

## **Curriculum Vitae**

### **Prof. Dr. Moaz ur Rahman**

**Director, Center of Excellence in Molecular Biology**  
**87-West Canal Bank Road, Thokar Niazbaig**  
**University of the Punjab, Lahore, Pakistan**



**Professor, School of Biological Sciences**  
**University of the Punjab, Quaid-i-Azam Campus, Lahore, Pakistan**

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## 1. PERSONAL INFORMATION

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**Name:** Moazur Rahman  
**Father's Name:** Abdur Rahman  
**Current Status:** Director, Center of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan.  
Professor and Independent Investigator, Head QA/QEC, School of Biological Sciences, University of the Punjab, Lahore, Pakistan.  
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www.pu.edu.pk/home/department/59/School-of-Biological-Sciences  
www.nibge.org/Profile.aspx?PID=56

## 2. ACADEMICS

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2012 **Postdoctoral Fulbright Fellowship** (Protein - Electron/X-ray crystallography)  
Harvard Medical School, Boston, USA  
2008 **PhD. Molecular Biology (Membrane Biology/Biochemistry/Biotechnology)**  
Thesis Title: "Structural and functional studies on membrane transport proteins"  
University of Leeds, UK  
2001 **M. Phil. Biotechnology**  
Quaid-i-Azam University Islamabad / NIBGE Faisalabad, Pakistan  
1998 **M. Sc. Chemistry**  
University of Agriculture, Faisalabad, Pakistan

## 3. POSITIONS HELD

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13 Jul 2023 to date Director, Center of Excellence in Molecular Biology, University of the Punjab, Lahore  
2020 to date Professor, School of Biological Sciences, University of the Punjab  
18 Jun to 7 Jul 2022 Officiating DG, School of Biological Sciences, University of the Punjab, Lahore  
23 Oct-4 Nov 2022 Officiating DG, School of Biological Sciences, University of the Punjab, Lahore  
2021 to date Head, Quality Assurance, School of Biological Sciences, University of the Punjab, Lahore  
2018 to 2024 Member of the International experts' selection committee for Masters/PhD and Post-Doctoral Islamic Development Merit Scholarship Programme  
2016 to date Visiting faculty, ICCBS-HEJ, Karachi  
2016 - 2020 Convener, Audit Committee, NIBGE, Faisalabad  
Oct-Dec 2017 Visiting Scientist, University of Adelaide, Australia  
May-June 2015 Visiting Scientist, University of Liverpool, UK

2009 to date	Coordinator, Pak-Islamic Development Bank Graduate Association
2013 to 2016	Convener, Procurement Evaluation Committee, NIBGE, Faisalabad
June - July 2013	Acting Head, Health Biotechnology Division, NIBGE, Faisalabad
2012 - 2013	Visiting Scientist, Harvard Medical School, Boston
2012 - 2020	Principal Scientist, NIBGE Faisalabad
2011 - 2020	Head/Manager, Quality Assurance-QEC, NIBGE
May-July 2011	Visiting Scientist, University of Liverpool, UK
May-June 2010	Visiting Scientist, University of Liverpool, UK
Jan-March 2009	Officiating Head, Biotechnology Interdisciplinary Division, NIBGE
2012 - 2020	Principal Scientist, NIBGE Faisalabad
2004 - 2012	Senior Scientist, NIBGE Faisalabad
1999 - 2004	Scientific Officer, NIBGE Faisalabad

#### 4. AWARDS AND ACHIVEMENTS

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- Established structural biology laboratory at NIBGE/PAEC
- Pakistan Academy of Sciences (Prof. ZKS) – Gold Medal (Biotechnology) 2018
- IAEA Fellowship in transboundary animal diseases Oct-Dec 2017, Adelaide, Australia
- SESAME-IAEA Fellowship in Synchrotron radiations May-June 2015, UK
- Pakistan Atomic Energy Commission Gold Medal 2014
- Recipient of research productivity award by Pakistan Council of Science and Technology for 2011, 2012, 2013 and 2015 years
- Fulbright Postdoc Scholar award 2012-13 at Harvard Medical School, Boston, USA
- SESAME-IAEA Fellowship in Synchrotron radiations May-July 2011, UK
- SESAME-IAEA Fellowship in Synchrotron radiations May-June 2010, UK
- Islamic Development Bank (IsDB) excellent performance/leadership award 2009
- IsDB scholarship for PhD studies at UK
- MPhil 'Distinction Certificate'
- MSc 'Certificate of Merit'

#### 5. RESEARCH PROFILE KEY WORDS

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Membrane/Multidrug resistance transport proteins • Human and poultry viral proteins • Recombinant vaccine development • X-ray/protein crystallography • Structural Biology • Enzyme Biotechnology

#### 5. RESEARCH PROUCTS DEVELOPED

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- Developed subunit vaccine and viral vector vaccines to combat diseases caused by poultry infectious bursal disease virus, Fowl adenovirus and *Pasturella multocida*
- Developed ELISA based diagnostic kits for poultry infectious bursal disease virus, Fowl adenovirus, Newcastle disease virus and *Pasturella multocida*

## 6. RESEARCH GRANTS (Completed, ongoing, under review)

No of total foreign funded proposals: 2 (as PI) and 1 (as co-PI)

No of total indigenous funded proposals: 9 (as PI) and 7 (as co-PI)

Total funding secured: > 350 million PKR

No	Title of Research grants	Amount	Funding agency	Year
1.	Development, production and commercialization of VP2 viral vector vaccine for infectious bursal disease (Gumboro) (as Project Team Lead)	PKR. 78.5 million	Centre of Excellence grant-HEC	2022-2025
2.	Development of indigenous recombinant human adenovirus 5-based vector vaccines against SARS-CoV-2 and its emerging variants (as PI)	PKR. 70 million	Local Challenge Fund – Higher Education Commission of Pakistan	2022-2024
3.	Development of recombinant viral vector vaccines against inclusion body hepatitis – hydropericardium syndrome for poultry industry (as PI)	PKR. 39 million	CPEC-CRG Higher Education Commission Pakistan	2021-2024
4.	PKR 7.0 Million “Development and Pre-clinical investigation of broad-spectrum SARS-CoV2 vaccine using surface display technology to combat newly emerging variants awarded under (as Co-PI)	PKR. 7.0 million	NRPU-Higher Education Commission, Pakistan	(2022 - 2025)
5.	Production and purification of recombinant phytase of microbial origin (as PI)	PKR. 300000	ORIC-PU, Lahore	2022-2023
6.	Development of inhibitors targeting the viral as well as host factors of severe acute respiratory Syndrome coronavirus 2 (sars-cov-2): a way forward to develop a high potency treatment therapy (as Co-PI)	PKR. 9.540 million	Pakistan Science Foundation	2020-2022
7.	Development of immuno and on-site lateral flow strip assay kit for diagnosis of infectious bursal disease virus (antigen) in poultry (as PI)	PKR. 3.57 million	ALP, PARC	2019-2022
8.	Development of lateral flow strip and dipstick to detect anti-infectious bursal disease virus antibodies in chicken for disease diagnosis and monitoring of post-vaccination immune response. (as PI)	PKR. 13.39 million	Higher Education Commission Pakistan under Technology Development Fund	2019-2022
9.	Biochemical, structural and functional characterization of proteins from Cobra (Naja naja) and Russellâ viper	PKR. 1.2 million	Higher Education Commission Pakistan	2020 – 2022

	venoms- Grant No 7709 (as Co-PI)			
10.	Development of recombinant vaccine to combat inclusion-body hepatitis hydropericardium syndrome in poultry (as PI)	Euro 45000	International Centre for Genetic Engineering and Biotechnology Italy	2018 – 2021
11.	Structural and functional characterization of PlpE protein of <i>Pasteurella multocida</i> as vaccine candidate-Grant No 7254 (as PI)	PKR. 10.87 million	Higher Education Commission Pakistan	2018 – 2021
12.	Discovery and development of anti-dengue therapeutics by targeting the virus-specific protease (as Co-PI)	PKR. 4.5 million	Higher Education Commission Pakistan	2017 – 2020
13.	Facility Development for the Diagnosis of Transboundary Animal Diseases and Vaccine Production (as Counterpart)	Euro 220,000	IAEA, Vienna	2015 – 2018
14.	Development of NS3/4A protease inhibitors against hepatitis C virus genotype 3a (as Co-PI)	PKR.6.70833 Million	Higher Education Commission, Pakistan	2015 – 2018
15.	Drug discovery of cyclopentenones, the potential small molecule anti-viral agents to treat hepatitis c disease (as Co-PI)	Rs.4.0 million	Higher Education Commission Pakistan	2012 – 2014
16.	Structural and functional characterization of the matrix protein of Newcastle disease virus (as PI)	PKR. 5.0184 million	Higher Education Commission Pakistan	2012 – 2015
17.	Establishment of over-expression systems for human and yeast peptide transporters with perspective of their importance in drug delivery (as PI)	PKR. 5.5 million	Higher Education Commission Pakistan	2012 – 2014
18.	Structural and functional studies of C-terminal hydrophilic tail of the human zinc transporter Znt8. CRP/PAK10-01 (as PI)	Euro 42000	International Centre for Genetic Engineering and Biotechnology Italy	2011 – 2014
19.	Structural and functional characterization of MDR efflux pumps in <i>Salmonella enterica</i> serovars Typhi with perspective of drug target identification (as PI)	PKR.4.4 million	Higher Education Commission (HEC) Pakistan	2010 – 2013
20.	PC1 project “Strengthening Synchrotron Radiation Based Structural Biology Research for Sustainable Development”	Rs. 200 million	Govt. of Pakistan	Prepared

