

## **DR. MANZOOR HUSSAIN**

Senior Research officer cum Assistant Professor  
Incharge Forensic DNA Typing Laboratory  
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### **EDUCATION:**

**2018: Ph.D (Microbiology & Molecular Genetics)-**

Department of Microbiology and Molecular Genetics (MMG ),  
University of the Punjab, Lahore (Pakistan).

**2002: M. Phil (Molecular Biology)- Grade: A**

National Centre of Excellence in Molecular Biology (CEMB),  
University of the Punjab, Lahore (Pakistan).

**1999: M.Sc (Chemistry)- Division: 1<sup>st</sup>**

University of the Punjab, Lahore.

**1997: B.Sc. (Botany, Zoology, Chemistry) - Division: 1<sup>st</sup>**

University of the Punjab, Lahore.

**1995: F.Sc (Physics, Chemistry, Biology)- Division: 2nd**

Government Degree College, satellite town Gujranwala.

**1993: Matriculation: Division:1<sup>st</sup>**

Government High School, G.T road Gujranwala.

### **EMPLOYMENT RECORD:**

January15, 2002 – June 30, 2007:

**Research Officer (BPS-17)** at Centre for Applied Molecular Biology (CAMB)

July 01, 2007- June 07, 2018:

**Senior Research Officer/Assistant Professor (BPS-18)** at Centre for Applied Molecular Biology (CAMB)

June 08, 2018- continue:

**Assistant Professor on adhoc (BPS-19)** at Centre for Applied Molecular Biology (CAMB), University of the Punjab, Lahore

### **NATIONAL TRAININGS ATTENDED:**

1. A revolution in crime investigation. Attended a training workshop on Crime Scene Search and Modern Forensic Techniques in police investigation from January 12-17, 2003, jointly organized by Indianapolis Marion County, Forensic Services Agency, USA and CEMB, University of the Punjab Lahore.
2. A training workshop on Modern Forensic Techniques for Crime Scene Search and Investigations from March 08-10, 2004, jointly organized by DDJN Institute of Forensic Science, Indianapolis, USA and CEMB, University of the Punjab Lahore.
3. A training workshop on Modern Forensic Techniques for Crime Scene Search and Investigations from October 11-12, 2004, jointly organized by DDJN Institute of Forensic Science, Indianapolis, USA and CEMB, University of the Punjab Lahore.
4. Attended a training on “Internal Auditing, Corrective & Preventive Actions held at CEMB, University of the Punjab Lahore on 12.03.2009”
5. Attended a training workshop on “Project Monitoring & Evaluation System (PMES) software” from April 10-11, 2010 at COMSATS Institute of Information Technology, Lahore.
6. Attended two days training workshop on “Planning, Establishing and Managing technology incubators” at NUST Islamabad on Nov 06-07, 2013
7. Attended two day training workshop on “Next Generation Sequencing” at institute of Agricultural Sciences, university of the Punjab Lahore on December 04-05, 2015
8. Attended a PSF workshop on “Funds Winning Opportunities” on 03.03.16 at university of the Punjab Lahore.
9. Attended a PSF workshop on “Establishing & Leading a Research Group” held at COMSATS, Lahore on May 02-03, 2016.
10. Attended 2-days workshop on “Writing winning Research Proposals” at COMSATS institute of Information Technology, Islamabad on January 30-31, 2017

### **FOREIGN TRAININGS:**

1. A Training Course on Forensic DNA STR analysis was successfully completed at Indianapolis Marion County, Forensic Services Agency, Indiana, USA from October 22, 2003 to January 14, 2004.
2. Two days training on “Forensic & Doping control Analysis by LC/MS/MS” was attended at Dubai Crime Laboratory from September 20-21, 2006.
3. Two days training on “ABI 7500 Real Time PCR-Advanced training course for forensic applications” was attended at Applied Biosystems Laboratory, Dubai from November 07-08, 2007

