



DR SAFDAR HUSSAIN (PHD)

Assistant Professor

Molecular Genetics & Forensics Group, Centre for Applied Molecular Biology (CAMB), University of the Punjab, Lahore, Pakistan.

INTRODUCTION:

Dr. Safdar Hussain, Assistant Professor and Head of “Molecular Genetics & Forensics” group at CAMB, completed his PhD degree in ‘Molecular Biology & Biochemistry’ from Xi’an Jiaotong University (XJTU), China in 2018. Dr. Hussain’s primary research interests include cellular behaviour and molecular mechanisms underlying activation and regulation of immune responses in different disease conditions. During his research at XJTU, he studied molecular mechanisms of cartilage synthesis, degradation and repair in Osteoarthritis (OA) and other cartilage and bone related diseases. Dr. Hussain has a vast experience of working in ‘Forensic DNA Testing’ Laboratory at CAMB, providing DNA Testing Services to law enforcement agencies of the country (2006-2014). Dr. Hussain visited Strand Analytical Laboratories, Indianapolis, Indiana, USA in 2006 for a six month training program on ‘Forensic DNA Fingerprinting’. He has solved >500 paternity as well as criminal cases of various nature including murder, rape, dead body identification (plane crash, bomb blasts etc.) and robbery. Dr. Hussain has testified as a DNA Analysis Expert/ Technical Manager in criminal and paternity cases and conducted various seminars/ workshops for law enforcement representatives including respectable Judges, lawyers, police officials and medico-legal doctors. Dr. Hussain’s current research work focuses on the future methodologies of Forensic DNA profiling as well as molecular characterization of congenital and hereditary diseases.

RESEARCH STUDENTS SUPERVISED:

Student Name	Degree	Session
Mubeen Fatima	PhD	2021-2024
Iqra Jamil	MPhil	2021-2022
Iqra Zulfiqar	MPhil	2021-2022
Navaira Arif	MPhil	2020-2021
Rija Iftikhar	MPhil	2020-2021
Haris Munir	MPhil	2020-2021

RESEARCH PROJECTS:

- Multiplex development of Equine STR markers (funded by University of the Punjab, Lahore)
- Joint pain management - molecular mechanisms of cartilage damage/repair in Rheumatoid Arthritis / Osteoarthritis
- Human Genetic Testing

RESEARCH PUBLICATIONS:

- [1] Jian S, Quancheng W, Ying Y, Hussain S, Yitong Z, Yuanxu G, Mengyao S, Huang H, Xinyu H, Fujun Z, Qilan N, Yan H, Peng X and Shemin L. Identification of a cartilage specific novel miRNA which directly targets PRMT3 in rats. *Osteoarthritis and Cartilage Open*. 2021 Jun 1;3(2): 100161 (SCI, IF=6.576)
- [2] Maqsood M, Imran Hasan Khan M, Yameen M, Aziz Ahmed K, Hussain N and Hussain S. Use of oral rivaroxaban in cerebral venous thrombosis. *Journal of drug assessment*. 2020 Dec 15;10(1):1-6. (ESCI)
- [3] Mateen RM, Sabar MF, Hussain S, Parveen R, Hussain M. Familial DNA analysis and criminal investigation: Usage, downsides and privacy concerns. *Forensic Science International*. 2020 Nov 4;110576. (SCI, IF=2.108)
- [4] Mengyao S, Hussain S, Yuxiao H, Jidong Y, Zixin M, Xi L, Yuanxu G, Yitong Z, Huang H, Meng F, Yan H, Fujun Z, Wenhua Z, Liesu M, Dongmin L, Jian S and Shemin L. Maintenance of SOX9 stability and ECM homeostasis by selenium-sensitive PRMT5 in cartilage [J] *Osteoarthritis and Cartilage*, 2019, DOI: 10.1016/j.joca.2019.02.797. (SCI, IF=5.45)
- [5] Mushtaq N, Hussain S, Zhang S, Yuan L, Li H, Ullah S, Wang Y and Xu J. Molecular characterization of alterations in the intestinal microbiota of patients with grade 3 hypertension [J] *Int J Mol Med*, 2019, DOI: 10.3892/ijmm.2019.4235. (SCI, IF=2.78)
- [6] Jian S, Zixin M, Zhao W, Hussain S, Yitong Z, Dongxian G, Fujun Z, Yuanxu G, Mengyao S, Huang H, Yan H, Nannan Z, Peng X, Shemin L. T-2 toxin exposure decreases SECISBP2 mediated selenoproteins expression and induces lesions in the epiphyseal plates of DA rats, exacerbated by selenium deficiency [J] *Cartilage*, 2018. (SCI, IF=2.62)
- [7] Zixin M, Yuanxu G, Mengyao S, Hussain S, Dongxian G, Ying Y, Yitong Z, Lisong H, Huang H, Fujun Z, Yan H, Jiawen X, Nannan Z, Jian S, Shemin L. Selenium-sensitive miRNA-181a-5p targeting SECISBP2 regulates selenoproteins expression in cartilage [J] *J Cell Mol Med*, 2018, DOI: 10.1111/jcmm.13858. (SCI, IF=4.49)
- [8] Hussain S, Mengyao S, Zixin M, Yuanxu G, Jing X, Mushtaq N, Lisong H, Huang H, Yitong Z, Ying Y, Hussain N, Fujun Z, Yan H, Peng X, Jian S, Shemin L. Down-regulated