## 7. ACTIVE INTERNATIONAL COLLABORATIONS

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- Professor Samar Hasnain, Molecular Biophysics group, Department of Life Sciences, University of Liverpool, Liverpool, UK.
- Dr. Osman Mirza, Associate Professor, Department of Drug Design and Pharmacology, Faculty of Health and Medical Sciences, University of Copenhagen Universitetsparken 2, DK-2100 Denmark
- Dr. Farhid Hemmatzadeh, School of Animal and Veterinary Sciences, Roseworthy Campus, The University of Adelaide, Australia
- Dr. Paola Storici, Head Protein Facility, Structural Biology Lab, Elettra Synchrotron facility, Italy.
- Dr. Silvia Onesti, Head Department of Structural Biology, Elettra Synchrotron facility, Italy.
- Professor Thomas Walz, Laboratory of Electron Microscopy, Rockefeller University, NY, USA.
- Dr. Mohammed Yousef, Assistant Professor, South Illinois University, Edwardsville, Illinois, USA.
- Synchrotron-light for experimental science and applications in the Middle-East Facility, Jordan

## 8. EXPERIENCE AND RESEARCH INTERESTS

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Dr. Rahman joined the National Institute for Biotechnology and Genetic Engineering (NIBGE) Faisalabad, Pakistan as scientific officer in 1999. From 1999-2000, he conducted research on genetic analysis of microorganisms and their use in microbial leaching of sulfidic ores. Afterwards (2001-2003), he was involved in the biosynthesis and hyper production of cephalosporin C by optimizing various nutritional and physical parameters and using molecular biology techniques by fungus *Acremonium chrysogenum*.

In 2003, Dr. Rahman was awarded an international competitive scholarship, the Islamic Development Bank Merit scholarship for PhD studies. In PhD project, structural and functional studies on various membrane proteins of pharmacological and physiological importance were conducted. These proteins include homologues of human transport proteins present in bacteria such as *Escherichia coli*, *Haemophilus influenza* etc.

During PhD and post PhD research at the University of Leeds and University of Liverpool, UK; NIBGE Faisalabad and Harvard Medical School, Boston, Dr. Rahman was extensively involved in characterization of health related eukaryotic and prokaryotic membrane/soluble proteins which were produced by recombinant means. These proteins were characterized using a wide range of biochemical and physical techniques such as site directed mutagenesis, protein purification using Ni-NTA agarose, gel filtration and ion exchange methods, transport assays of membrane proteins in *Escherichia coli* cells and proteoliposomes using radio-labeled permeants, substrate binding studies by Solid State Magic Angle Spinning NMR and Isothermal Titration Calorimetric Analysis, secondary structure analysis by Infrared and Circular Dichroism spectroscopies, conformational changes upon substrate binding by fluorescence spectroscopy and structure determination by electron and X-ray crystallography. In

addition, homology modelling and docking studies were also used to identify likely structurally and functionally important residues.

Upon return to home after completion of PhD in 2008, Dr. Rahman took a humble start to establish structural biology work/laboratory at NIBGE through winning a number of competitive research grants from national and international funding agencies and well established international collaborations. Currently, with supporting team of five PhD and two MPhil students, three researchers, one technician, we are working on number of membrane transporters belong to various families, the cation diffusion facilitator family, peptide transport proteins and multidrug resistance pumps with perspective of their characterization both structurally and functionally from pharmaceutical point of view.

In addition, he is investigating structure and function of viral proteins of Hepatitis C virus, Dengue virus, Newcastle disease virus, Infectious bursal disease virus and Fowl adenovirus for development of diagnostic assays and to devise therapeutic strategies to combat infections caused by receptive viruses.

In Nov 2020, Dr. Rahman has joined School of Biological Sciences, University of the Punjab as Professor and in July 2023, as Director Centre of Excellence in Molecular Biology, University of the Punjab to pursue above stated research programme enthusiastically.

## 9. COUNTRIES VISITED AS A PART OF SCIENTIFIC RESEARCH

No.	Name of Country	From	To	Purpose of Visit
1.	Leeds, UK	07/10/2003	22/08/2008	For PhD studies at the University of Leeds, UK
2.	Scotland, UK	13/09/2005	14/09/2005	Membrane Protein Structural Initiative (MPSI) Meeting at St. Andrews University, Scotland
3.	Scotland UK	27/08/2006	28/08/2006	To attend 2nd Annual UK-Southeast USA Symposium on Structural Genomics and Proteomics of Membrane and Metalloproteins
4.	Scotland UK	01/03/2007	03/03/2007	Membrane Protein Structural Initiative (MPSI) spring workshop
5.	Manchester UK	13/08/2007	17/08/2007	To attend 9th International Conference on Biology and Synchrotron Radiation
6.	Sheffield UK	17/09/2007	18/09/2007	To attend Membrane Protein Structural Initiative (MPSI) Meeting
7.	United Kingdom	01/05/2010	30/06/2010	To avail SESAME-IAEA Fellowship in Synchrotron radiations
8.	United Kingdom	15/05/2011	16/07/2011	To avail SESAME-IAEA Fellowship in Synchrotron radiations
9.	United Kingdom	01/05/2015	30/06/2015	To avail SESAME-IAEA Fellowship in Synchrotron radiations
10.	France	12/07/2004	15/07/2004	To attend Gateway Cloning International Symposium
11.	Germany	06/10/2005	09/10/2005	Symposium on Functional Membrane Protein Proteomics-From Transport Machineries to Dynamic



No.	Name of Country	From	To	Purpose of Visit
				Assemblies and Networks
12.	Egypt	16/11/2008	23/11/2008	To attend 7th SESAME Users meeting and SEASAME-JSPS School for Synchrotron Sciences
13.	Turkey	15/08/2009	23/08/2009	To attend 25th European Crystallographic Meeting
14.	Turkey	26/06/2019	30/06/2019	As Selection Committee Member/Expert of Islamic Development Bank PhD & Post-Doctoral Research Scholarship Programmes
15.	Jordan	11/11/2011	16/11/2011	To attend and give a talk on "Structural Biology of Membrane and Viral Proteins in a SESAME member country: Pakistan" in 9th SESAME User Meeting 12-16 November 2011, Amman, Jordan
16.	USA	26/04/2012	27/04/2013	Fulbright postdoctoral Fellowship at Harvard Medical School Boston
17.	Australia	15/10/2017	16/12/2017	To avail IAEA Fellowship in transboundary animal diseases
18.	Saudi Arabia	26/12/2009	30/12/2009	To receive Excellent Performance Award and to attend Management Development Programme
19.	Saudi Arabia	09/09/2018	09/09/2018	To establish collaboration related to EM structural biology research
20.	China	02/06/2019	20/06/2019	To participate and deliver a lecture in 2019 The Belt and Road & Developing Countries Workshop on Research Progress of Mycobacterial Diseases, 3 – 19 June 2019, at Guangzhou Institutes of Biomedicine and Health, Guangzhou, China
21.	Saudi Arabia	15/12/2019	19/12/2019	As Health Sciences expert in IsDB-TWAS Workshop on Science and Diplomacy in the developing world
22.	China	23/10/2024	30/10/2024	<p>To sign MoU between Center of Excellence in Molecular Biology and School of Life Sciences, Jiangxi University of Science and Technology, Ganzhou China for collaborative research in the field of Molecular Biology and Biotechnology.</p> <p>Deliver invited lectures on "Vaccine Development and Disease Diagnosis" at Laboratory Medicine and Biotechnology, Southern Medical University, Guangzhou and Key laboratory of animal virology of Ministry of Agriculture, Zhejiang University Hangzhou China</p>
23.	China	24/12/2024	01/01/2025	<p>Participated as keynote speaker in International Symposium on Veterinary Vaccine and Drug Technology Cooperation among the Belt and Road Countries, in Beijing, China.</p> <p>To sign MoU between Center of Excellence in Molecular Biology and Shihezi University China to strengthen research in the field of Health Sciences.</p> <p>Strengthens Collaborative Ties with TECON</p>



No.	Name of Country	From	To	Purpose of Visit
				<p>Pharmaceuticals, Shihezi University, Xinjiang CDC, Xinjiang Agriculture University and China Agricultural University Beijing. Also had a meeting with officials of Pakistan Embassy China to strengthen applied research in the field of vaccines with Chinese Industry and Universities.</p> <p><a href="https://thediomaticinsight.com/shihezi-university-china-and-cemb-pakistan-inked-mou/">https://thediomaticinsight.com/shihezi-university-china-and-cemb-pakistan-inked-mou/</a></p> <p><a href="https://www.nation.com.pk/30-Dec-2024/shihezi-university-china-cemb-pakistan-ink-mou">https://www.nation.com.pk/30-Dec-2024/shihezi-university-china-cemb-pakistan-ink-mou</a></p> <p><a href="https://thedailycpec.com/shihezi-university-and-cemb-punjab-sign-mou/">https://thedailycpec.com/shihezi-university-and-cemb-punjab-sign-mou/</a></p> <p><a href="https://thegulfobserver.com/punjab-universitys-cemb-signs-mou-with-shihezi-university-to-advance-health-sciences-research/">https://thegulfobserver.com/punjab-universitys-cemb-signs-mou-with-shihezi-university-to-advance-health-sciences-research/</a></p> <p><a href="https://www.emerginggwadar.com/life/education/china-pakistan-mou-health-sciences-collaboration">https://www.emerginggwadar.com/life/education/china-pakistan-mou-health-sciences-collaboration</a></p> <p><a href="https://edunews.com.pk/4540-2/">https://edunews.com.pk/4540-2/</a></p> <p><a href="https://pakeconet.com.pk/story/135705/shihezi-university-china-cemb-pakistan-ink-mou-for-advanced-research-in-health-sciences/">https://pakeconet.com.pk/story/135705/shihezi-university-china-cemb-pakistan-ink-mou-for-advanced-research-in-health-sciences/</a></p>

## 10. TEACHING ACTIVITIES

Deliver lectures to MPhil and PhD students on various aspects of Molecular Biology, Biochemistry and Structural Biology such as protein expression/purification, protein structure and function, bio-signalling, proteomics, bioinformatics etc.