## **COMMUNITY SERVICES:**

### **a) Analytical Services:**

1. Provided Forensic DNA analysis services in criminal & paternity cases to the Law Enforcement Agencies & Courts throughout Pakistan and generated revenue of **Rs.21.172 Millions** during 2011-15
2. Provided PCR based Molecular diagnostics services to the general public for hepatitis B & C and generated revenue of **Rs.173.624 Millions** during 2011-18

### **b) Hands on Trainings provided:**

1. One week training was provided to the two veterinary officers of Live Stock & Dairy Development Department, Punjab on “DNA amplification through PCR and multiplexing techniques”.
2. One week training on “Forensic DNA Analysis for Human Identification” was provided to the 06 officials of Forensic Medicine Department of Bannu Medical College, KPK (May 12-16, 2014)
3. Two weeks training on “Forensic DNA analysis” was provided to a Research Associate, HEJ Karachi (Feb 23- March 06, 2015).
4. Provided 4-weeks training on “Forensic Serology & DNA” from March 06 – April 02, 2017 to Forensic Science Laboratory Peshawar official

### **c) Lectures Delivered in Various Training Workshops:**

1. In order to promote the best use of DNA technology in crime investigations, 09 training workshops (3<sup>rd</sup>-11<sup>th</sup>) were conducted (during 2004-2009) for Investigation officers of various ranks in which more than 500 participants were trained on crime scene search and proper collection of biological evidence material from the crime scene. (organizer & speaker)
2. For proper collection of evidence material in sexual assault cases, 02 training workshops were conducted for medico-legal lady doctors (participant from each district of Punjab) were trained during 2008-09 (organizer & speaker).
3. Delivered lectures on “Role of DNA in crime investigation” in the police training workshop held at Counter Terrorism Department, Police training School, Chung Lahore on 28.12.2010
4. Delivered lectures to the police officers on “crime scene search and modern forensic techniques for crime investigation” in the police training workshop held at Counter Terrorism Department, Police training School, Chung Lahore on 10.05.11
5. Delivered lectures to the police officers on “crime scene search and modern forensic techniques for crime investigation” in the police training workshop

held at Counter Terrorism Department, Police training School, Chung Lahore on 22.09.11.

6. Delivered lectures to the police officers on “crime scene search and modern forensic techniques for crime investigation” in the police training workshop held at Counter Terrorism Department, Police training School, Chung Lahore on 13.01.12
7. Delivered lectures to the police officers on “crime scene search and modern forensic techniques for crime investigation” in training workshop held at CTD Police training School, Chung Lahore on 27.01.12.
8. Delivered lectures on “DNA and its role in crime investigation” in the police training workshop organized by Police School of Information and Analysis, Chung, Lahore, on 25.04.2012.
9. Delivered lectures on “DNA and its role in crime investigation” in the police training workshop organized by Police School of Information and Analysis, Chung, Lahore, in August 2012
10. Participated as an invited speaker in the seminar on “Forensic DNA Typing: Role of Judiciary and Investigating Agencies” held at Liaquat University of Medical & Health Sciences (LUMHS), Jamshoro on August 27, 2016. The seminar was chaired by Honourable Mr. Justice Amir Hani Muslim (Honourable judge of Supreme Court of Pakistan)
11. Delivered a detailed talk /presentation on “Forensic Investigation Techniques” at institute of Applied Psychology, university of the Punjab, Lahore on 05-12-2017 to the students of BS-VII (M&R), MSc III (M&R) and Ph.D
12. Delivered a detailed talk /presentation on “Forensic Investigation Techniques” to the students of BS, MSc and Ph.D at institute of Applied Psychology, university of the Punjab, Lahore on 26.02.2019

**d) Court testimony:**

Attended numerous District & Sessions courts of Punjab province, anti-terrorism courts and Lahore High Courts to testify DNA test reports issued in various rape and murder cases.

