Anjana Munshi, M.Sc., M.Phil., Ph.D.

Prof. Anjana Munshi
Director Research & Development Cell
Former Dean School of Health Sciences
HoD, Department of Human Genetics and Molecular Medicine,
School of Health Sciences,
Central University of Punjab,
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Research/Teaching Experience: 29 Years

Academic Qualification

- PhD from Department of Biosciences, University of Jammu (Genetics and Cytogenetics), (1992)
- M.Phil. from Department of Biosciences, University of Jammu, (Genetics and Cytogenetics), (1989). Outstanding Grade
- M.Sc. from Department of Biosciences, University of Jammu (Specialization in Cytogenetics), (1988). Second Rank in the University

Teaching & Research Experience

- Assistant Professor, Banasthali Vidyapeeth, Rajasthan,
- Assistant Professor & Head, Department of Genetics, Shadan Institute of Post Graduate Studies, Osmania University, Hyderabad,
- Department of Molecular Biology, Institute and Genetics and Hospital for Genetic diseases, Osmania University, Hyderabad,
- Department of Human Genetics and Molecular Medicine, Central University of Punjab Bathinda

Administrative Experience (14 Years)

- Head, Department of Genetics, Shadan Institute of Post Graduate Studies, Osmania University, Hyderabad

- Head, Department of Molecular Biology, Institute and Genetics and Hospital for Genetic diseases, Osmani University, Hyderabad
- Head, Department of Human Genetics and Molecular Medicine, Central University of Punjab Bathinda (Former)
- Dean, School of Health Sciences, Central University of Punjab Bathinda (Former)
- Dean Research, Central University of Punjab Bathinda
- Presiding Officer, ICC, Central University of Punjab Bathinda
- Chief Vigilance Officer, Central University of Punjab Bathinda
- EC Member and AC Member, Central University of Punjab Bathinda (Former)
- Chairperson, SC/ST Cell, Central University of Punjab Bathinda

ACADEMIC HONOURS

- Qualified **NET** conducted by **UGC** and **CSIR**, New Delhi. (1993)
- Awarded **SRF** by **CSIR**. (1993)
- Qualified **NET (Genetics)** conducted by **Agricultural Scientists** Recruitment Board, **New Delhi**. (1994)
- Awarded **Research Associateship** by **CSIR. (1994)**
- Life Member **Indian Society of Human genetics. (2008)**
- Life Member **Third World Organization for Women in Science. (2008)**
- The review entitled **"Histone Modifications Dictate Specific Biological Readouts"** was awarded **as JGG Excellent Review Paper** with a bonus of **RMB 3000 and a medal. (2015)**
- Elected EC member, **Indian Society of Human Genetics. (2015-2018)**
- Life member**, All India Congress of Cytology and Genetics. (2016)**
- Life member, **Indian Science Congress (2015)**
- Former Member **IQAC, Central University of Punjab**
- Member **World Stroke Rights Bill.**
- Member EC (former) and AC, Central University of Punjab.
- Certificate of Commendation for Research Publications with CIF more than 15 in the year 2014-2015.

- Awarded best researcher award for cumulative impact factor more than 15 by CUPB (2017-18).
- Awarded best researcher award for cumulative impact factor more than 15 by CUPB (2018-19).
- Certificate of Commendation for Research Publications with CIF more than 20 as corresponding author in the year (2021-22).
- Certificate of Commendation for Research grant of more than 1 Crore (2021-22).
- Awarded for the Roll of Honour of the University for getting Five Commendation Certificates on February 28,2023.
- PI from Punjab for the nationwide mission programme on Paediatric Rare Diseases funded by DBT (14 Centres included).

OTHER CONTRIBUTIONS

- Instrumental in establishment of department of Genetics at Shadan Institute of Postgraduate Studies, Osmania University, Hyderabad.
- Instrumental in establishment of department of Human Genetics and Molecular Medicine at Central University of Punjab, Bathinda.
- Instrumental in procuring DST FIST grant (96 lakhs), for the department of Human Genetics Molecular Medicine, Central university of Punjab, Bathinda.
- Instrumental in procuring Rs 5 crore grant for establishing ITBI (incubation cell) under DST NIDHI Scheme being established at CUPB
- Instrumental in procuring DST PURSE grant (8.82 crore) university level.