### **Courses designed for PhD students**

- (1) Structural Biology
- (2) Protein Engineering
- (3) Structural Biology and Biomolecular crystallography

### **Delivers lectures in the following MPhil/PhD courses at NIBGE and SBS**

Course code	Course name	Level
BG-507	Biochemistry	MPhil/NIBGE
BG-604	Application Biotechnology	MPhil/NIBGE
BG-611	Modern Techniques in Biotechnology	MPhil/NIBGE
SBS-501	Biomolecules and their Physicochemical Properties	MPhil/SBS
BG-651	Advances in Transplastomic Technology and Biopharming	PhD/NIBGE
BG-652	Structural Biology	PhD/NIBGE
BG-653	Nanobiotechnology	PhD/NIBGE
BG-671	Genomics, Bioinformatics and Proteomics	PhD/NIBGE
BG-675	Protein Engineering	PhD/NIBGE
BG-676	Cell Signalling	PhD/NIBGE
SBS-705	Current Techniques in Biological Sciences	PhD/SBS
SBS-701	Journal Club 1	PhD/SBS
SBS 501	Biomolecules and their Physicochemical Properties	MPhil/SBS
SBS 513	Research Ethics	MPhil/SBS
CEMB-404	Principles of Infectious & Emerging Vector Born Disease	MPhil/CEMB

## 11. PhD / MPhil THESES SUPERVISION

PhD Theses Supervision			
No	Thesis Title	Name of student	Degree/ status
1.	Studies on the use of HBV epitope chimeras (co-supervised)	Mr. Imran Riaz	PhD/ Awarded (2014)
2.	Preparation of polysaccharide-protein conjugates of Vi negative <i>Salmonella</i> Typhi as potential candidates for vaccines (co-supervised)	Mr. Muhammad Salman	PhD/ Awarded (2014)
3.	Heterologous expression and characterization of Hepatitis C virus NS3, NS5A and NS5B proteins as drug targets (co-supervised)	Mr. M. Ikram Anwar	PhD/ Awarded (2014)
4.	Development of recombinant proteins for the control and diagnosis of Hydropericardium syndrome (co-supervised)	Mr. M. Salah-ud-din Shah	PhD/ Awarded (2014)
5.	Characterization of efflux pumps conferring multidrug resistance in <i>Salmonella enterica</i> serovar Typhi	Ms. Aqsa Shaheen	PhD/ Awarded (2016)
6.	Characterization of matrix protein of Newcastle disease virus	Ms. Nida Iram	PhD/ Awarded (2016)
7.	Development of immunogenic chimeric and fusion proteins against <i>Mycobacterium tuberculosis</i> (co-supervised)	Mr. Abdul Ghaffar	PhD/ awarded (2016)
8.	Chracterization of C-terminal hydrophilic tail of human zinc transport protein, ZnT8, proteases, and metalloproteins of <i>Achromobacter xylosoxidans</i>	Mr. Raheemullah	PhD/ awarded (2018)
9.	Strcutural and functional studies of 100K and penton base proteins of fowl adenovirus serotype 4	Mr. Majid Ali Shah	PhD Awarded (2021)
10.	Development of VP2 protein based recombinant vaccine to combat Infectious bursal disease infections in chicken	Ms. Maryam Zafar	PhD Awarded (2022)
11.	Structural and functional studies of immunogenic regions of hexon protein of Fowl adenovirus as recombinant vaccine candidates	Mr. Soban Tufail	PhD/ Awarded (2023)
12.	Development of NS3/4A Protease Inhibitors against Hepatitis C Virus Genotype 3a (as Co-supervisor)	Ms. Mahim Khan	PhD/ Awarded (2023)
13.	Structural and functional characterization of MDR pump STY4874 of <i>Salmonella</i> Typhi	Ms. Anam Tariq	PhD (2024)

14.	Structural and functional characterization of PlpE protein of <i>Pasteurella multocida</i>	Ms. Sadia Mahboob	PhD/ On going
15.	Development of recombinant viral vector vaccines against inclusion body hepatitis – hydropericardium syndrome for poultry	Ms. Ayesha Siddiqa (PH.D-BS15F20)	PhD/ On going
16.	Development and Pre-Clinical Investigation of Spike and Nucleocapsid Protein Based Vaccine to Combat SARS-CoV-2 Variants	Ms. Ayesha Siddiqa (PH.DBS11F20)	PhD/ On going
17.	Development of recombinant vaccine candidates against infectious bronchitis in chicken	Ms. Andleeb	PhD/ On going
18.	Development of indigenous recombinant human adenovirus 5-based vector vaccines against SARS-CoV-2 and its emerging variants	Ms.Sofia	PhD/ On going

<b>MPhil Theses Supervision</b>			
<b>No</b>	<b>Thesis Title</b>	<b>Name of student</b>	<b>Degree/ Status</b>
1.	Hyper-production of cephalosporin C by <i>Acremonium chrysogenum</i> (co-supervised)	Nadeem Javed	MPhil/ Awarded (2003)
2.	Cloning and expression of VP2 gene of Infectious bursal disease virus in <i>Pichia pastoris</i>	Majid Ali Shah	MPhil/ Awarded (2011)
3.	Cloning and expression of 100K gene of Fowl adenovirus in <i>Escherichia coli</i>	Soban Tufail	MPhil/ Awarded (2012)
4.	Study of inhibition of STY4874 multidrug resistance pump of <i>Salmonella</i> Typhi using natural products	Maryam Sana	MPhil/ Awarded (2014)
5.	Inhibition of AcrB Multidrug Resistance Pump of <i>Salmonella</i> Typhi by Reserpine	Waqar Ahmed Afridi	MPhil Awarded (2015)
6.	Intracellular expression of the VP2 protein of Infectious bursal disease virus in <i>Pichia pastoris</i>	Ibrahim Shufaat	MPhil Awarded (2015)
7.	Recombinant production of the matrix protein of local virulent strain of Newcastle disease virus	Iqra Jawad	MPhil Awarded (2016)
8.	Disruption of STY4874 MDR pump gene in <i>Salmonella</i> Typhi	Anam Tariq	MPhil Awarded (2017)
9.	Development of ELISA for Newcastle Disease Virus (NDV)	Zahra	MPhil Awarded (2018)
10.	Development of ELISA methods for the diagnosis of hemorrhagic septicemia in large animals	Sadia Mahboob	MPhil Awarded (2019)

11.	Development of genetic constructs for generation of <i>aroA</i> gene deletion mutant of <i>Pasteurella multocida</i> as vaccine candidate	Junaid Ali Meran	MPhil Awarded (2019)
12.	Assessment of antibody response against IBDV-VP2 Adenoviral vector vaccine in chickens	Tayyab Ali Asif	MPhil Awarded (2020)
13.	Assessment of performance of an integrated carwash waste water reclamation technology (as Co-supervisor)	Momina Yasin	MPhil Awarded (2020)
14.	Cloning, Expression, Purification, and Crystallization of Cytochrome P450 Enzyme from a Local Isolate of <i>Mycobacterium tuberculosis</i>	Hafiza Shaiza Talib	2021 (Awarded)
15.	Soluble Expression of Virus like particle-hexon epitope for Fowl adenovirus-4 as vaccine	Rohama Zahid	MPhil 2022 (Awarded)
16.	Recombinant production and characterization of peptide based biomaterials	Hira Ikram	MPhil 2022 (Awarded)
17.	Optimization of Biological and Physicochemical Conditions for Enhanced Recombinant Production of Penton Base <sup>143-474</sup> Protein of Fowl Adenovirus-4	Maheen Aslam	MPhil 2023 (Awarded)
18.	Recombinant expression, purification and refolding of Knob domain of Fiber-2 protein of Fowl Adenovirus-4	Aqsa Jabeen	MPhil 2023 (Awarded)
19.	Recombinant Production and <i>in vivo</i> Testing of SARS-CoV2 nucleocapsid protein and its disordered region	Amara Saif	MPhil 2023 (Awarded)
20.	Purification and refolding of the SUMO fused knob domain of Fiber-2 protein of fowl adenovirus-4	Mahnoor Habib	MPhil 2024 (Awarded)
21.	Recombinant production and characterization of the penton base (Cys189-Pro500) of Fowl adenovirus-11	Madia Siddiqui	MPhil 2024 (Awarded)
22.	Cloning, expression and purification of encapsulin like hypothetical protein and its chimera with antimicrobial peptides (co-supervisor)	Muhammad Hamza	MPhil 2024 (Awarded)

