# DR. BUSHRA IJAZ

bijaz_009@yahoo.com
bijaz@cemb.edu.pk

## HIGHLIGHTS OF QUALIFICATIONS

Goal Directed, Result Oriented, Researcher with adequate Microbiology, Genomics, Biotechnology and Molecular Biology background and education. Skilled communicator, persuasive and adoptable. Self motivated with high energy, initiative and focus. Keen insight of environmental issues, able to identify the problems and form innovative solutions. Professional, personable, and articulate in presentations.

## CAREER OBJECTIVES

To work as a, Molecular Biologist in dynamic environment, aiming towards professional growth and research to understand the Molecular Biology and functional Genomics, and would like to use the acquired skills for further growth in research & development.

## RESEARCH AND EMPLOYMENT EXPERIENCE

**Assistant Professor:** National Centre of Excellence in Molecular Biology (CEMB), University of
Nov 2015-todate the Punjab, Lahore. Pakistan

**Lecturer:** National Centre of Excellence in Molecular Biology (CEMB), University of
Jan 2010-Nov 2015 the Punjab, Lahore. Pakistan

**Research Officer:** National Centre of Excellence in Molecular Biology (CEMB), University of
April 2006- 2010 the Punjab, Lahore. Pakistan.

**Responsibilities:**
Working on projects

1. Gene expression analysis of HCV associated liver disease by DNA Microarray.

2. Gene expression profiling: effect of knock down of HCV genes using siRNA and its effect on host genome.

   - Worked on the screening of the siRNA against HCV genes
   - Achieving the other goals of the project like

Gene Expression Profiling of HCV genes by cDNA Microarray and RT-PCR
cDNA Microarray (Sample preparation to final analysis)
Study the effect of siRNA against HCV genes on host genome using microarray

Other job responsibilities:

- Extraction and purification of RNA from human blood and biopsies samples
- Construction of cDNA Libraries of Human genome
- Functional Genomics & Genomic techniques
- siRNA synthesis and screening against HCV different genotypes in Huh-7 cells
- Write up of grant projects.
- Guide lab members how to conduct their experiments
- Lab management
- Involvement in maintenance of standard operational procedures (SOP)
- Involvement in the quality control management of the laboratory
- Involvement in the troubleshooting of various instruments under usages
- Supervision of M.Phil and Ph.D scholar experimental work

**Ph.D Scholar:** **National Centre of Excellence in Molecular Biology (CEMB), University of the Punjab Lahore, Pakistan**.
Jan 2010-2015

- Gene expression profiling: knock down effect of HCV genotype 3a genes on host genome in human liver cells

**M. Phil Scholar:** **National Centre of Excellence in Molecular Biology (CEMB), University of the Punjab Lahore, Pakistan**.
Jan 2004- Dec2006
Responsibilities:

- To study the gene expression analysis of HCV infected patients blood samples in comparison to normal and HBV

**M.Sc Scholar:** **Zoology Department University of the Punjab Lahore, Pakistan**
Sep2001-Dec2003
Responsibilities:

- To study the Embryotoxcicity of Malathion in Developing Chick from 3rd to 21st day embryo

## TEACHING EXPERIENCE

| | | |
|---|---|---|
| Course Conducted: | Genomics and Protemics Course to M.Phil | (2015-2017) |
| | DNA microarray to Ph.D advance Course | (2015-2016) |
| | Introduction to biosafety level to Ph.D advance Course | (2011-2012) |
| | Introduction to biosafety level to Ph.D advance Course | (2012-2013) |
| | DNA Microarray to Ph.D advance Course | (2014-2015) |

## RESEARCH STUDENTS SUPERVISED

| | | |
|---|---|---|
| M.Phil students: | M. Kazim Khan | "Gene Expression Analysis of Apoptosis Related Genes in Dengue Virus Infected patients" |
| | Sana Gul | Combinatorial RNAi approach against HCV 3a genotype |
| | M. Daud | Hepatitis C virus core 3a mediated activation of Wnt canonical pathway |

| | |
|---|---|
| Sommyya Tariq | Melia azedarach and Tectona grandis as Potential inhibitor of HCV NS5A Protein: In vitro and In silico study |
| Sherian Gull | In vitro and In silico antiviral activity analysis of Cassia fistula against HCV NS5A gene |
| Rimsha Shahid | Differential expression analysis of Wnt signaling pathway in GII and GIII breast cancer patients |
| Arooj Arshad | Modulation of hedgehog cell signaling pathway in HCV 3a infected and Sovaldi treated patients |