RESEARCH PROJECTS

- **"Genetic Polymorphism associated with stroke in a South Indian Population"** funded by **ICMR** in collaboration with CCMB and NIMS, Hyderabad, has been completed (2010-13; Thirty Seven Lakhs).
- Training Programme "**Prevention of Genetic Disorders and Birth Defects" (for PHC doctors of Andhra Pradesh)** Organized by Rajiv Vidya Mission, SSA and

Institute of Genetics and Hospital for Genetic Diseases **(funded by Heath and Family Welfare, Govt. of Andhra Pradesh**) (Eighteen Lakhs).

- **"Amelioration of the Severity of β-thalassemia by Modifier Genes" (2014-2017, Thirty Lakhs)** funded by **DBT** has been **completed**.
- **"Insilico Screening of all functional genes in the human genome for the detection of deleterious SNPs for association studies"** funded by **(ICMR)** (2015-2018; Twenty Nine Lakhs) has been **completed**.
- **"Migraine and Epilepsy Shared GENEtic Susceptibility (MEGENE) Project in Punjab"** funded by ICMR. (2021-2024, Eighty Lakhs). **(ongoing)**
- **"Mission Program in Pediatric Rare Genetic Diseases"** funded by **DBT**. (March 2022-March 2027; One Crore Two Lakhs Thirty Thousand Four Hundred). **(ongoing)**

Training Programme Grant

- Training Programme on **Medical Genetics and Bioinformatics (DBT) (4 Lakhs). 9th-23rd of March, 2016, Department of Human Genetics and Molecular Medicine.**

RESEARCH AREAS

- Multiomics approaches to complex genetic diseases like Stroke, Diabetes and Breast Cancer. Hemoglobinopathies and modifier genes in thalassemia and sickle cell anaemia. Shared genetic susceptibility between Migraine and Epilepsy. Paediatric rare disease

PUBLICATIONS: 155 (RESEARCH =93+ REVIEW ARTICLES=62)

- Total impact points: **305.691** for research papers and **219.081** for review papers (Total Impact Factor **524.772**)
- Book chapters authored = **31**
- Edited books: 03

Link to CV: https://www.cup.edu.in/Dr_Anjana_Munshi.php

Research Publications (Last 5 years)

1. Singh, P., Singh, J., Peer, S., Jindal, M., Khokhar, S., Ludhiadch, A., & **Munshi, A.** (2023). Assessment of Resting-state functional Magnetic Resonance Imaging Connectivity Among Patients with Major Depressive Disorder: A Comparative Study. Annals of Neurosciences.
2. Kaur, P., Kotru, S., Tuteja, L., Ludhiadch, A., & **Munshi, A.** (2023). Role of SGLT2 Inhibitors in Diabetes Management: Focus on HbA1c Levels, Weight Loss and Genetic Variation. ***Journal of Medical and Health Studies.*** **(Impact Factor -2)**
3. Sahu, P., Chaturvedi, P., Khan, R., **Munshi, A.,** & Singh, G. (2023). Translation and Validation of ID-migraine Questionnaire to North-Indian vernacular languages. ***Annals of Indian Academy of Neurology*****.** (**Impact Factor – 1.714)**
4. Ludhiadch, A., Sulena, S., Singh, S., Chakraborty, S., Sharma, D., Kulharia, M., ... & **Munshi, A.** (2023). Genomic Variation Affecting MPV and PLT count in association with development of Ischemic Stroke and its Subtypes. ***Molecular Neurobiology***. **(Impact Factor - 5.686)**..
5. Vasudeva, K., Sulena., & **Munshi, A.** (2023). Evaluation of I/D polymorphism of ACE in association with development of ischemic stroke in a North Indian population. ***International Journal of Environment Science and Technoloogy.*** 17, 1-8. **(Impact Factor – 3.519)**
6. Ludhiadch, A., Yadav, P., Singh, S. K., Sulena., & **Munshi, A.** (2022). Evaluation of Mean Platelet Volume and Platelet Count in Ischemic stroke and its subtypes: Focus on degree of disability and thrombus formation. ***International Journal of Neuroscience***, 1-12. **(Impact factor -2.59)**
7. Gupta P., Gupta S., Sinha. S.,, Sundaram, S., Shashi V. K., & **Munshi, A.** (2022). In silico phytochemical repurposing of natural molecules as entry inhibitors against RBD of the spike protein of SARS-CoV-2 using molecular docking studies. ***Int. J. of Computational Biology and Drug Design***.15(4), 267-288 **(Impact factor – 0.145).**
8. Mehta, V., Meena, J., Kasana, H., **Munshi, A.**, & Chander, H. (2022). Prognostic significance of CHAC1 expression in breast cancer. ***Molecular biology reports***, *49*(9), 8517–8526. (**Impact factor – 2.742**)