## 12. POSTDOCS, RESEARCHERS AND INTERNEES SUPERVISED

No	Project Title	Name /Designation	Status
1.	Identification of multidrug resistance	Dr. M. Tariq /	Jan-2012

	pumps of <i>Staphylococcus aureus</i>	Assistant Professor HEC-Interim	Dec-2012
2.	Exploring the activity of Human rhinovirus 3C protease	Dr. M. Imran / Assistant Professor HEC-Interim	March-2013 July-2013
3.	Studies of Fowl adenovirus proteins	Dr. Nisar Ahmed (PostDoc)	2022 – to-date
4.	Recombinant expression of IBDV proteins in insect cells and their characterization	Dr. Muhammad Shazeel (PostDoc)	2022 – to-date
5.	Characterization of IBDV and FAdV-4 isolates circulating in the field	Dr. Fakhra (PostDoc)	2022 – to-date
6.	Development of SARS-CoV-2 vector vaccines	Dr. Maryam Zafar (PostDoc)	2022 – to-date
7.	Development of Diagnostic assay for FAdV-4	Dr. Raheem ullah (PostDoc)	2022 – to-date
8.	Development of IBDV Vector Vaccine	Ms. Sitara (PostDoc)	2022 – to-date
9.	Development of IBDV Vector Vaccine	Ms. Tanzeela (Senior Researcher)	2023 – to-date
10.	Structural and functional studies of membrane and viral proteins	Mrs. Fouzia Ismat/ Senior researcher	Nov-2010 to-date
11.	Over-expression of viral proteins in <i>Escherichia coli</i>	Mr. Majid Ali Shah/ Researcher	July-2011 July-2013
12.	Construction of expression vectors for viral proteins	Mr. Soban Tufail	July-2012 July-2013
13.	Expression of human and yeast peptide transport proteins in <i>Escherichia coli</i>	Ms. Saima / Researcher	July-2011 July-2012
14.	Structural and functional characterization of pLPE protein of <i>Pasturella multocida</i>	Mrs. Sadia / Junior Scientist	April-2013 to-date
15.	Evaluation of novel drugs/compounds against <i>Staphylococcus aureus</i> and <i>Escherichia coli</i>	Ms. Iffat Anwar / Intern B.Sc. (Hons) Biotechnol.	Jan-2012 June-2012
16.	Exploring antibacterial activity of natural extracts against Gram +ve and Gram –ve bacteria	Ms. Nida Tahir / Intern B.Sc. (Hons) Biotechnol.	Jan-2014 June-2014

### 13. INTERNATIONAL FELLOWSHIPS WON FOR POST-GRADUATE STUDENTS TO WORK ON COLLABORATIVE RESEARCH PROJECTS ABROAD-COMMUNITY SERVICES

No	Fellowship	Student/Researcher Name	Period
1	ICTP/IAEA Sandwich Training Educational Programme (STEP) Fellowship at Elettra Synchrotron Italy	Mr. Raheem Ullah	Sep to Dec 2012 Aug to Nov 2013 Nov 2014 to Feb 2015

2	ICTP/IAEA Sandwich Training Educational Programme (STEP) Fellowship at Elettra Synchrotron Italy	Mr. Majid Ali Shah	Nov 2014 to Jan 2015 Dec 2015 to Feb 2016 Dec2016 to Feb 2017
3	The Arturo Falaschi ICGEB Fellowship at International Centre for Biotechnology and Genetic Engineering, Italy	Ms. Maryam Zafar	July to Oct 2018
4	ICTP/IAEA Sandwich Training Educational Programme (STEP) Fellowship at Elettra Synchrotron Italy	Ms. Anam Tariq	Nov 2018 to Jan 2019
5	Open SESAME Fellowship at ALBA Synchrotron Spain	Mr. Soban Tufail	March to May 2019
6	ICGEB funded 2 months fellowship at Shanghai Synchrotron China	Dr. Aamir Shahzad	Dec-2019 to Jan 2020
7	ICTP/IAEA Sandwich Training Educational Programme (STEP) Fellowship at Elettra Synchrotron Italy	Ms. Zahra Naz	3 visits × 3 Months

#### **14.ACTIVITIES: MEMBER OF BOARDS/EDITORIAL BOARDS, EXPERT/REVIEWER/EXAMINER AND FOCAL PERSON**

- Member of Expert Panel for research proposals evaluation under National Research Program for Universities (NRPU) 2024-25, Higher Education Commission, Pakistan
- Member of the Advanced Study and Research Board (ASRB) 2024-2027, Virtual University of Pakistan, Lahore.
- Member of the working group to suggest a model for the establishment and maintenance of Central DNA Data Base for enhancing efficiency of the justice system, Punjab-Pakistan.
- Member of COMSTECH-OIC (Organization of Islamic Cooperation, Standing Committee on Scientific and Technological Cooperation) International Distinguished Scholar Programme.
- Member, Higher Education Commission of Pakistan – Committee for Expert for Research Awards (Discipline: Life Sciences, Biological Sciences, Health Sciences, Pharmacy, Agriculture, and Veterinary Sciences)
- Member, Instrument framework/HR assessment committee at Punjab Forensic Science Authority (PFSA), Lahore-Pakistan, constituted by the Home Department, Government of Punjab.
- Member, Curriculum Review Committee FCC University Lahore, Pakistan
- Chairman of the committee for sustainable development of Center of Excellence in Molecular Biology, Center of Applied Molecular Biology and School of Biological Sciences, University of the Punjab.
- Member of ORIC (Office of Research, Innovation and Commercialization) Steering Committee, University of the Punjab, Lahore, Pakistan.



- Member of Editorial Board of Poultry (Journal) <https://www.mdpi.com/journal/poultry/editors>
- Member (Subject Expert) of Selection Board, Islamia University Bahawalpur.
- Member of the appointment committee for researchers, Institute of Zoology, University of the Punjab, Lahore
- Member of Board of Federal Public Service Commission as Subject Specialist for recruitment of faculty.
- Member of the expert/reviewer panel – Pakistan Science Foundation
- Member of Thematic Panel for Biotechnology – Higher Education Commission Pakistan
- Member of the Board of Faculty in Life Sciences, University of the Punjab, Lahore.
- Member of DDPC, School of Biological Sciences, University of the Punjab, Lahore
- Focal person for Career Counselling and Placement Centre, University of the Punjab, Lahore
- Member of the Board of Studies for Biotechnology, Kohsar University, Murree.
- Member of the Board of Studies for Biotechnology, "Department of Biotechnology" Virtual University of Pakistan, Lahore.
- Member Selection Committee 'Biology' Virtual University of Pakistan, Lahore.
- Member of Selection Board of Qarshi University Lahore
- Member of Board of Studies of Qarshi University Lahore
- Member of the expert evaluation committee for final award of Islamic Development post-graduate scholarships.
- Act as expert and reviewer for evaluation of Islamic Development Bank PhD and Post-Doc Fellowships
- Act as Visiting faculty, ICCBS-HEJ, University of Karachi, Karachi, Pakistan
- Act as reviewer for evaluation of Fulbright-USEFP PhD and Post-Doc Fellowships
- Act as reviewer for evaluation of Higher Education Commission Pakistan Post-Doc Fellowships
- Act as reviewer for evaluation of research grants awarded by Higher Education Commission of Pakistan, ORIC GC University Faisalabad, University of Sargodha, Sargodha and University of Lahore.
- Act as reviewer for evaluation of application of expatriate Pakistanis under Presidents Programme for the Care of Highly Qualified Overseas Pakistanis, Ministry of Professional Education and Training.
- Act as reviewer/examiner for evaluation of PhD/MPhil/Theses in various Universities of Pakistan such as University of Agriculture Faisalabad, GCU Faisalabad, University of Punjab, University of Karachi, SSE-LUMS, etc.
- Member of Editorial Board of Poultry (Journal) <https://www.mdpi.com/journal/poultry/editors>
- Member of Senior Editorial Board of Advancement in Life Sciences (Journal) <https://www.als-journal.com/editorial-board/>
- **Act as reviewer for a number of international scientific journals:** Avian Pathology, Biologicals, Computational and Structural Biotechnology Journal, Future Virology, Infection, Genetics and Evolution, International Journal of Macromolecule, Journal of Antibiotics, Microbial pathogenesis, Natural Product Research, Pakistan Journal of Zoology, Pharmaceutical Biology, Poultry Science,

Scientific reports, Vaccine, Veterinary Research-Springer Nature, Veterinary Microbiology, Virus Research, Virology Journal, Virology (ELS), Microbiology Spectrum etc.