## INTERNATIONAL PUBLICATIONS

**No.** **Publications**

1. Ahmed F, Mahmood N, Shahid S, Hussain Z, Ahmed I, Jalal A, **Ijaz B**, Shahid A, Mujtaba G, Mustafa T. Mutations in Human Interferon α2b Gene and Potential as Risk Factor Associated with Female Breast Cancer. Cancer Biother Radiopharm. 2016 Aug;31(6):199-208. doi: 10.1089/cbr.2016.2046. Epub 2016 Jul 12.
2. Noreen S, Hussain I, Tariq MI, **Ijaz B**, Iqbal S, Qamar-Ul-Zaman, Ashfaq UA, Husnain T (2015). Portulaca oleracea L. as a Prospective Candidate Inhibitor of Hepatitis C Virus NS3 Serine Protease. *Viral Immunol*. 28(5):282-9
3. Shahid I, Gull S, **Ijaz B**, Ahmad W, Ansar M, Asad S, Kausar H, Sarwar MT, Khan MK, Hassan S (2013). Stable Huh-7 cell lines expressing non-structural proteins of genotype 1a of hepatitis C virus. *J Virol Methods*. 189(1):65-9
4. Ahmad W, **Ijaz B**, Hassan S (2012). Gene expression profiling of HCV genotype 3a initial liver fibrosis and cirrhosis patients using microarray. *J Transl Med*, 7;10 (1):41.
5. Asad S, **Ijaz B**, Ahmad W, Kausar H, Sarwar MT, Gull S, Shahid I, Khan MK, Hassan S (2012). Development of persistent HCV genotype 3a infection cell culture model in huh-7 cell. *Virol J*. 10;9:11
6. Jahan S, Khaliq S, Siddiqi MH, **Ijaz B**, Ahmad W, Ashfaq UA, Hassan S (2011). Anti-apoptotic effect of HCV core gene of genotype 3a in Huh-7 cell line. *Virol J*. 23;8:522
7. Kausar H, Gull S, **Ijaz B**, Ahmad W, Sarwar MT, Iqbal Z, Nawaz Z, Riazuddin S, Hassan S (2011). Huh-7 cell line as an alternative cultural model for the production of human like erythropoietin (EPO). *J Transl Med*.1;9:186
8. Jahan S, Samreen B, Khaliq S, **Ijaz B**, Khan M, Siddique MH, Ahmad W, Hassan S (2011). HCV entry receptors as potential targets for siRNA-based inhibition of HCV. *Genet Vaccines Ther*. 6;9:15
9. Ahmad W, **Ijaz B**, Javed FT, Gull S, Kausar H, Sarwar MT, Asad S, Shahid I, Sumrin A, Khaliq S, Jahan S, Pervaiz A, Hassan S. A (2011). Comparison of four fibrosis indexes in chronic HCV: Development of new fibrosis-cirrhosis index (FCI). *BMC Gastroenterol*,11:44
10. Ahmad W, **Ijaz B**, Gull S, Asad S, Khaliq S, Jahan S, Sarwar MT, Kausar H, Sumrin A, Shahid I, Hassan S (2011). A brief review on molecular, genetic and imaging techniques for HCV fibrosis evaluation. *Virol J*, 88(1):53
11. Jahan S, Khaliq S, **Ijaz B**, Ahmad W, Hassan S (2011). Role of HCV Core gene of genotype 1a and 3a and host gene Cox-2 in HCV-induced pathogenesis. *Virol J*, 8(1):155
12. **Ijaz B**, Ahmad W, Javed FT, Gull S, Hassan S (2011). Revised cutoff values of ALT and HBV DNA level can better differentiate HBeAg (-) chronic inactive HBV patients from active carriers. *Virol J*, 27; 8: 86
13. **Ijaz B**, Ahmad W, Javed FT, Gull S, Sarwar MT, Kausar H, Shahid I, Asad S, Khaliq S, Jahan S, Sumrin A, Hassan S (2011). Association of laboratory parameters with viral factors in patients with hepatitis C. *Virol J*, 8:361
14. Khaliq S, Jahan S, **Ijaz B**, Ahmad W, Asad S, Pervaiz A, samreen B, Hassan S (2010). Inhibition of core gene of HCV 3a genotype using synthetic and vector derived siRNAs. *Virol J*, 7:318