**e) External Examiner:**

- 1) Evaluation of thesis and viva exam of 03 BS students 4-years students at Government college (boys), satellite town Gujranwala (22.03.2019)
- 2) Evaluation of thesis and viva of M. Phil student at IBB department, UVAS Lahore (July 2019)
- 3) Evaluation of thesis and viva exam of 04 BS students 4-years students at Government college (boys), satellite town Gujranwala (18.02.2022)

### **PROJECTS:**

1. Worked as Project Director in the project entitled “Establishment of Forensic Services laboratory at CEMB” funded by Higher Education of Pakistan (37.99 Million Rupees).
2. Worked as a Project Director in the project entitled “DNA Databank for crime Investigation” funded by Ministry of Science & Technology Pakistan (37.900 Million Rupees).
3. Worked as Co-PI in the IPFP project entitled “Detection and Identification of Dengue Virus by rapid and cost effective RT PCR method.”
4. Won the research project grant of University of the Punjab for the fiscal year 2015-16 for the project “Distribution Pattern Of HCV Genotypes & Its Association With The Viral Load”
5. Won the research project grant of University of the Punjab for the fiscal year 2019-20 for the project “A study of 15 autosomal STR polymorphisms in Schizophrenic and Bipolar patients”

### **ACHIEVEMENTS /AWARDS:**

1. Established first state of the art Forensic DNA Laboratory in the country at CAMB to provide DNA testing facility in criminal and paternity cases. The laboratory provided DNA testing services in more than 3500 cases including rape, murder, sodomy, dead body identification and parentage.
2. Established Molecular Diagnostic Laboratory at CAMB to provide PCR based diagnosis of Hepatitis B and C at highly affordable rates. The laboratory has provided analytical services to the general public in more than 55,000 cases.
3. Won Punjab University Teacher`s Performance Evaluation Award for year 2015.
4. Won Punjab University Teacher`s Performance Evaluation Award for year 2016.
5. Won Punjab University Teacher`s Performance Evaluation Award for year 2017
6. Won Punjab University Teacher`s Performance Evaluation Award for year 2018
7. Won the Punjab University Research Publication Award for the year 2016.
8. Won the Punjab University Research Publication Award for the year 2018
9. Won the Punjab University Research Publication Award for the year 2019
10. Won the Punjab University Research Publication Award for the year 2020

**RESEARCH THESIS SUPERVISED:**

S.NO	Degree	Name of student	session	Capacity
01	M.Phil (Molecular Biology)	Muhammad Shahid	2006-08	1 <sup>st</sup> Supervisor
02		Shahzad Bhatti	2006-08	1 <sup>st</sup> Supervisor
03		Ijaz Anwar	2008-10	1 <sup>st</sup> Supervisor
04	M.Phil (Molecular Biology & Forensic Sciences)	M. Adeel Aslam	2015-17	1 <sup>st</sup> Supervisor
05		Muhammad Shahzad	2015-17	1 <sup>st</sup> Supervisor
06		Fatima-Tuz-Zahra	2015-17	1 <sup>st</sup> Supervisor
07		Shahzadi Javed	2015-17	1 <sup>st</sup> Supervisor
08		Sana Kaleem	2015-17	2 <sup>nd</sup> Supervisor
09		Fatima Arshad	2016-18	1 <sup>st</sup> Supervisor
10		Sidra Hameed	2016-18	1 <sup>st</sup> Supervisor
11		Aatika Ali	2016-18	1 <sup>st</sup> Supervisor
12		Sami Ullah	2016-18	2 <sup>nd</sup> Supervisor
13		B.S in chemistry	Hasnain Nasir	2014-18
14	M. Jawad Talha		2014-18	2 <sup>nd</sup> Supervisor
15	M.Phil (Molecular Biology & Forensic Sciences)	Fasiha Khan	2017-19	1 <sup>st</sup> Supervisor
16		Farzeen Zehra	2017-19	1 <sup>st</sup> Supervisor
17		Kahkashan Khan	2017-19	1 <sup>st</sup> Supervisor
18		Rabia Sabir	2018-20	1 <sup>st</sup> Supervisor
19		Yumna Saeed	2018-20	1 <sup>st</sup> Supervisor
20		Kinza Tahir	2018-20	1 <sup>st</sup> Supervisor
21		Maham Rashid	2020-22	ongoing
22		Faiza Abdullah	2020-22	ongoing
23	Ph.D	Sumaia Saif	2020-24	ongoing