9. Kumar, V., Sood, A., **Munshi, A.,** Gautam, T., & Kulharia, M. (2021). Geometrical and electro-static determinants of protein-protein interactions. ***Bioinformation***, *17*(10), 851. (**Impact factor-NA**)
10. Kaur, M., Mehta, V., Arora, S., **Munshi, A.,** Singh, S., & Kumar, R. (2021). Design, Synthesis and Biological Evaluation of New 5-(2-Nitrophenyl)-1-aryl-1H-pyrazoles as Topoisomerase Inhibitors. ***ChemistrySelect***, *6*(26), 6644-6651. **(Impact factor -2.307)**
11. Kalra, S., Joshi, G., Kumar, M., Arora, S., Kaur, H., Singh, S., **Munshi, A.** & Kumar, R. (2020). Anticancer potential of some imidazole and fused imidazole derivatives: Exploring the mechanism via epidermal growth factor receptor (EGFR) inhibition. ***RSC Medicinal Chemistry***, *11*(8), 923-939.**(Impact factor – 4.31)**
12. Prajapati, L., Khandelwal, R., Yogalakshmi, K. N., **Munshi, A.,** & Nayarisseri, A. (2020). Computer-aided Structure prediction of Bluetongue Virus coat protein VP2 assisted by Optimized Potential for Liquid Simulations (OPLS). ***Current topics in medicinal chemistry***, *20*(19), 1720-1732. **(Impact factor - 3.57).**
13. Kaur, R. P., Kumar, V., Shafi, G., Vashistha, R., Kulharia, M., & **Munshi, A.** (2019). A study of mechanistic mapping of novel SNPs to male breast cancer. ***Medical Oncology***, *36*(8), 1-7. **(Impact factor - 3.738).**
14. Singla, H., Kaur, R. P., Shafi, G., Vashistha, R., Banipal, R. P. S., Kumar, V., & **Munshi, A.** (2019). Genomic alterations associated with HER2+ breast cancer risk and clinical outcome in response to trastuzumab. ***Molecular biology reports***, *46*(1), 823-831. **(Impact factor - 2.742).**
15. Kaur, R. P., Banipal, R. P. S., Vashistha, R., Dhiman, M., & **Munshi, A.** (2019). Association of elevated levels of C-reactive protein with breast cancer, breast cancer subtypes, and poor outcome. ***Current problems in Cancer***, *43*(2), 123-129. **(Impact factor - 3.698).**

Review Publications (Last 5 years)

1. Chhetri, A., Goel, K., Ludhiadch, A., Singh, P., & **Munshi, A.** (2023). "Role of imaging genetics in Alzheimer's disease: A Systematic Review and current update" "CNS & Neurological Disorders - Drug Targets" (Accepted for Publication)