- in OA cartilage, SFMBT2 contributes to NF- κ B mediated ECM degradation [J] *J Cell Mol Med*, 2018, DOI: 10.1111/jcmm.13826. (SCI, IF=4.49)
- [9] Hussain S, Mengyao S, Yuanxu G, Mushtaq N, Yitong Z, Ying Y, Hussain N, Kombo OE, Suleiman A, Sadiq M, Fujun Z, Yan H, Jian S, Shemin L. SFMBT2 positively regulates SOX9 and Chondrocytes proliferation [J] *Int J Mol Med*, 2018, DOI: 10.3892/ijmm.2018.3894. (SCI, IF=2.78)
- [10] Yuanxu G, Zixin M, Congshan J, Wei W, Jidong Y, Peng X, Ke X, Jing X, Mengyao S, Yitong Z, Hussain S, Rui Z, Quancheng W, Yan H, Fujun Z, Wenhua Z, Dongmin L, Liesu M, Jian S, Shemin L. Downregulation of HS6ST2 by miR-23b-3p enhances matrix degradation through p38 MAPK pathway in osteoarthritis [J] *Cell Death Dis*, 2018, 9(6): 699. (SCI, IF=5.96)
- [11] Mushtaq N, Hussain S and Jiru X. Molecular Characterization of Gut Microbiota in Obese and Lean Hypertensive Patients [J] *J Bacteriol Parasitol*, 2018, 9(5): 345. (IF=2.025)
- [12] Mushtaq N, Hussain S, Yuan L, Zhang S, Li H, Ullah S and Jiru X. Gender Based Compositional Fluctuations in Gut Microbiota in Hypertension. [J] *Cardiovasc Pharm Open Access*, 2018, 7: 248. (IF=1.77)
- [13] Hussain N, Wenhua Z, Congshan J, Jing X, Manman G, Xiaoying W, Hussain S, Wang B, Rajoka MSR, Li Y, Tian J, Liesu M, Shemin L. Down-regulation of miR-10a-5p promotes proliferation and restricts apoptosis via targeting T-box transcription factor 5 in inflamed synoviocytes [J] *Biosci Rep*, 2018, 38(2). (SCI, IF=2.9)
- [14] Rakha A, Yu NO, Hwan YL, Hussain S, Waryah AM, Adnan A, Kyoung JS. Discriminating Power of Rapidly Mutating Y-STRs in deep rooted endogamous pedigrees from Sindhi population of Pakistan [J] *Legal Med*, 2018, DOI: 10.1016/j.legalmed.2018.08.001. (SCI, IF=1.25)
- [15] Hussain N, Wenhua Z, Congshan J, Jing X, Xiaoying W, Manman G, Hussain S, Yongsong C, Ke X, Peng X, Yan H, Jian S, Liesu M, Shemin L. Down-regulation of miR-10a-5p in synoviocytes contributes to TBX5-controlled joint inflammation [J] *J Cell Mol Med*, 2017, 22(1): 241-250. (SCI, IF=4.5)
- [16] Rakha A, Yu NO, Kyoung JS, Adnan A, Hussain S, Waryah AM, Hwan YL. Male individualization with Rapidly Mutating Y-STRs in deep rooted endogamous pedigrees from Sindhi population of Pakistan. Conference: HM2016, at Germany. (Conference paper)
- [17] Shafique M, Hussain M, Shan MA, Shahzad M, Hussain S, Hussain N, Ehsan F, Perveen R, Iqbal M. Genetic diversity of 15 autosomal STR loci in the population of Southern Punjab Pakistan [J] *Forensic Sci Int Genet*, 2015, 19:e1-e2. (SCI, IF=3.91)