### **WORKSHOPS / SEMINARS ORGANIZED:**

1. Organized 3<sup>rd</sup> training workshop for investigating agencies in collaboration with DDJN institute of Forensic science, Indiana, USA on “Modern Forensic Techniques for crime scene search & Investigations” held at CAMB/CEMB on October 11-12, 2004.”
2. Organized 4<sup>th</sup> training workshop for investigating agencies in collaboration with Indianapolis Marion County, Forensic Services Agency, USA on Crime scene search & Modern Forensic Techniques for crime Investigations held at CAMB/CEMB on January 10-11, 2005. Delivered lectures to the participants as one of the speaker.
3. Organized 5<sup>th</sup> training workshop for investigating agencies in collaboration with Strand Analytical Laboratories, USA on Crime scene search & Modern Forensic Techniques for crime Investigations held at CAMB/CEMB on January 6-7, 2006. Delivered lectures to the participants as one of the speaker.
4. Organized 6<sup>th</sup> training workshop for investigating agencies in collaboration with Strand Analytical Laboratories, USA on Crime scene search & Modern Forensic Techniques for crime Investigations held at CAMB/CEMB on July 14-15, 2006. Delivered lectures to the participants as one of the speaker.
5. Organized 7<sup>th</sup> training workshop for investigating agencies in collaboration with Strand Analytical Laboratories, USA on Crime scene search & Modern Forensic Techniques for crime Investigations held at CAMB/CEMB on December 15-16, 2006. Delivered lectures to the participants as one of the speaker.
6. Organized a mini workshop on “DNA for Justice” in collaboration with Strand Analytical Laboratories, USA for judiciary and Lawyers at CAMB/CEMB on December 16, 2006.
7. Organized 8<sup>th</sup> training workshop for investigating agencies in collaboration with Strand Analytical Laboratories, USA on Crime scene search & Modern Forensic Techniques for crime Investigations held at CAMB/CEMB on July 18-19, 2007. Delivered lectures to the participants as one of the speaker.
8. Organized 9<sup>th</sup> training workshop on Crime scene search & Modern Forensic Techniques for crime Investigations held at CAMB/CEMB on November 21-22, 2007 and delivered lectures there in.
9. Organized and delivered lectures in 10<sup>th</sup> training workshop investigating agencies in collaboration with Cuyahoga County Coroner’s office, Cleveland, Ohio, USA on Crime scene search & Modern Forensic Techniques for crime Investigations held at CAMB/CEMB on March 24-25, 2008.
10. Organized 2<sup>nd</sup> mini workshop on “DNA for Justice” in collaboration with Strand Analytical Laboratories, USA for judiciary and Lawyers at CAMB/CEMB on March 27, 2008.

11. Organized and delivered lectures therein in the 1<sup>st</sup> training workshop for medico-legal doctors on collection & preservation of evidence material in sexual assault cases held at CAMB/CEMB on July 19, 2008.
12. Organized and delivered lectures therein in the 2<sup>nd</sup> training workshop for medico-legal doctors on collection & preservation of evidence material in sexual assault cases held on March 28, 2009 organized by CAMB/CEMB Lahore.”
13. Organizer /Trainer for 4-days” Hands on Training Workshop on Clinical Diagnostics (October 18-21, 2016)” jointly organized by Institute of Biochemistry & Biotechnology (IBB) and Centre for Applied Molecular Biology (CAMB), university of the Punjab Lahore.
14. Organized one day symposium on “DNA in Crime Investigation” held at Al-Razi Hall, University of the Punjab, Lahore on April 05, 2018 and executed as one of the speaker. More than 200 participants attended the symposium.
15. Organized one day seminar on “Bio-safety training for young researchers” held at Centre for Applied Molecular Biology (CAMB), university of the Punjab Lahore on November 29, 2018.
16. Delivered lecture (invited speaker) on Forensic Investigation techniques at institute of Applied Psychology, university of the Punjab Lahore on 26.02.2019