## **15. MEMBERSHIP OF PROFESSIONAL ORGANIZATIONS**

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- National Committee of Crystallography / IUCr Adhering Body (<http://www.iucr.org/iucr/ab.html/adhering-bodies/pakistan>)
- Fulbright Alumni Association
- Technical Committee, International Nathiagalli Summer College, Pakistan
- Pakistan Nuclear Society (For peaceful applications)-Life Time
- Pakistan Society of Biotechnology
- Pakistan Society for Biochemistry and Molecular Biology
- Biochemical Society UK (2003-2005)
- Islamic Development Bank Postgraduate Association (Coordinator for Pakistan)
- The Chemical Society, Uni. of Agriculture Pakistan (1996-1998) (Joint Secretary)

## **16. MANAGER (QUALITY ASSURANCE-QEC) NIBGE – ISO 9001:2008&2015 / HEAD (QA) SCHOOL OF BIOLOGICAL SCIENCES, PU**

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In addition to research scientist, I led ISO 9001:2008/2015 Quality Management System Team at NIBGE and currently heading Quality Assurance at School of Biological Sciences, PU.

## **17. PRACTICAL WORKSHOPS AND COURSES ORGANIZED**

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- Organized (as Chief Organizer), International Conference Current Trends, Prospects, and Opportunities in Vaccine Research, Unlocking a Healthier Tomorrow: The Crucial Role of Vaccines, 28-29 February 2024, Centre of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan ([www.vaccine.cemb.edu.pk](http://www.vaccine.cemb.edu.pk)). Abstract book published in Advancements in life sciences journal (<https://www.als-journal.com/2024/05/25/international-conference-on-current-trends-prospects-opportunities-in-vaccine-research-28-29-feb-2024/>)
- Co-organized 4<sup>th</sup> International Workshop on X-ray Crystallography in Structural Biology, 25-27 Feb 2020 at the Islamia University of Bahawalpur, Bahawalpur, Pakistan (<https://www.iucr.org/news/newsletter/volume-28/number-2/fourth-international-workshop-on-x-rays-crystallography-in-structural-biology>).
- Organized an international workshop on Molecular Modelling and Dynamics, 10 May 2018 at NIBGE, Faisalabad, Pakistan, (<http://www.ccpsas.org/meetings.html>)
- Co-organized an International Workshop on Computational Biology in Biotechnology 31 July 2017 at NIBGE, Faisalabad, Pakistan
- Co-organized 2<sup>nd</sup> International Workshop on X-ray Crystallography in Structural Biology, 15-19 Oct 2016 at FCC University, Lahore. (<https://www.iucr.org/calendar/events/types/workshops/2nd-international-workshop-on-x-ray-crystallography-in-structural-biology/FinalWorkshopPoster.pdf>)
- Organized (as Chief Organizer), an International Workshop on X-ray Crystallography in Structural Biology, 12-15 Nov 2015 at NIBGE, Faisalabad, Pakistan

(<https://www.iucr.org/world/meeting-reports/pakistan/intwkshpsb>)

- Co-organized a Five days Chromatography and Mass spectrometry workshop from 28<sup>th</sup> Oct to 1<sup>st</sup> Nov 2013 at NIBGE, Faisalabad.
- Co-organized a Five days Chromatography and Mass spectrometry workshop from 2<sup>nd</sup> to 6<sup>th</sup> April 2012 at NIBGE, Faisalabad.
- Co-organized a Three days' workshop on Molecular Diagnosis of Dengue Virus from 1<sup>st</sup> to 3<sup>rd</sup> February 2012 at NIBGE, Faisalabad.
- Co-organized a Five days LCMS, GCMS and AAS workshop from 25<sup>th</sup> to 29<sup>th</sup> April 2011 at NIBGE for researchers of biological, chemical and physical sciences.

## **18. COURSES, TRAININGS AND COMPETITIVE EXAMS ATTENDED**

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- Completed a three weeks course on "Basic Management Skill", 19 November - 07 December 2018, held at Pakistan Institute of Engineering and Applied Sciences, Islamabad.
- Completed a training program on implementation of ISO 9001:2015 QMS and Internal Auditing, 16-17 January 2017 held at NIBGE Faisalabad by Directorate of Quality Assurance.
- Completed a two months training in the field of 'Animal Diseases', 20 October to 19 December 2017 at the University of Adelaide, Faculty of Sciences, Department of Microbiology and immunology, School of Molecular and Biomedical Science, Adelaide, Australia.
- Attended a three days course on Laboratory Quality Management, 9-11 August 2016, held at Marriot Karachi by National Institute of Health, Islamabad and World Health Organization.
- Attended a Five days Lead Auditor course on the Quality Management System (ISO 9001:2008), 4-8 October 2010, IRCA UK-certified, Islamabad. (Certificate No. A18021/452/2010)
- Attended an international Management Development Programme, 27-29 December 2009, at Islamic Development HdQs Jeddah, Saudi Arabia
- Systems approaches to membrane proteins, 3rd – 11th March, 2007, Institute for Membrane and Systems Biology, University of Leeds, Leeds, UK
- Legal aspects of Genetic Modification and good microbiological practice, 11 May 2004, University of Leeds, UK
- Radiation protection training course, School of Biochemistry and Microbiology, 10 Nov 2004, University of Leeds, UK
- Completed six days course on application and handling of FT-IR regarding its application in pharmaceutical, textile and other industries, 15-20 July, 2001, HEJ institute of chemistry, University of Karachi, Karachi
- GRE (Chemistry) USA; obtained 660 scores

## **19. CONFERENCE PRESENTATIONS/INVITED LECTURES/ PROCEEDINGS/ REPORTS**

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- **M. Rahman**, delivered a plenary lecture on "Exploration of viral structural proteins for vaccine development" in 2<sup>nd</sup> International Conference on Life Sciences, 10-12 April 2025, University of Management Technology, Lahore, Pakistan.

- **M. Rahman**, delivered an invited lecture on “Development of Modern Vaccines for IBH-HPS and IBD” in International Conference on Poultry Health Management, 8-9 April 2025, PMAS, ARID Agriculture University, Rawalpindi, Pakistan. <https://www.phc2025.com/>
- **M. Rahman**, as a keynote speaker, delivers a lecture on “Shaping the Future: How Molecular Biology is Transforming Science and Technology” in 3<sup>rd</sup> Global Sciences Technology and Management Conference (GSTMS-25), 20-21 January 2025, University of Jhang, Jhang, Pakistan.
- **M. Rahman**, deliver an invited lecture on ‘Modern Vaccines for Poultry Viruses’ 20-31 Dec 2024, International Symposium on Veterinary Vaccine and Drug Technology Cooperation among the Belt and Road Countries, in Beijing, China.
- **M. Rahman**, deliver an invited lecture on ‘Development of Modern Vaccines for Infectious Diseases’ 9-10 Dec 2024, in Training Course on “Increasing the Production and Supply of Medicines, Vaccines and Medical Technologies in the OIC Member Countries” Virtual, Sesric Ibsina Health Capacity Building Programme, COMSTECH Islamabad.
- **M. Rahman**, deliver an invited lecture on ‘Poultry vaccine development and disease diagnosis’ 29 October 2024, at the key laboratory of animal virology of Ministry of Agriculture, Zhejiang University, Hangzhou, China.
- **M. Rahman**, deliver an invited lecture on ‘Membrane and viral structural proteins for vaccine development and disease diagnosis’ 28 October 2024, at School of Laboratory Medicine and Biotechnology, Southern Medical University, Guangzhou China.
- **M. Rahman**, as an invited speaker/trainer conducted an interactive session on ‘Research Ethics/Publications/Patents’ for MS/MPhil and PhD supervisors under Graduate Education Policy 2023 (GEP-2023)-Higher Education Commission of Pakistan, 7<sup>th</sup> May 2024, Government College University, Lahore, Pakistan.
- **M. Rahman**, delivered key note lecture on ‘Exploration of membrane and viral structural proteins for vaccine development and disease’ in 6<sup>th</sup> International Conference on “Advances in Biosciences” 18-19 April 2024, Government College University, Lahore, Pakistan (Organized by Biological Society of Pakistan)
- **M. Rahman**, delivered special lecture on ‘Exploration of viral structural proteins for vaccine development’ in International Conference Current Trends, Prospects, and Opportunities in Vaccine Research, Unlocking a Healthier Tomorrow: The Crucial Role of Vaccines, 28-29 February 2024, Centre of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan ([www.vaccine.cemb.edu.pk](http://www.vaccine.cemb.edu.pk))
- **M. Rahman**, as an invited speaker, delivered a talk on “Structural Biology Research in Pakistan – Role of SESAME” OIC-SESAME Users Meeting, Organized by COMSTECH & SESAME, 26-27 January 2024, COMSTECH Islamabad.
- **Rahman**, Session Chair, in International Symposium on Poultry Health Challenges in Pakistan” organized by World Poultry Association and Department of Pathology, University of Agriculture Faisalabad, Pakistan on 28 December, 2023 at Serena Hotel Faisalabad.
- **M. Rahman**, as an invited expert, participated in discussion on “Consultative Colloquy on Veterinary Biologics Production in Pakistan” 9 October 2023, University of Veterinary and Animal Sciences, Lahore, Pakistan