15. Khaliq S, Jahan S, **Ijaz B**, Ahmad W, Asad S, Hassan S (2011). Inhibition of HCV 3a genotype by siRNAs targeting envelop genes. *Arch Virol*,156(3):433-442
16. Ahmad W, Shabbiri K, **Ijaz B**, Asad S, Gull S, Fouzia K, Kausar H, Sarwar MT, Shahid I, Hassan S (2011). Claudin-1 required for HCV virus entry has high potential for phosphorylation and o-glycosylation. *Virol J*, 8:229
17. Sarwar MT, Kausar H, **Ijaz B**, Ahmad W, Ansar M, Sumrin A, Ashfaq UA, Gull S, Asad S, Shahid I, Hassan S (2011). NS4A protein as a marker of HCV history suggests that different hepatitis C virus genotypes originally evolved from genotype 1b. *Virol J*, 8:317
18. Jahan S, Khaliq S, Samreen B, **Ijaz B**, Khan M, Ahmad W, Ashfaq AU, Hassan S (2011). Effect of combined siRNA of HCV E2 gene and HCV receptors against HCV. *Virol J*, 8:295
19. Ahmad W, Shabbiri K, **Ijaz B**, Asad S, Nazar N, Nazar S, Fouzia K, Kausar H, Gull S, Tahir Sarwar MT, Shahid I, Hassan S (2011). Serine 204 phosphorylation and O-β-GlcNAC interplay of IGFBP-6 as therapeutic indicator to regulate IGF-II functions in viral mediated hepatocellular carcinoma. *Virol J*, 8:208
20. Khan M, Jahan S, Khaliq S, **Ijaz B**, Ahmad W, Samreen B, Hassan S (2010). Interaction of the hepatitis C virus (HCV) core with cellular genes in the development of HCV-induced steatosis. *Arch Virol*,155(11):1735-53
21. Khaliq S, Khaliq SA, Zahur M, **Ijaz B**, Jahan S, Ansar M, Riazuddin S, Hassan S (2010). RNAi as a new therapeutic strategy against HCV. *Biotechnol Adv*, 28(1):27-34
22. Ahmad W, **Ijaz B**, Javed FT, Jahan S, Shahid I, Khan MF, Hassan S (2010). HCV genotype distribution and possible transmission risks in Lahore, Pakistan. *World J Gastroenterol*, 14: 4321-4328
23. Ahmad W, **Ijaz B**, Javed FT, Kausar H, Sarwar MT, Gull S, Asad S, Shahid I, Hassan S. HCV genotype-specific correlation with serum markers: higher predictability for genotype 4a (2011). *Virol J*, **8**: 293-301
24. Javed FT, **Ijaz B**, Ahamd W, Jahan S, Khaliq S, Hassan S (2010). Correlation of serum HCV titer, ALP and Bilirubin levels with liver fibrosis stages. *IJAVMS*, 4(2): 56-62
25. Sumrin A, Ahmad W, **Ijaz B**, Sarwar MT, Gull S, Kausar H, Jahan S, Asad S, Riazuddin S (2010). Purification and medium optimization of alpha amylase from *Bacillus Subtilis* 168. Afr J Biotech, 10(11): 2119-2129
26. Jahan S, Khaliq S, Afzal N, Mujtiba G, Ahmad W, **Ijaz B**, sumrin A, Ishfaq A U, Hassan S (2011). Regulation of Apoptosis by HCV. *IJAVMS*, 5(4): 438-443
27. Asmatullah and **Ijaz B**. Embryotoxicity of Malathion in developing chick (2004). *Punjab University J Zoology* 19: 1-8