### **PARTICIPATION IN SCIENTIFIC EXHIBITIONS:**

1. Acted as focal person to present CAMB products and services in the S&T Exhibition held at Dera Allah Yar & Usta Muhammad, Baluchistan on May 18-19, 2012. CAMB managed to display different posters, banners & brushes to create the awareness among the masses. The Centre also offered free services for screening of HCV & HBV in the people of that community.
2. Presented CAMB highlights in the scientific summit “Invention & Innovation Summit-2012” organized by Pakistan Science Foundation (PSF) at University of the Punjab, Lahore on June 18, 2012. CAMB was declared as winner of the Invention & Innovation Summit-2012 and was awarded Winning Shield.
3. Managed all the arrangements to present CAMB in the “Invention & Innovation Summit-2013” organized by Pakistan Science Foundation (PSF & IRP) at University of the Punjab, Lahore on April 9-10, 2013
4. Participated to present CAMB in “**DICE-2013, distinguished innovations, collaborations and Entrepreneurship**”, jointly organized by Pakistan Council for Science & Technology (PCST) and University of Gujrat at its Hafiz Hayat campus, Gujrat from 1-2<sup>nd</sup> October 2013.



5. Managed as focal person to present CAMB in the science & technology exhibition organized by Ministry of Science & technology in the Punjab Youth Festival 2014 held at International Expo Centre, Lahore, on March 01-03, 2014. CAMB not only presented its products, services and activities through brushes, skins, backdrop etc but also offered free screening test of HCV and HBV to the young visitors.
6. Managed as focal person to present CAMB activities in the science & technology exhibition 2015 organized by Ministry of Science & technology at PCSIR Lahore on April 13, 2015.
7. Presented CAMB products and services in the scientific summit “Invention & Innovation Summit-2016” held at University of the Punjab, Lahore on March 02-03, 2016.
8. Presented CAMB products and services in the PAK-CHINA Business Forum (PCBF) held at Expo Centre, Lahore on March 19-22, 2016.
9. Participated and presented CAMB products and services in the “Trade Promotion and Industrial Development Conference & Exhibition (TPIDCE 2016)” held at Sheikhpura Chamber of Commerce and Industry on April 29, 2016.
10. Participated as a focal person and presented the products and services of CAMB in the 6<sup>th</sup> Inventions to Innovation Summit 2017 held at university of the Punjab Lahore on March 08-09, 2017 and won the awards on two projects. A letter of appreciation was also received from Director CAMB in the same context.
11. Participated as a focal person and presented the products and services of CAMB in the 7<sup>th</sup> Invention to Innovation Summit 2018 held at University of the Punjab Lahore on March 07-08, 2018 and won the awards on two projects.

**SCIENTIFIC SYMPOSIA/SEMINAR ATTENDED:**

1. Being the member of Dengue group of Punjab University, attended series of seminars /meetings on Dengue Awareness and control measures held at Punjab University.
2. One day seminar on “Forensic application of DNA” held at department of forensic medicine & toxicology, FMH college of Medicine and Dentistry Lahore on June 17, 2008.
3. One day seminar on “Real Time PCR results for Real Time Patient Management” held at Centre for Applied Molecular Biology, university of the Punjab, Lahore on October 28, 2015
4. Attended two days “DNA Strategy Symposium” organized by British Council and PFSA at Pearl Continental Hotel on January 18-19, 2016.