2. Sharma, E., Shruti, P. S., Singh, S., Singh, T., Kaur, P., Jodha, B., Srivastava, y., **Munshi, A**. & Singh, S. (2023). Trehalose and its diverse biological potential. *Current Protein & Peptide Science*. **(Impact Factor - 2.8)**
3. Singh, H. V., Das, L., Malayil, R., Singh, T., Singh, S., Goyal, T., & **Munshi, A.** (2023). Comprehensive analysis of culture conditions governing differentiation of MSCs into articular chondrocytes. *Regenerative Medicine*, (0). **(Impact factor – 3.210)**
4. Ruthuparna, M., Chhichholiya, Y., Vasudeva, K., Singh, H.V., Singh, T., Singh, S., & **Munshi, A.** (2023). Oncogenic metabolic reprogramming in Breast Cancer: focus on signaling pathways and mitochondrial genes. ***Medical Oncology***. **(Impact factor - 3.738)**
5. Chhichholiya, Y., Singh, H.V., Singh, S., & **Munshi, A.** (2023). Genetic variations in tumor suppressor miRNA encoding genes and their target genes: Focus on Breast Cancer development and possible therapeutic strategies. ***Clinical and Translational Oncology.*** **(Impact factor -3.405)**
6. Chhichholiya, Y., Ruthuparna, M., Velagaleti, H., & **Munshi, A.** (2023). Brain metastasis in breast cancer: focus on genes and signaling pathways involved, blood–brain barrier and treatment strategies. ***Clinical and Translational Oncology***, 1-24. **(Impact factor -3.405)**
7. Khan, R., Chaturvedi, P., Sahu, P., Ludhiadch, A., Singh, P., Singh, G., & **Munshi, A**. (2023). Role of Potassium Ion Channels in Epilepsy: Focus on Current Therapeutic Strategies. ***CNS & Neurological Disorders-Drug Targets*** *(Formerly Current Drug Targets-CNS & Neurological Disorders)*. **(Impact factor -2.824).**
8. Jakhar, K., Vaishnavi, S., Kaur, P., Singh, P., & **Munshi, A.** (2022). Pharmacogenomics of GLP-1 receptor agonists: Focus on pharmacological profile. ***European Journal of Pharmacology***, 175356 **(Impact factor - 5.1).**
9. Mathew, B. A., Katta, M., Ludhiadch, A., Singh, P., & **Munshi, A**. (2022). Role of tRNA-Derived Fragments in Neurological Disorders: a Review. ***Molecular Neurobiology***, 1-17 (**Impact factor - 5.686)**.
10. Katta, M., Mathew, B. A., Chaturvedi, P., Ludhiadch, A., & **Munshi, A.** (2022). Advanced molecular therapies for neurological diseases: focus on stroke, alzheimer's disease, and parkinson's disease. ***Neurological Sciences***, 1-18. **(Impact factor -3.83)**

11. Singh, T., Kaur, P., Singh, P., Singh, S., & **Munshi, A.** (2022). Differential molecular mechanistic behavior of HDACs in cancer progression. ***Medical Oncology***, *39*(11), 1-26. **(Impact factor -3.738)**
12. Chaturvedi, P., Khan, R., Sahu, P., Ludhiadch, A., Singh, G., & **Munshi, A.** (2022). Role of Omics in Migraine Research and Management: A Narrative Review. ***Molecular Neurobiology***, 1-26. (**Impact factor - 5.686)**
13. Ludhiadch, A., Paul, S. R., Khan, R., & **Munshi, A.** (2022). COVID-19 induced ischemic stroke and mechanisms of viral entry in brain and clot formation: a systematic review and current update. ***International Journal of Neuroscience***, 1-14. *(***Impact factor -2.59)**
14. Kaur, P., Kotru, S., Singh, S., & **Munshi, A.** (2022). miRNA signatures in diabetic retinopathy and nephropathy: delineating underlying mechanisms. ***Journal of physiology and biochemistry***, 1-19. (**Impact factor -5.08).**
15. Ludhiadch, A., Bhardwaj, N., Gotra, P., Kumar, R., & **Munshi, A.** (2022). Common microRNAs in Epilepsy and Migraine: Their Possibility as Candidates for Biomarkers and Therapeutic Targets during Comorbid Onset of Both Conditions. ***CNS & Neurological Disorders-Drug Targets (Formerly Current Drug Targets-CNS & Neurological Disorders)*. (Impact factor - 4.388)**
16. Suman, P., Chhichholiya, Y., Kaur, P., Ghosh, S., & **Munshi, A.** (2022). Long non-coding RNAs involved in different steps of cancer metastasis. ***Clinical and Translational Oncology***, 1-17. **(Impact factor -3.34)**
17. Kaur, P., Kotru, S., Singh, S., & **Munshi, A.** (2022). Role of miRNAs in diabetic neuropathy: mechanisms and possible interventions. ***Molecular Neurobiology***, *59*(3), 1836-1849. ***(*Impact factor - 5.686)**
18. Chhichholiya, Y., Suryan, A. K., Suman, P., **Munshi, A.,** & Singh, S. (2021). SNPs in miRNAs and Target Sequences: Role in Cancer and Diabetes. ***Frontiers in Genetics***, *12*. **(Impact factor -4.772).**
19. Chhichholiya, Y., Suman, P., Singh, S., & **Munshi, A.** (2021). The genomic architecture of metastasis in breast cancer: focus on mechanistic aspects, signalling pathways and therapeutic strategies. ***Medical Oncology***, *38*(8), 1-23. **(Impact factor - 3.738)**