- **Rahman**, as an invited expert, participated in “Round Table Dialogue on Livestock Sector Development in Pakistan” 15 September 2023, University of Veterinary and Animal Sciences, Lahore, Pakistan
- **M. Rahman**, as an invited expert, delivered a talk on “Exploration of viral structural proteins as vaccine candidates” in International Biosymposium-2023 Structural Biology Approaches in Drug Discovery and Vaccine Research” on Macromolecular Structure and Dynamics, 13-14 March 2023, School of Science and Engineering, LUMS, Lahore, Pakistan
- **M. Rahman**, invited lecture on “Recombinant viral proteins and their applications in diagnostics” in training course on Serological and Molecular Techniques for Animal Disease Diagnosis, 1-3 March 2023, held at Nuclear Institute for Agriculture and Biology, Faisalabad, Pakistan.
- **M. Rahman**, invited lecture on “Production of recombinant antigens for diagnosis” in international virtual training course on “Serological and Molecular Techniques for Animal Disease Diagnosis”, 19-22 December 2022, jointly organized by Nuclear Institute for Agriculture and Biology Faisalabad Pakistan, & International Atomic Energy Agency, Vienna.
- **M. Rahman**, as an invited expert, delivered a lecture on “ in International Biophysics Workshop on Macromolecular Structure and Dynamics, 24-25 March 2022, School of Science and Engineering, LUMS, Lahore, Pakistan
- **M. Rahman**, as an invited expert, delivered/conducted a training on development of lateral flow antigen/antibody detection device in *Three Days National Training Workshop on Nanotechnology and One Day Symposium on Nanotechnology Research in Pakistan* 22-24 Nov, 2021 at National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, Pakistan
- **M. Rahman** delivered an invited Ata-ur-Rahman School of Applied Biosciences, NUST, Islamabad, Pakistan in International Conference (IC-WEES) with the theme Biotechnologies for Environment, Health and Agriculture at Ata-ur-Rahman School of Applied Biosciences, NUST, Islamabad, Pakistan, 27-29 October 2021 (<https://icwees.nust.edu.pk/>).
- **M. Rahman**, as an invited expert, delivered/conducted a training on development of lateral flow antigen/antibody detection device in *Three Days National Training Workshop on Nanomaterials and Nanotechnology and One Day Symposium on Nanotechnology Research in Pakistan* 23-25 Nov, 2020 at National Institute for Biotechnology and Genetic Engineering (NIBGE), Faisalabad, Pakistan.
- **M. Rahman**, delivered an invited lecture “Production of recombinant proteins for crystallization” in 4<sup>th</sup> International Workshop on X-ray Crystallography in Structural Biology, 25-27 Feb 2020 at the Islamia University Bahawalpur, Bahawalpur, Pakistan.
- **M. Rahman**, delivered a lecture as an Health Sciences expert in IsDB-TWAS Workshop on Science and Diplomacy in the developing world, 16-18 December 2019, Jeddah, Saudi Arabia
- **M. Rahman**, invited lecture on “Production of recombinant antigens for diagnosis” in training course on Diagnosis of viral diseases, 23-25 October 2019, held at Nuclear Institute for Agriculture and Biology, Faisalabad, Pakistan.
- **M. Rahman**, Invited lecture on “Characterization of MDR pumps from *Salmonella* Typhi to combat antimicrobial resistance” in 2019 The Belt and Road & Developing

Countries Workshop on Research Progress of Mycobacterial Diseases, 3 – 19 June 2019, at Guangzhou Institutes of Biomedicine and Health, Guangzhou, China

- **M. Rahman**, as faculty member, delivered/conducted a talk/practical 'Crystallization of proteins' at the 17<sup>th</sup> National training course on, "Modern Techniques in Biotechnology" 22-26 April, 2019, NIBGE, Faisalabad.
- **M. Rahman**, invited lecture on "Production of recombinant antigens for diagnosis" in training course on Diagnosis of viral diseases, 18-20 December 2018, held at Nuclear Institute for Agriculture and Biology, Faisalabad, Pakistan.
- **M. Rahman**, delivered an invited lecture "Production of recombinant proteins for crystallization" in 3<sup>rd</sup> International Workshop on X-ray Crystallography in Structural Biology, 8-10 Oct 2018 at International Centre for Chemical and Biological Sciences, University of Karachi, Karachi, Pakistan.
- **M. Rahman**, as faculty member, delivered a talk 'Purification of proteins' at the 16<sup>th</sup> annual training course on, "Modern Techniques in Biotechnology" 16-20 April, 2018, NIBGE, Faisalabad.
- **M. Rahman**, invited lecture on "Production of recombinant antigens for diagnosis" in training course on Diagnosis of viral diseases, 19-21 September 2017, held at Nuclear Institute for Agriculture and Biology, Faisalabad, Pakistan.
- **M. Rahman**, delivered an invited lecture "Production of protein by recombinant means for structural studies" in 2<sup>nd</sup> International Workshop on X-ray Crystallography in Structural Biology, 15-19 Oct 2016 at FCC University Lahore.
- **M. Rahman**, as visiting faculty delivered a lecture 'Infrared spectroscopy of proteins' 10 March 2016 at International Centre for Chemical and Biological Sciences, Karachi.
- **M. Rahman**, as faculty member, delivered a talk 'Purification of proteins' at the 13<sup>th</sup> annual training course on, "Modern Techniques in Biotechnology" 20-24 Feb, 2015, NIBGE, Faisalabad.
- **M. Rahman**, invited lecture "Structural Biology of Membrane and Viral Proteins" in Workshop on Physics and Technology of Synchrotron (Synchrotron Radiation Users Meeting), 20-21 April 2015, held at National Centre for Physics, Islamabad.
- **M. Rahman**, invited lecture "Structural Biology of Health Related Proteins" in Symposium Recent Trends in Crystallography, 7-8 January 2015, held at Pakistan Institute for Science and Technology, Islamabad.
- **M. Rahman**, invited lecture "Structural and functional studies of membrane and viral proteins as drug target" in 2<sup>nd</sup> International Conference on Biotechnology for Sustainable Developments, 26-28 November 2014, held at GC University, Lahore, Pakistan
- **M. Rahman**, invited lecture "Characterization of multidrug resistance pumps of *Salmonella Typhi*" in an international conference "Emerging Trends in Life Sciences for Sustainable Development", 09-11 October 2014, held at Forman Christian College University, Lahore, Pakistan
- **M. Rahman**, invited lecture "Quality Improvement" in 4-Q PAEC training course, 4-15 August 2014, held at Nuclear Institute of Agriculture and Biology, Pakistan
- **M. Rahman**, invited lecture "Structural Biology Activities at NIBGE: Structure-function studies of health related proteins" in symposium Physics and Application of Synchrotron Sources, 13-15 May 2014, held at Pakistan Institute of Nuclear Science and Technology, Islamabad, Pakistan



- **M. Rahman**, invited lecture “Functional and Structural Characterization of a MDR Pump of *Salmonella* Typhi” in International Year Crystallography meeting, South Asia Summit Meeting on Vistas in structural chemistry 28-30 April, 2014, held at International Centre for Chemical and Biological Sciences, Karachi, Pakistan
- **M. Rahman**, invited lecture “Role of Multidrug Resistance Pumps in Pathogenesis of *Salmonella* Typhi and Their evaluation as Drug Targets” in 11<sup>th</sup> International Bhurban Conference on Applied Sciences and Technology, 15 – 18 Jan 2014, held at National Centre for Physics, Islamabad, Pakistan
- **M. Rahman**, invited lecture on “Production of recombinant antigens for diagnosis” in training course on Diagnosis of viral diseases, 17-19 Dec 2013, held at Nuclear Institute for Agriculture and Biology, Faisalabad, Pakistan.
- **M. Rahman**, Special Seminar entitled “Structural Biology of Membrane and Viral Proteins” delivered at School of Science and Engineering, LUMS, Lahore Pakistan, on 21<sup>st</sup> November 2013
- **M. Rahman**, Plenary lecture “Recombinant Expression of Therapeutics and Drug Targets” delivered in Symposium “Recombinant Enzyme for The Local Industry” held at Institute of Biochemistry and Biotechnology, University of Veterinary and Animal Sciences Lahore-Pakistan, 25 September, 2013
- **M. Rahman**, delivered invited talk “Structural Biology of Proteins” in International Scientific Spring 2012, 5– 9 March 2012 at National Centre for Physics, Islamabad.
- **M. Rahman** delivered a plenary talk on “Structural Biology of Membrane and Viral Proteins in a SESAME member country: Pakistan” in 9<sup>th</sup> SESAME User Meeting 12-16 November 2011, Amman, Jordan.
- **M. Rahman**, invited as a resource person to conduct hands on training workshop on “how to use vector NTI for construction DNA molecules” in 3 days course on Bioinformatics for Young Biotechnologists 9-11 December 2011, organized by ISESCO at FCC University, Lahore, Pakistan.
- **M. Rahman**, Seminar entitled “Effort for Structural Biology of Membrane Proteins in a SESAME member country” delivered in 25<sup>th</sup> European Crystallographic Meeting held in Istanbul, Turkey, 16 – 21 August 2009 .
- **M. Rahman**, Special Seminar entitled “Shedding Light on Membrane Proteins” delivered on 31<sup>st</sup> January 2009 at School of Biological Sciences, University of Punjab, Lahore, Pakistan.
- **M. Rahman**, M.J. McPherson and S.A. Baldwin. 2005. Expression of Membrane Proteins for Structural Studies (0598). Poster presentation accepted in Bioscience 2005, 17-21 July held at Scottish exhibition conference centre, Glasgow, UK.
- S. Rauf, K. Akhtar, M.A. Ghauri, **M. Rehman**, M A. Anwar, and Ahmad M. Khalid. 2004. Structure Characterisation of Cellulose Acetate-polymethylmethacrylate Membrane and its Application to Glucose Oxidase Immobilization. Oral presentation accepted in Biosensor 2004, 24-26 May, held in Granda, Spain.
- Riffat Tahira, Kalsoom Akhtar, M.A. Ghauri, Munir A. Anwar, **Moazur Rehman**, Nadeem Javid and Ahmad M. Khalid. 2003. Hyper production of Tylosine by *Streptomyces fradiae* through genetic manipulations. Oral presentation accepted in 7<sup>th</sup> International conference Trend in Biochemistry and Biotechnology, April 2-5, 2003 held at Punjab University Lahore, Pakistan. Pp 55.
- Munir A. Anwar, Muhammad Saleem, Sakandar Raouf, M. Afzal Ghauri, Hina Tabassum. Kalsoom Akhtar, **Moazur Rehman**, and Ahmad M. Khalid. 2003. Effect

