. **Afreen Bakht**. MS (2018). Exploitation of Microbes for degradation of Plastic. **Co-Supervisor**
13. **Adeen Farooq**. MS (2016). Molecular Detection and Expression of Azurin: an Anticancer Protein From Local Isolate of *Pseudomonas* SP. **Co-Supervisor**
14. **Hina Qaiser**. MS (2016). Construction and Recombinant Expression of Anticancer Exotoxin A (PE 38 KDEL) in *E.Coli*. **Co-Supervisor**
15. **Kainat Waheed**. MS (2015). Purification and characterization of DNA *polymerase* 1 from *geobacillus* sp. **Co-Supervisor**
16. **Sumaira Akbar**. MS (2014). Cloning, expression and characterization of DNA *polymerase* 1 from
a. *geobacillus* sp. **Co-Supervisor**
17. **Kinza Latif**. MS (2013). Expression enhancement of proinsulin gene by altering the 5` untranscribed as well as transcribed region. **Co-Supervisor**

TEACHING EXPERIENCE

- Molecular Biology Practical lab (SBS-510) , 2010 to date, Mphil
- DNA-Protein Module (SBS-704) 2016 to date, PhD students
- Analytical Techniques (SBS-706) 2016 to date, PhD students
- Frontiers in Molecular Biology (SBS-503) Mphil student