## ABSTRACTS

1) Ahmed F, **Ijaz B**, Hussain Z, Ahmed I, Mahmood N, Hussnain T. Role of - Human Interferon alpha2b Gene and Pre-sumptive Drug Model against Breast Cancer. Presented at International Symposium on Advances in Molecular Biology of Plants and Health Sciences (29 – 31 December 2015) at National Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore - Pakistan

2) Ijaz B, Gull S, Asad S, Husnain. Combinatorial RNAi approach against HCV presented at 2nd International Conference of Drug development- natural and Synthetic, COMSATS Institute of Information technology, Abbottabad, Pakistan. (August 23-25, 2015)

3) Jahan S, Khaliq S, **Ijaz B**, Ahmad W, Hassan S. Combined siRNA against HCV Core and COX-2 inhibits genes involved in HCV induced oxidative stress leading to hepatocellualar carcinoma. Presented at 9th Shaukat Khanum Memorial Cancer Symposium "Global Problem Local Solutions", Lahore, Pakistan. (Nov 26-28, 2010).

## AS A RESOURCE PERSON

1) Participation as a resource person at "International training course on microarray technology for gene discovery and expression". Jointly organized by Islamic Educational, Scientific and Cultural Organization (ISESCO) and Asia Pacific International Molecular Biology Network (A-IMBN) in collaboration with and held at Centre of Excellence in Molecular Biology (CEMB), University of the Punjab Lahore, Pakistan, 05-09 October, 2009.

2) Participation as a resource person at " 2nd International Training Workshop on DNA Microarray for Gene Expression & Training Workshop on Biosafety in Biomedical Research. Organized by Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore , Pakistan in collaboration Biosafety Association of Pakistan (BSAP), University of Karachi, Karachi, Pakistan, 07-11 March, 2011

3) Participation as a resource person at International Training Workshop on "Microarray for Gene Expression." Organized by Centre of Excellence in Molecular Biology (CEMB), University of the Punjab, Lahore, Pakistan, April 22-25, 2014.

## SEQUENCES SUBMITTED TO NCBI

1) Sarwar,M.T., Sumrin,A., Kausar,H., Ansar,M., Ashfaq,U.A., Ahmad W., **Ijaz,B**., Shahid,I., Hussain,M., Asad,S. and Hassan,S. "Hepatitis C virus isolate PK/FG1 non-structural protein NS2 gene, partial cds" **Accession Number: HM135516**
2) Sarwar,M.T., Sumrin,A., Ansar,M., Hussain,M., Kausar,H., Ahmad,W., Shahid,I., **Ijaz,B**., Ashfaq,U.A., Asad,S., Gull,S. and Hassan,S. "Hepatitis C virus isolate PK/FG2 non-structural protein NS4a gene, partial cds" **Accession Number: HM135517**
3) Sarwar,M.T., Sumrin,A., Ansar,M., Kausar,H., Ashfaq,U.A., Ahmad,W., Shahid,I., **Ijaz,B**., Asad,S., Gull,S., Hussain,M. and Hassan,S. "Hepatitis C virus isolate PK/FG3 non-structural protein NS4a gene, partial cds" **Accession Number: HM135518**
4) Sarwar,M.T., Sumrin,A., Ansar,M., Kausar,H., Ashfaq,U.A., Ahmad,W., Shahid,I., **Ijaz,B**., Asad,S., Gull,S., Hussain,M. and Hassan,S. "Hepatitis C virus isolate PK/FG4 non-structural protein NS4b gene, partial cds" **Accession Number: HM135519**
5) Sarwar,M.T., Sumrin,A., Ansar,M., Kausar,H., Ashfaq,U.A., Ahmad,W., Shahid,I., **Ijaz,B**., Asad,S., Gull,S., Hussain,M. and Hassan,S. "Hepatitis C virus isolate PK/FG5 non-structural protein NS5b gene, partial cds" **Accession Number: HM135520**