5. Attended a seminar on “Advances in Nucleic Acid Technology” at Centre for Applied Molecular Biology, university of the Punjab, Lahore on 01.09.2016
6. Attended awareness seminar on “Lungs and Bronchial Diseases” at CAMB on 17.11.2016
7. Attended one day seminar on “World Intellectual Property day” on 29.04.17 at Flatti`s Hotel Lahore.
8. Attended seminar on “Counting Violent Extremism Orientation” jointly organized by University of the Punjab and Centre for Health and Gender Equality (CHANGE) at CEES on 13.09.2017.
9. Attended a workshop on NRPU research project organized by ORIC held on 06.10.17 at Al-Razi Hall, university of the Punjab Lahore.
10. Attended a seminar on “Industrial Biotech & Biorefining” held at CAMB, University of the Punjab Lahore on 25.01.18.
11. Attended an educational and awareness seminar on “Prevention of Hepatitis” held at Mughal Eye Trust Hospital, Lahore on August 06, 2018
12. Attended a seminar on “NGS Technology (Illumina) and its applications” at CAMB, university of the Punjab on October 14, 2021.
13. Attended (online) “HID Future Trends in Forensic DNA Technology” presented by Thermo Fisher Scientific

**CONFERENCES ATTENDED:**

1. Poster presentation on “Percentage Distribution of Hepatitis C virus genotypes in Lahore” in 11<sup>th</sup> PSBMB conference held at University of Punjab on November 25-28, 2013
2. Attended 3 days national conference on “Emerging trends in Bioinformatics and Biosciences” at Hazara University, Mansehra, KP on July 20-22, 2017.
3. Participated in “National Forensic Science Conference” organized by National Forensic Science Agency (NFSA), Islamabad held at Marriott Hotel, Islamabad on February 15-16, 2018.
4. Poster presentation in the international conference on “Recent Innovations in Molecular Sciences” held at University of Punjab, Lahore on November 06-08, 2019.

## PUBLICATIONS:

1. Nadeem, A., Babar, M. E., **Hussain, M.**, & Tahir, M. A. (2009). Development of pentaplex PCR and genetic analysis of X chromosomal STRs in Punjabi population of Pakistan. *Molecular biology reports*, 36(7), 1671-1675
2. Shafique, M., Shahzad, M. S., Perveen, U., Parveen, R., Ali, A., **Hussain, M.**, ... & Husnain, T. (2015). Allele frequency distribution of 10 MiniSTRs in the Pashtun population of Pakistan. *International journal of legal medicine*, 129(3), 467-468.
3. Shan, M. A., Tahira, F., Shafique, M., **Hussain, M.**, Perveen, R., Shahzad, M., ... & Iqbal, M. (2015). Estimation of different biochemical intensities in drinking water from eastern region of Lahore city. *Advancements in Life Sciences*, 2(3), 131-134
4. Shafique, M., **Hussain, M.**, Shan, M. A., Shahzad, M., Hussain, S., Hussain, N., ... & Iqbal, M. (2015). Genetic diversity of 15 autosomal STR loci in the population of Southern Punjab Pakistan. *Forensic Science International: Genetics*, 19, e1-e2
5. Shan, M. A., **Hussain, M.**, Shafique, M., Shahzad, M., Perveen, R., & Idrees, M. (2016). Genetic distribution of 15 autosomal STR markers in the Punjabi population of Pakistan. *International journal of legal medicine*, 130(6), 1487-1488.
6. Shahzad M, Shafique M, **Hussain M**, Shan MA, Perveen R, Ziaurehman, Idrees M. Successful DNA Profiling for Identification of burnt Families from their bones using AmpF $\ell$ STR Identifiler $\text{\textcircled{R}}$  Plus Kit (2016). *Adv. Life Sci.* 3(2); 59-62
7. Shafique, M., Shahzad, M.S., Rahman, Z., Shan, M.A., Perveen, R., Shahzad, M., **Hussain, M.**, Shahid, A.A. and Husnain, T., (2016). Development of new PCR multiplex system by the simultaneous detection of 10 miniSTRs, SE33, Penta E, Penta D, and four Y-STRs. *International journal of legal medicine*, 130(6), pp.1409-1419
8. **Manzoor Hussain**. "Effect of Post-coital intervals on DNA STR profiling of semen donor in the post-coital vaginal swabs." *Punjab Univ. J. Zool.* (2017), Vol. 32 (1), pp. 075-079
9. Wahid, B., Wasim, M., Saleem, K., Waqar, M., Wahid, K., **Hussain, M.**, & Idrees, M. (2018). Poor glycemic control and abrupt onset of diabetes in HCV patients receiving direct-acting antiviral drugs: case series. *Future Virology*, 13(08), 525-528.

