

Curriculum vitae

Muhammad Salman, PhD

Assistant Professor

Department of Biotechnology
University College of Science Shankar
Abdul Wali Khan University, Mardan
Cell # +92 313 9726166
E-mail: s.amazai@yahoo.com



Home address:

Diyar Khan Street, Garhi Daulatzai near P.O. Garhi Kapura, Mardan, Khyber Pakhtunkhwa, Pakistan.
Date of Birth: April 07, 1983

EDUCATION

PhD Biotechnology (04/2008 – 07/2014): Health Biotechnology Division, National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, affiliated with PIEAS, Islamabad, Pakistan and Human Health Therapeutics Portfolio, National Research Council (NRC), Ottawa, Canada.

PhD dissertation: "Preparation of polysaccharide-protein conjugates of Vi negative *Salmonella* Typhi as potential candidates for vaccines"

B.S (Hons), Biotechnology (12/2001 - 02/2006): University of Malakand, Chakdara, Pakistan.

F.Sc., Science (2001): Govt. Post Graduate College Mardan, Pakistan.

S.S.C., Science (1998): Govt. Higher Secondary School Garhi Kapura, Mardan, Pakistan.

TEACHING & RESEARCH EXPERIENCE

Research training (10/2011- 03/2012): Human Health Therapeutics Portfolio, National Research Council (NRC), Ottawa, Canada.

Lecturer (08/2007 - 07/2008): Department of Environmental Sciences, University of Peshawar, Pakistan under National Internship program, Govt. of Pakistan.

HONORS AND AWARDS

- Won 2nd position in poster presentation competition in 10th Annual Conference on Infectious Diseases held on 22-23 Feb 2013 at Shaukat Khanum Memorial Cancer hospital, Lahore, Pakistan.
- International Research Support Initiative Program (IRSIP) fellowship.
- Indigenous Ph.D. Fellowship Program (5000 Fellowships) by Higher Education Commission of Pakistan.
- National Internship Program (NIP), Government of Pakistan.

PUBLICATIONS

1. **Salman M.**, Ali A. and Haque A. A novel multiplex PCR for detection of *Pseudomonas aeruginosa*: a major cause of wound infections. *Pak J. Med Sci.* 2013; 29 (4): 957-961.
2. Tariq A., Haque A., Ali A., Bashir S., Habeeb. M., A., **Salman M.** and Sarwar Y. Molecular profiling of antimicrobial resistance and integron association of MDR clinical isolates of *Shigella* species from Faisalabad, Pakistan. *Can. J. Microbiol.*. 2012; 58:1047–1054.
3. Afzal A., Habeeb M. A., Sarwar Y., Ali A. **Salman M.** and Haque A. Molecular evaluation of drug resistance in clinical isolates of *Salmonella*. *J. Infect Dev Ctries* 2013; 7(12):929-940.
4. Habeeb M. A., Sarwar Y., Ali A. **Salman M.** and Haque A. Rapid emergence of ESBL producers in *E. coli* causing urinary and wound infections in Pakistan. *Pak J. Med Sci.* 2013;29 (2):540-544.
5. **Salman M.**, Michel F., Cairn C., Ali A., Jabbar A., Rahman M., Haque A. and Cox A. Conjugation of rEPA with *Salmonella* Typhi Vi negative OSP using different strategies and determine the IgG titer in mice. (ready for submission)
6. **Salman M.**, Ali A., Haque A. and Rahman M. Over expression and characterization of detoxoid ETA of *Pseudomonas aeruginosa* as conjugate vaccines candidate. (in preparation)
7. Jabbar A., **Salman M.**, Twelkmeyer B., Ali A., Imran M., Tawab A., Haque A., Schweda E. and Iqbal M. ESI-MSⁿ based structural characterization of lipid A from *Salmonella* Typhi strain isolated from Faisalabad region of Pakistan. (ready for submission)
8. **Salman M.**, Ali A., Sarwar Y., Rahman M. and Haque A. Accession No. GenBank JN717229, GenBank JN717230, GenBank JN717231 and GenBank JN717232.