of Cyanide Ions on the Oxidation of Various Energy Sources by Acidophilic Chemolithotrophic Bacteria. Oral presentation accepted in 7<sup>th</sup> International conference Trend in Biochemistry and Biotechnology, April 2-5, 2003 held at Punjab University Lahore, Pakistan. Pp 91.

- Munir A. Anwar, M. Saleem, M. Tausif Chaudhry, Kalsoom Akhta, **Moazur Rehman**, Sohail Hameed, M. A. Ghauri and Ahmad M. Khalid. 2003. Bacterial Adhesion to Mineral Surfaces During Pyrite Biooxidation. Poster presentation in 7<sup>th</sup> International conference Trend in Biochemistry and Biotechnology, April 2-5, 2003 held at Punjab University Lahore, Pakistan. Pp 48.
- Anwar, M. A., M. A. Ghauri, F. Latif, R. Chaudhry, M. Iqbal, **M. Rehman** and A. M. Khalid. 2000. Process upscaling for desulfurization of coal using acidophilic moderate thermophiles. Paper accepted for oral presentation in Extremophiles 2000, The 3<sup>rd</sup> International Congress on Extremophiles held at the Technical University Hamburg-Harburg in Hamburg, Germany, from September 3-7, 2000.
- Iqbal, M., M. A. Ghauri, **M. Rehman**, Anwar, M. A. and A. M. Khalid. 2000. Application of acidophilic autotrophic bacteria for the recovery of valuable metals from gold containing chalcopyrite concentrate. Paper accepted for poster presentation in Extremophiles 2000, The 3<sup>rd</sup> International Congress on Extremophiles held at the Technical University Hamburg-Harburg in Hamburg, Germany, from September 3-7, 2000.
- **Rahman, M.**, M. Iqbal, M. A. Ghauri, M. A. Anwar, K. Akhtar and A. M. Khalid., 2002. Microbial Leaching of Chalcopyrite from Indigenous Ores, Poster accepted for presentation in Extremophiles 2002, The 4<sup>th</sup> International Congress of Extremophiles to be held at University Federico II of Naples, Italy from September 22-26, 2002.
- **Rahman, M.**, M. Iqbal, M. A. Ghauri, M. A. Anwar, K. Akhtar, L. Niaz and A. M. Khalid., 2002. Bioprocessing of Lead-Zinc High Grade Ores, Poster accepted for presentation in Extremophiles 2002, The 4<sup>th</sup> International Congress of Extremophiles to be held at University Federico II of Naples, Italy from September 22-26, 2002.
- Anwar M. A., Tabassum H., Anwar H., Ghauri M.A., **Rahman M.**, Akhter K. and Ahmad M. Khalid. 2002. Optimization of Process Variables for Microbial Depyritization of Coal by Acidophilic Moderate Thermophiles, Poster accepted for presentation in Extremophiles 2002, The 4<sup>th</sup> International Congress of Extremophiles to be held at University Federico II of Naples, Italy from September 22-26, 2002.
- Anwar M. A., Ghauri M.A., Iqbal M., **Rahman M.**, Akhtar K. and Ahmad M. Khalid. 2002. Process Upscaling for Biodepyritization of Coal Using Locally Isolated Strains of Acidophilic Chemolithotrophic Bacteria, Poster accepted for presentation in Extremophiles 2002, The 4<sup>th</sup> International Congress of Extremophiles to be held at University Federico II of Naples, Italy from September 22-26, 2002.
- Moazur Rahman, Report on International Workshop on X-ray Crystallography in Structural Biology and Discussion Meeting on the use of SESAME in Pakistan, 12-14 Nov 2017 Faisalabad, Pakistan. (<https://www.iucr.org/world/meeting-reports/pakistan/intwkshpsb>)
- Khalid A. M., Zafar Y., Ghauri, M.A. and **Rahman M.** NIBGE Activity report 2001, National Institute for Biotechnology and Genetic Engineering (NIBGE) Faisalabad, Pakistan. ISBN: 969-8189-05-X.

## 20. PARTICIPATION IN INTERNATIONAL MEETINGS, CONFERENCES AND EXHIBITIONS

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- **M. Rahman** participated in 5<sup>th</sup> Meeting of National Laboratory Networking Group – Animal Health, 29 May 2023, Ramada Hotel, Islamabad
- **M. Rahman** participated in one day Science Diplomacy Conference/Webinar organized by Pakistan Nuclear Society and Virtual University of Pakistan, 25 June 2021.
- Participated as technical committee member in online Application Synchrotron Light activity, 45<sup>th</sup> International Nathiagalli Summer College 13-18 July 2020, Islamabad.
- Participated as an Health Sciences expert in IsDB-TWAS Workshop on Science and Diplomacy in the developing world, 16-18 December 2019, Jeddah, Saudi Arabia
- Participated in Science Mela Exhibition, 12-13 October 2019, Lahore.
- Attended meeting of the Selection Committee of Islamic Development Bank PhD & Post-Doctoral Research Scholarship Programmes as selection committee member, 27-29 June 2019, Istanbul, Turkey
- Participated as an invited member/speaker in 2019 The Belt and Road & Developing Countries Workshop on Research Progress of Mycobacterial Diseases, 3 – 19 June 2019, at Guangzhou Institutes of Biomedicine and Health, Guangzhou, China
- Participated as technical committee member in Application Synchrotron Light activity, 43<sup>rd</sup> International Nathiagalli Summer College 16-21 July 2018 at National Centre for Physics, Islamabad
- Participated as technical committee member in Application Synchrotron Light Sources and Computational biology activities, 42<sup>nd</sup> International Nathiagalli Summer College 17-29 July 2017 at National Centre for Physics, Islamabad
- Participated as technical committee member in computational biology activity, 41<sup>st</sup> International Nathiagalli Summer College 15-31 July 2016 at National Centre for Physics, Islamabad
- Participated in CERN-exhibition, 20 December 2014, held at National Centre for Physics Islamabad,
- International Year Crystallography meeting, South Asia Summit Meeting on Vistas in structural chemistry 28-30 April, 2014, Karachi, Pakistan, 28 – 30 April 2014, held at International Centre for Chemical and Biological Sciences, Karachi, Pakistan
- 11<sup>th</sup> International Bhurban Conference on Applied Sciences and Technology, 15 – 18 Jan 2014, held at National Centre for Physics, Islamabad, Pakistan
- Cell Biology Retreat/Symposium, Harvard Medical School, 16<sup>th</sup> -17<sup>th</sup> October 2012, Sea Crest Resort, North Falmouth, MA, USA
- 18<sup>th</sup> Annual Harvard Structural Biology symposium, 26<sup>th</sup> July 2012, American Academy of Art and Sciences, Cambridge, MA, USA
- Participated as Invited speaker in International Scientific Spring 2012, 5<sup>th</sup> – 9<sup>th</sup> March 2012 at National Centre for Physics, Islamabad to present a talk on “Structural Biology of Proteins”.
- Participated as a plenary speaker to give a talk on “Structural Biology of Membrane and Viral Proteins in a SESAME member country: Pakistan” in 9<sup>th</sup> SESAME User Meeting 12-16 November 2011, Amman, Jordan.
- Participated as a resource person to conduct hands on training workshop on “how to use vector NTI for construction DNA molecules” in 3 days course on Bioinformatics

for Young Biotechnologists 9-11 December 2011, organized by ISESCO at FCC University, Lahore, Pakistan.