10. Manzoor, S., Younis, S., **Hussain, M.**, Ehsan, F., Sheikh, N., & Abbasi, M. H. (2019). Efficacy of direct-acting anti-viral therapy on chronic, naïve hepatitis c virus patients of punjab, pakistan: a cross-sectional study. *Journal of biological regulators and homeostatic agents*, 33(1): 105-108
11. Anwar, I., Hussain, S., Rehman, A. U., & **Hussain, M.** (2019). Genetic variation among the major Pakistani populations based on 15 autosomal STR markers. *International journal of legal medicine*, 133(4), 1037-1038.
12. **Hussain, M.**, Chaudhry, A., & Bashir, H. (2019). Enhance production of alkaline protease by chemical mutagenesis of Bacillus species. *BioCell*, 43(5-1), 312-322
13. Shahzad, M., **Hussain, M.**, Shafique, M., Perveen, R., & Sheikh, N. (2020). Population genetic data of 30 insertion–deletion markers in Punjabi population of Pakistan. *International Journal of Legal Medicine*, 134(2), 511-512
14. Aslam, M. A., **Hussain, M.**, Khan, K., Zahra, F. T., Shafique, M., & Javeed, S. (2020). Haplotype diversity of 17 Y-STRs in Sheikh population of Punjab. *International journal of legal medicine*, 134: 1325-1326.
15. Zahra, F. T., **Hussain, M.**, Khan, K., Aslam, M. A., Shafique, M., Rubab, A., & Javeed, S. (2020). Genetic polymorphism of Y-chromosomal STRs in Gujjar population of Punjab. *International Journal of Legal Medicine*, 134: 1333-1334
16. Mateen, R. M., Sabar, M. F., Hussain, S., Parveen, R., & **Hussain, M.** (2021). Familial DNA analysis and criminal investigation: usage, downsides and privacy concerns. *Forensic Science International*, 318, 110576.
17. Amjad, S., Akram, A., Iqbal, M., **Hussain, M.**, & Khan, M. (2021). Analysis of ALT and AST levels in HCV infected patients. *Advancements in Life Sciences*, 8(4), 349-354
18. Bilal, M., Bashir, H., Ameen, R., Sumrin, A., **Hussain, M.**, & Manzoor, S. (2022). Anti HCV activity and expression inhibition of HCC markers by protein extract from Iberis gibraltarica. *Brazilian Journal of Biology*, 84.e252676

## **CONFERENCE ABSTRACTS PUBLISHED:**

- Manzoor Hussain, Saima Younis, Mehwish Salman, Fatima Waris, Sadia Manzoor and Muhammad Iqbal (2013). Percentage distribution of hepatitis C virus genotypes in Lahore. 11<sup>th</sup> PSBMB conference at university of the Punjab.
- Manzoor Hussain, Saima Younis, Sadia Manzoor, Farhana Ehsan, Mudassir Hassan Abbasi and Nadeem Sheikh (2018). An attempt to find an association between HCV Genotypes and viral load from infected Lahori population. APASL STC-2018 Yokohama, Japan P05-10-10226 (conference abstract)
- Saima Younas, Sadia Manzoor, Fatima Waris, \*Manzoor Hussain, Muhammad Iqbal (2019). Prevalence of hepatitis B & C virus infection in young population of Punjab, Pakistan. (Poster-280) Recent innovations in Molecular science (International conference held at University of the Punjab Lahore)

## **MISCELLANEOUS:**

- Remained member of Executive Committee /BOG of CAMB (2010-2015)
- Member of various departmental committees including Departmental Disciplinary Committee, Student Advisory Committee, admission committee, Purchase Evaluation Committee etc
- Focal person to Alumni