20. Kaur, P., Behera, B. S., Singh, S., & **Munshi, A.** (2021). The pharmacological profile of SGLT2 inhibitors: Focus on mechanistic aspects and pharmacogenomics. ***European Journal of Pharmacology,*** *904*, 174169. (**Impact factor -4.96)**
21. Gotra, P., Bhardwaj, N., Ludhiadch, A., Singh, G., & **Munshi, A.** (2021). Epilepsy and Migraine Shared Genetic and Molecular Mechanisms: Focus on Therapeutic Strategies. ***Molecular Neurobiology***, *58*(8), 3874-3883. **(Impact factor -5.686)**
22. Vasudeva, K., Dutta, A., & **Munshi, A.** (2021). Role of lncRNAs in the development of ischemic stroke and their therapeutic potential. ***Molecular Neurobiology***, *58*(8), 3712-3728. **(Impact factor -5.686)**
23. Ludhiadch, A., Sharma, R., Muriki, A., & **Munshi, A.** (2022). Role of calcium homeostasis in ischemic stroke: a review. ***CNS & Neurological Disorders-Drug Targets (Formerly Current Drug Targets-CNS & Neurological Disorders),*** *21*(1), 52-61. **(Impact factor - 4.388)**
24. Mehta, V., Chander, H., & **Munshi, A.** (2021). Complex roles of discoidin domain receptor tyrosine kinases in cancer. ***Clinical and Translational Oncology***, *23*(8), 1497-1510. **(Impact factor - 3.34)**
25. Singla, H., & **Munshi, A**. (2020). HER2 Tyrosine Kinase Inhibitors in the Sensitization to Cancers Resistant to HER2 Antibodies. ***Critical Reviews™ in Oncogenesis***, *25*(3). (**Impact factor - 1.04)**
26. Kaur, P., Kotru, S., Singh, S., Behera, B. S., & **Munshi, A**. (2020). Role of miRNAs in the pathogenesis of T2DM, insulin secretion, insulin resistance, and β cell dysfunction: the story so far. ***Journal of physiology and biochemistry***, *76*(4), 485-502. (**Impact factor: 5.08**)
27. Mehta, V., Chander, H., & **Munshi, A.** (2021). Mechanisms of anti-tumor activity of Withania somnifera (Ashwagandha). ***Nutrition and Cancer***, *73*(6), 914-926. **(Impact factor: 2.816).**
28. Ludhiadch, A., Muralidharan, A., Balyan, R., & **Munshi, A.** (2020). The molecular basis of platelet biogenesis, activation, aggregation and implications in neurological disorders. ***International Journal of Neuroscience,*** *130*(12), 1237-1249. **(Impact factor: 2.59).**
29. Ludhiadch, A., Vasudeva, K., & **Munshi, A.** (2020). Establishing molecular signatures of stroke focusing on omic approaches: a narrative review. ***International Journal of Neuroscience***, *130*(12), 1250-1266. **(Impact factor: 2.59).**