- Participated in 25<sup>th</sup> European Crystallographic Meeting 16 – 21 August 2009, Istanbul, Turkey
- Participated 7<sup>th</sup> SESAME Users meeting and SEASAME-JSPS School for Synchrotron Sciences 17-22 November 2008, Cairo University, Cairo, Egypt.
- Membrane Protein Structural Initiative (MPSI) Meeting, 17-18 September 2007 University of Sheffield, Sheffield, England.
- 9th International Conference on Biology and Synchrotron Radiation, 13-17 August 2007, Bridgewater Hall, Manchester, England.
- Membrane Protein Structural Initiative (MPSI) spring workshop, 1 - 3 March 2007, Drymen, Scotland.
- Membrane Protein Structural Initiative (MPSI) Meeting, 4 - 5 November 2006, Queen's Hotel, Leeds, England.
- 2nd Annual UK-Southeast USA Symposium on Structural Genomics and Proteomics of Membrane and Metalloproteins, 27 – 29 August 2006, University of St. Andrews, St. Andrews, Scotland.
- Membrane Protein Structural Initiative (MPSI) Meeting, 13-14 September 2005, held at St. Andrews University, Scotland.
- Functional Membrane Protein Proteomics-From Transport Machineries to Dynamic Assemblies and Networks, 7<sup>th</sup> - 8<sup>th</sup> October 2005, held at Frankfurt, Germany
- Gateway International Symposium, 13<sup>th</sup> -14<sup>th</sup> May 2004, held at Boscolo Plaza Hotel, 12 Avenue De Verdun, 06100 Nice, France.

## 21. BOOKS and CHAPTERS PUBLISHED

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- Abstract Book: International Conference Current Trends, Prospects, and Opportunities in Vaccine Research, Unlocking a Healthier Tomorrow: The Crucial Role of Vaccines, 28-29 February 2024, Centre of Excellence in Molecular Biology, University of the Punjab, Lahore, Pakistan ([www.vaccine.cemb.edu.pk](http://www.vaccine.cemb.edu.pk)), published in Advancements in life sciences journal (<https://www.als-journal.com/2024/05/25/international-conference-on-current-trends-prospects-opportunities-in-vaccine-research-28-29-feb-2024/>). Chief Organizer: Moazur Rahman
- Iqbal, M., Rahman, M., Anwar, M. I. Hepatitis C Virus NS3, NS5A and NS5B Proteins as Drug Targets, LAMBERT Academic Publishing, **2014**, ISBN: 978-3-659-63470-3.
- B.K. Prabhala, **M. Rahman**, H.H. Nour-eldin, F.S. Jørgensen, O. Mirza PTR2/POT/NPF transporters: what makes them tick? Book Series, Advances in Protein Chemistry and Structural Biology, Elsevier, Academic Press, 2020, ISSN: 1876-1623
- Soban Tufai, Majid Ali Shah, Maryam Zafar, Mazhar Iqbal, Amjad Ali, Aamir Shehzad\*, **Moazur Rahman\***, Tools for prediction and validation of epitopic regions on protein targets for vaccine development and diagnostics, Frontiers in Protein and Peptide Sciences (Frontiers in Molecular Pharming), 2021, Vol.2, Pages 1-29,

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1. **Rahman, M.** and Iqbal, M., Recombinant expression of the VP2-beta domain in *Escherichia coli*, purification and its uses for detection of infectious bursal disease virus antibodies by dip-stick and lateral flow strip (Patent application No. 736/2018, Filing date 26/10/2018), Intellectual Property Organization, Government of Pakistan.
2. **Rahman, M.** and Iqbal, M., Recombinant expression of the VP2-beta domain in *Escherichia coli*, purification and its uses for detection of infectious bursal disease virus antibodies by dip-stick and lateral flow strip (U. S. Provisional Patent Application Serial No. 62/924,091, Filing date 23/10/2019; U. S. Non Provisional Patent Application Serial No. 17/064,511 Filing date 08/10/2020 (<https://ppubs.uspto.gov/dirsearch-public/patents/html/20210116450?source=US-PGPUB&requestToken=eyJzdWliOiI1YTFmNjNmNC0xNzYwLTQ0MmItYWJhNy04MjkzMGMQ1NDgzMjliLCJ2ZXliOiJIMWQwODA3My1kODIwLTQ4NmEtOWJiYy0xNTY2YWwMwZiVhZTciLCJleHAiOiJB9>) <https://patentimages.storage.googleapis.com/a9/c4/22/02ecf578395d82/US20210116450A1.pdf>
3. **Rahman M**, Iqbal M, Shehzad Aamir and Naeem N, Process for production of antibodies using the protrusion domain of VP2 protein to detect infectious bursal disease virus in poultry through dip-stick and lateral flow strip (New process to detect infectious virus in poultry) (Patent application No. 385/2023, Filing date 29/06/2023), Intellectual Property Organization, Government of Pakistan.
4. **Rahman M**, Aamir S, and Iqbal M, Consensus Nucleoprotein-Based Adenoviral Vector Vaccine for Broad Protection against SARS-CoV-2 (Patent application No. 119/2025, Filing date 24/02/2025), Intellectual Property Organization, Government of Pakistan.
5. **Rahman M**, Aamir S, and Iqbal M, Consensus Spike Protein-Based Adenoviral Vector Vaccine for Broad Protection against SARS-CoV-2 (Patent application No. 120/2025, Filing date 24/02/2025), Intellectual Property Organization, Government of Pakistan.
6. Rahman M, Iqbal M, Shahzad A and Rashid N, VP2 Protein-Based Adenoviral Vector Vaccine for Broad Spectrum Immunization Against Local Isolates of Infectious Bursal Disease Virus (Patent application No. 215/2025, Filing date 08/04/2025). Patent submitted to Intellectual Property Organization, Government of Pakistan.

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Total Impact Factor: >260 (Average impact factor per article >3.8)

(Average citation per article >30)

Google Scholar Total citation : >2250      Google Scholar h-index: 25, i10-index: 43

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2. Naz, Z., Lubkowski, J., Saleem, M., Aslam, M., Rahman, M., Wlodawer, A., and Rashid, N. (2024). Biophysical Characterization of a Novel Phosphopentomutase from the Hyperthermophilic Archaeon *Thermococcus kodakarensis*. *International Journal of Molecular Sciences*, *25*(23), 12893. (Impact factor 5.6) Q1
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4. Saba Kiran , Anam Tariq , Shoaib Iqbal, Zubera Naseem, Waqar Siddique, Sobia Jabeen, Rizwan Bashir, Ashfaq Hussain, **Moazur Rahman**, Fazal-e Habib, Waqar Rauf, Aamir Ali, Yasra Sarwar , Georg Jander and Mazhar Iqbal (2024) Punicalagin, a pomegranate polyphenol sensitizes the activity of antibiotics against three MDR pathogens of the Enterobacteriaceae, *BMC Complementary Medicine and Therapies* 24:93, <https://doi.org/10.1186/s12906-024-04376-7> (Impact factor 3.3) Q1
5. Fouzia Ismat, Anam Tariq, Aqsa Shaheen, Raheem Ullah, Kayode Raheem, Muhammad Muddassar, Sadia Mahboob, Wasim Abbas, Mazhar Iqbal, **Moazur Rahman** (2024) Inhibition of NS2B-NS3 Protease from All Four Serotypes of Dengue Virus by Punicalagin, Punicalin and Ellagic Acid Identified from *Punica granatum*, *Journal of Biomolecular Structure and Dynamics* <https://doi.org/10.1080/07391102.2024.2314258>. (Impact factor 5.2) Q1
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- of the multidrug efflux transporter styMdtM from *Salmonella enterica* serovar Typhi, PROTEINS: Structure, Function, and Bioinformatics, <https://doi.org/10.1002/prot.26141> (Impact factor 3.2).Q2
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## 24. PROTEIN STRUCTURES DEPOSITED IN PROTEIN DATA BANK (PDB)

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1. Cryo-EM structure of phosphoglucosmutase from *Thermococcus kodakarensis*.  
**PDB ID: 9DU5 (Phosphoglucosmutase of *T. kodakarensis*)**  
RCSB PDB link: <https://www.rcsb.org/structure/9DU5>
2. X-ray structure of phosphopentomutase from *Thermococcus kodakarensis*.  
**PDB ID: 9IX8 (Phosphopentomutase of *T. kodakarensis*)**  
RCSB PDB link: <https://www.rcsb.org/structure/9IX8>

## 25. VIRAL AND BACTERIAL GENOMES SUBMITTED in GenBank-NCBI

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2. Waheed, S.F., Siddiqua, A., Aslam A., Shehzad, A., Iqbal, M. and **Rahman, M.** Nucleotide sequence of 712 bp variable region of Hexon gene of PK-8\_08-08-23. Fowl adenovirus 4 associated with inclusion body hepatitis in broilers. Sequence submitted to NCBI under accession no. PP050491.
3. Waheed, S.F., Siddiqua, A., Aslam A., Shehzad, A., Iqbal, M. and **Rahman, M.** Nucleotide sequence of 712 bp variable region of Hexon gene of PK-9\_31-08-23. Fowl adenovirus 4 associated with hepatitis hydropericardium syndrome in broilers. Sequence submitted to NCBI under accession no. PP050492.
4. Waheed, S.F., Siddiqua, A., Aslam A., Shehzad, A., Iqbal, M. and **Rahman, M.** Nucleotide sequence of 666 bp variable region of Hexon gene of PK-10\_31-08-23. Fowl adenovirus 4 associated with inclusion body hepatitis in broilers. Sequence submitted to NCBI under accession no. PP050493.
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