## EDUCATIONAL QUALIFICATION

| | |
|---|---|
| **2010-2014**<br>Ph.D in Molecular Biology | Centre of Excellence in molecular biology,<br>University of the Punjab Lahore, Pakistan |
| **2004 – 2006**<br>M.Phil in Molecular Biology | Centre of Excellence in molecular biology,<br>University of the Punjab Lahore, Pakistan |

| | |
|---|---|
| **2001– 2003**<br>Masters in Zoology | University of the Punjab Lahore, Pakistan |
| **1999– 2001**<br>B.Sc (Botany-Chemistry-Zoology) | University of the Punjab Lahore, Pakistan |
| **1996 – 1998**<br>Higher Secondary School Certificate Examination | BISE. Lahore, Pakistan |
| **1994 –1996**<br>Secondary School Certificate Examination | BISE. Lahore, Pakistan |

## MOLECULAR BIOLOGY TECHNIQUES

- **Microarray:**
  cDNA Microarray printing and hybridization using Genomic Solution Microgrid Station and hybridizer and scanning using UC4 Scanner, Microarray data analysis.

- **Molecular/Recombinant DNA Techniques:**
  siRNA synthesis and transfection, Polymerase chain reaction (PCR), Real Time PCR, Sequencing, Gel electrophoresis (SDS-PAGE & Agarose), Cloning Techniques, Genotyping of hepatitis C and Hepatitis B Virus.

- **Biochemical:**
  RNA extraction, Genomic DNA extraction, ELISA, Protein purification, Western blotting etc.

- **Microbiological Techniques:**
  Disinfections and sterilization, Lab safety, Specimen collection and processing, Smear examination, Cultures and isolation of microbes, Biochemical examination, Cell culturing etc.

- **Mammalian Cell culturing system:**
  Worked on Hela, Huh-7, MDBK and CHO cell line

## BIOINFORMATICS/ BIOSTATISTICS SOFTWARE PROFICIENCY

Information retrieval from Biological Databases, Local and Global Similarity Searching, DNA and Protein Sequence analysis, Visualization of Biological Macromolecules, Functional analysis, Phylogenetic analysis, Homology Modeling.

| | | |
|---|---|---|
| **Biological Databases**<br>• NCBI<br>• UNIPROT<br>• EXPASY | **Sequence Alignment & Analysis Tools:**<br>• BLAST<br>• ClustalW | **PTM Prediction Tools**<br>• SignalP<br>• Net O Glyc<br>• Net N Glyc<br>• NetPhos<br>• DisPhos |
| **Modeling Tools**<br>• Swiss Model | **Bio-statistical Soft wares**<br>• SPSS 16 | **Microarray Tools**<br>• Hybridization<br>• Image processing<br>• Result analysis |

## SEMINARS/WORKSHOPS

- Delivered a talk on Trend of "Trend of Expression of Proliferative and Cancer Inducing Genes in Fibrosis to Cirrhosis in HCV 3a Infected Patients Liver Biopsy Samples" in three day International Symposium on advances in molecular Biology of Plants and health sciences, held at CEMB
- Attended two days training workshop on Next Generation Data Analysis at COMSATS Islamabad. (September 3-4, 2015).
- Delivered a talk on "Combinatorial RNAi approach against HCV" in 2nd International Conference on drug Development Natural and Synthetic at Centre for advanced drug research COMSATS held on 23-25 August, 2015.
- Delivered a talk on "Real-Time PCR: Revolutionizing Detection and Expression Analysis of Genes" in two days workshop on "Hands on training on Real Time PCR" September 6-8, 2014
- Symposium on "Future Trends of molecular biological research in agriculture and health 25-28 Mar, 2009, National Centre of Excellence in Molecular Biology (NCEMB), University of the Punjab, Lahore Pakistan
- National Bioforum, 24-28 March,2008, National Centre of Excellence in Molecular Biology (NCEMB), University of the Punjab, Lahore Pakistan
- Research Officer Training Program 20-30 April, 2006, National Centre of Excellence in Molecular Biology (NCEMB), University of the Punjab, Lahore Pakistan.