30. Vasudeva, K., Balyan, R., & **Munshi, A.** (2020). ACE-triggered hypertension incites stroke: genetic, molecular, and therapeutic aspects. ***NeuroMolecular Medicine***, *22*(2), 194-209. **(Impact factor: 4.103).**
31. Singla, H., **Munshi, A**., Banipal, R. P., & Kumar, V. (2018). Recent updates on the therapeutic potential of HER2 tyrosine kinase inhibitors for the treatment of breast cancer. ***Current Cancer Drug Targets***, *18*(4), 306-327. (**IF-2.907)**
32. Vasudeva, K., & **Munshi, A.** (2020). miRNA dysregulation in ischaemic stroke: Focus on diagnosis, prognosis, therapeutic and protective biomarkers. ***European Journal of Neuroscience***, *52*(6), 3610-3627. **(Impact factor: 3.698).**
33. Kaur, R. P., Vasudeva, K., Kumar, R., & **Munshi, A.** (2018). Role of p53 gene in breast cancer: focus on mutation spectrum and therapeutic strategies. ***Current pharmaceutical design***, *24*(30), 3566-3575. **(Impact factor: 3.31).**
34. Vasudeva, K., & **Munshi, A.** (2019). Genetics of platelet traits in ischaemic stroke: focus on mean platelet volume and platelet count. ***International Journal of Neuroscience,*** *129*(5), 511-522. **(Impact factor:2.59).**

EDITORIAL ASSIGNMENTS

1. Editor, Special Issue, "MicroRNA and Other Small RNAs in Cancer and Human Diseases", MDPI. (2022). **(Impact Factor - 4.141).**
2. Editorial Board Member, Brain Sciences, MDPI (2022). **(Impact Factor -3.333).**
3. Associate Editor, Handbook of Oxidative stress in cancer: Therapeutic aspects, Therapeutic implication of natural compounds, (2021). Springer Nature.
4. Guest Associate Editor, Case Report, Frontiers in Genetics Special issue on Developmental Delay and Intellectual Disability, Frontiers, UK (2021).

EDITORIAL PUBLISHED

1. Kalra, R. S., Singh, S., **Munshi, A**., & Bariwal, J. (2022**). Editorial**: Biological aspects of targeted drug discovery: Development of novel targets and/or chemotherapies, and drug repurposing. ***Frontiers in oncology***, *12*, 1106610. . **(Impact Factor - 6.244).**

2. Banerjee, S., **Munshi, A**., Li, C., & Ayub, M. (2022). **Editorial**: Developmental delay and intellectual disability. ***Frontiers in genetics***, *13*, 934815. **(Impact Factor - 4.772).**

EDITED BOOKS

1. **Munshi, A**. (Ed.). (2012). DNA Sequencing - Methods and Applications**. InTech. doi**: 10.5772/2158
2. **Munshi, A**. (Ed.). (2015). Inherited Hemoglobin Disorders. **InTech. doi:** 10.5772/59742
3. Erhabor, O., & **Munshi, A**. (Eds.). (2021). Human Blood Group Systems and Haemoglobinopathies. **IntechOpen. doi:** 10.5772/intechopen.82992

POPULAR ARTICLES PUBLISHED

- 🕮 **Lagging in Learning**, Science Reporter, and Sept. 2005, 34-36.
- 🕮 **Stroke- The brain attack**, Science Reporter March 2006,24-27
- 🕮 **Stroke Genetics**, Stroke Talk Dialogue of Experts, Issue 2

PRESENTATIONS / SEMINARS : 49

SEMINARS / WORKSHOPS/ CONFERENCE ORGANISED : 07

SERVICE ACTIVITY

Provided molecular diagnostic services to the referral cases **(Total=5000)** with the following conditions, using **HPLC, PCR, ARMS-PCR, Multiplex PCR, Reverse Dot Blot, RFLP and Sequencing:**

- Thalassemia
- Sickle cell anaemia
- Other structural variants of hemoglobin like E and D thal.

- Duchene Muscular Dystrophy
- Neural Tube Defects

COMMUNITY SERVICE

- Participated in the Thalassemia screening camp at Rangapur village, organized by Institute of Genetics and Hospital for Genetic Diseases, O U on 4.12.2008.
- Participated in a free health camp for women organized by Institute of Genetics and Hospital for Genetic Diseases, O U at the Institute Premises on 8.3.2010.
- Participated in the health camp organized at AP State home for Women and Children to screen women and children for general health conditions on 8.3.2010.
- Participated in the health camp organized at Rangapur for ZillaParishad School children on 18.09.2010.
- Organised a one day seminar and awareness program on "**Pediatric Rare Genetic Disorders (PRaGeD)"** on 10th August, 2023 at Central University of Punjab in collaboration with AIIMS, Bathinda.