EXPERIMENTAL TECHNIQUES

- Biochemical and molecular identification of bacteria.
- Identification and extraction of *Salmonella* Typhi Lipopolysaccharides (LPS).
- Structural analysis of Lipopolysaccharides (LPS) using ¹H NMR and GC-MS
- Purification and structural analysis of O-specific polysaccharides (OSP) using NMR and GC-MS
- Biotechnology and Genetic Engineering techniques.
- Structural analysis of proteins using MALDI-TOF and LC-MS/MS
- Prepared conjugates vaccines candidates using various types of proteins and OSP via different chemistries.
- Optimized protocol for expression, purification and Western blotting of proteins.
- Developed multiplex PCR for diagnosis of urinary infection caused by *P. aeruginosa* strains.
- Conducted mice trail to determine the IgM and IgG immune response of conjugates.
- Studied immunogenic effect of cloned rEPA protein in mice.
- Performed Indirect ELISA for comparison of prepared conjugates
- Performed Gel filtration chromatography for purification of proteins using AKTA purifier.

Computer Skills:

Expertise in all Microsoft Office Software, DNA star, Coral Draw and Adobe Photoshop. Internet database use: ExPASy Bioinformatics, NCBI, Blast sequence analysis, NEB Cutter, JustBio and numerous other internet based research sites/tools.

PRESENTATIONS AND CONFERENCES

Workshop attended: “1st National Training Workshop on Chromatography and Mass Spectrometry”
May 2-6, 2012, conducted by Health Biotechnology Division, at National Institute for Biotechnology and Genetic Engineering (NIBGE), Pakistan.

Muhammad Salman, Aamir Ali, Abdul Jabbar, Yasra Sarwar and Abdul Haque. Purification and antigenic evaluation of *Salmonella* Typhi Vi negative lipopolysaccharide and O-specific antigen. (Poster presented at SKMC Lahore, Pakistan)

Co-organized: 1st National Student Conference on Biological Sciences March 27-28, 2014
Conducted by NIBGE students, at National Institute for Biotechnology and Genetic Engineering, Pakistan.

Co-organized: National Training Course on Handling and Use of Laboratory Animals for Biotechnology and Biomedical Research Apr 2-4, 2013
Conducted by Health Biotechnology Division, at National Institute for Biotechnology and Genetic Engineering, Pakistan.

Presented poster: 10th Annual Conference Infectious Diseases Society of Pakistan “Emerging Trends” Feb 22-23, 2013 At Shaukat Khanum Memorial Cancer Hospital and Research Centre Lahore Pakistan

Co-organized two day symposium: Dengue Fever: Virology and vector control Jan 31- Feb 1, 2013
Conducted by Health Biotechnology Division, At National Institute for Biotechnology and Genetic Engineering, Pakistan.

Symposium attended: System International (SI) Past, Present and Future, Feb 28, 2012 Conducted by National Research Council Canada at M-50 NRC Montreal road Ottawa, Canada.

REFERENCES

Prof. Dr. Abdul Haque, Ph.D. (Ph.D. Supervisor) Head Pathology Dept. The University of Faisalabad
Ex. Deputy Chief Scientist at NIBGE, Faisalabad, Pakistan
Mobile Phone No. +92 300 6613134
E-mail: ahaqnibge@gmail.com

Dr. Andrew D. Cox, Ph.D. (Abroad Ph.D. Research Supervisor) Senior Scientist, Human Health Therapeutics Portfolio, National Research Council (NRC) 100 Sussex Drive, Ottawa, Canada
Office phone No. +1 (613)-991-6172
E-mail: Andrew.Cox@nrc-cnrc.gc.ca

Dr. Moazur Rahman, Ph.D. (Co-Supervisor) Principal Scientist at NIBGE, Faisalabad, Pakistan
Office Phone No. +92 41 2651475-79 Ext. 319Ju
E-mail: moazur@yahoo.com and moaz@nibge.org