- [18] Yitong Z, Yuanxu G, Mengyao S, Hussain S, Ying Z, Huang H, Xinyu H, Yutong Z, Fujun Z, Yan H, Qilan N, Peng X, Jian S and Shemin L. Selenium sensitive HDAC2 is required for FOXO3A and regulates extracellular matrix metabolism in cartilage. (Submitted in "Journal of Bone and mineral metabolism", Dec. 2021).
- [19] Saleem T, Fatima M and Hussain S. Forensic DNA phenotyping; Current updates and future prospects. (Submitted in "Egyptian Journal of Forensic Sciences" Jan. 2022).
- [20] Babar M, Fatima M, Parveen R, Hussain M and Hussain S. Touch DNA and its Importance in Forensic Investigations (Submitted in "Forensic Science, Medicine and Pathology", Jan. 2022).

NATIONAL / INTERNATIONAL TRAININGS AND SCIENTIFIC SYMPOSIA / SEMINARS / CONFERENCES

- Attended the technical webinar on "Implementing a Y-Screening/Direct to DNA Workflow" organized by Promega (March 18, 2021).
- Attended the "Forensic Middle East & Africa 2020" virtual event organized by Forensic Middle East & Africa Team (October 12-14, 2020).
- Attended the First International Conference on "Recent Innovations in Molecular Sciences" organized by University of the Punjab, Lahore, Pakistan (November 6-8, 2019).
- Attended the 45th Silk Road Training Program on "Frontier Development of Medical Science and Technology & Big Data Theory Applications" arranged by Xi'an Jiaotong University, Xi'an Shaanxi, China (November 9-14, 2018).
- Organized the Hsien Wu and Ray Wu international symposium on "Metabolism Reprogramming" jointly arranged by Xi'an Jiaotong University and Hsien Wu and Ray Wu team, Xi'an Shaanxi, China (August 11-12, 2017).
- Attended the Hsien Wu and Ray Wu international symposium on "Molecular Biology" organized by Hsien Wu and Ray Wu team, at University of Beijing, China, (August 11-12, 2015).
- Attended a three day workshop on "Principles of Forensic Toxicology" held at Armed Forces Institute of Pathology, Rawalpindi, Pakistan (January 20-22, 2014).
- Attended a three day "Symposium on Forensic Sciences" at Punjab Forensic Science Agency (PFSA), Lahore, Pakistan (June 23-25, 2014).
- Organized the 9th Training Workshop on "Crime Scene Search and Modern Forensic Techniques for Crime Investigations" at Center of Excellence in Molecular Biology, Lahore, Pakistan (November 21-22, 2007).

- Organized the 8th Training Workshop on “Crime Scene Search and Modern Forensic Techniques for Crime Investigations” jointly arranged by Strand Analytical laboratories, Indianapolis, Indiana, USA and Center of Excellence in Molecular Biology, Lahore, Pakistan (July 18-19, 2007).
- Organized the 7th Training Workshop on “Crime Scene Search and Modern Forensic Techniques for Crime Investigations” jointly arranged by Strand Analytical laboratories, Indianapolis, Indiana, USA and Center of Excellence in Molecular Biology, Lahore, Pakistan (December 15-16, 2006).
- Attended a six-month training course as a “Forensic DNA trainee” on “DNA Short Tandem Repeat (STR) Analysis using ABI 310 Genetic Analyzer” at Strand Analytical Laboratories, Indianapolis, Indiana, USA (May 15, 2006 - November 10, 2006).
- Attended the 17th International Symposium on “Human Identification”, Sponsored by Promega Corporation, at Nashville, Tennessee, USA (October 9-12, 2006).
- Attended a workshop on “Advance Topics in Statistics” Sponsored by Promega Corporation, at Nashville, Tennessee, USA (October 9, 2006).
- Attended a seminar on “Advancing Justice through DNA Technology National Missing Persons Program” Organized by Strand Analytical Laboratories, Indianapolis, Indiana, USA (August 04, 2006).
- Attended a seminar on “Population and Statistical Methodology used in the Field of Human Identification” Organized by Strand Analytical Laboratories, Indianapolis, Indiana, USA (June 19, 2006).
- Attended the 2006 Technology Tour Sponsored by Promega Corporation, Chicago, Illinois, USA (June 15, 2006).

CONTACT DETAILS:

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