

PROFESSIONAL SUMMARY

I am a researcher in the field of gene therapy for hemoglobin disorders. My present research focuses on developing a gene therapy strategy for the treatment of β -hemoglobinopathies. I am also currently working on various strategies focusing on gene manipulation of Hematopoietic stem and progenitor cells for autologous transplantation.

SKILLS

- Knowledge in basic and advanced molecular biology techniques such as cloning, quantitative real-time polymerase chain reaction (qRT-PCR), western blotting, and droplet digital PCR.
- Substantial expertise and knowledge of CRISPR Cas9-based genome editing techniques.
- Substantial knowledge in producing high titer lentiviral vectors using adherent and suspension 293T cells, concentrating lentiviral vectors and titrating lentiviral vectors in cell lines.
- Substantial expertise and knowledge on PBMNCs isolation, purification and culture of hematopoietic stem and progenitor cells (HSPCs) from peripheral blood, cord blood, and mobilised peripheral blood mononuclear cells (PBMNCs) from healthy donors and patients with β -haemoglobinopathies.
- Significant expertise in carrying out lentiviral transduction in cell lines, primary CD34⁺ HSPCs.
- Significant expertise in carrying out mouse transplantation experiments with gene edited and transduced HSPCs.
- Substantial expertise in ex-vivo erythroid, macrophage, and megakaryocyte cell culture (expansion and terminal differentiation) and cell lines.
- Significant knowledge in iPSC, mouse Embryonic Stem cell, AML, and CML cell editing and culture.
- Expertise in rat and mouse handling techniques including the retro orbital, tail vein, intraperitoneal, intraosseous, intra muscular, and subcutaneous injection.
- Sufficient knowledge in flow cytometry acquisition, cell sorting, and analysis.
- Basic knowledge in analysing RNAseq raw data using standard pipelines.

PROFESSION EXPERIENCE

- 2019-present: Senior Research Fellow, Centre for Stem Cell Research, Christian Medical College, Vellore, Tamil Nadu, Vellore, India.
- 2017-2019: Junior Research Fellow, Centre for Stem Cell Research, Christian Medical College, Vellore, Tamil Nadu, Vellore, India.

EDUCATION

- 2017- present: Ph.D. thesis titled "CRISPR-CAS9 GENE EDITED HEMATOPOEITIC STEM AND PROGENITOR CELLS FOR THE GENE THERAPY OF β -HEMOGLOBINOPATHIES".
- 2014-2017: Master of Science in Medical Biochemistry (M.Sc.), JIPMER, Pondicherry.
- 2011-2014: Bachelor of Science in Biochemistry (B.Sc.), C.Abdul Hakeem college of Arts and Science, Thiruvalluvar University, India.

AWARDS

2014 – University 1st Rank holder (BSc Bio-chemistry)

2015 – CSIR-NET-LS

2016 – GATE-XL

2020 – IUSSTF GET-In fellowship (awarded, but not executed due to COVID travel restrictions)

2022 – ICMR SRF fellowship

ORAL and POSTER PRESENTATIONS

- Awarded for the best oral presentation award, Research Day 2018, Christian Medical College, Vellore, India.
- Awarded for the best oral presentation award, Research Day 2019, Christian Medical College, Vellore, India.
- Awarded for oral presentation, 1st International Symposium on Bone Marrow failure Disorders 2020, Christian Medical College, Vellore, India.
- Presented a poster titled “Genome editing to reactivate fetal γ -globin: An approach to gene therapy for correction of β -hemoglobinopathies” at the annual review meeting in 2018 at inStem, Bangalore, India.
- Short listed for Lightning talk on “Gene-editing mediated reactivation of fetal hemoglobin for the gene therapy of β -hemoglobinopathies” at the annual review meeting in 2020 at inStem, Bangalore, India.

LIST OF PUBLICATIONS

AS FIRST AUTHOR

- 1 **Venkatesan V**, Christopher AC, Rhiel M, Kumar M, Azhagiri K, Babu P *et al.* Editing the core region in HPFH deletions alters fetal and adult globin expression for treatment of β -hemoglobinopathies. *Mol Ther - Nucleic Acids* 2023; **32**: 671–688.
- 2 **Venkatesan V**, Christopher AC, Karuppusamy K V., Babu P, Alagiri MKK, Thangavel S. CRISPR/Cas9 Gene Editing of Hematopoietic Stem and Progenitor Cells for Gene Therapy Applications. *JoVE (Journal Vis Exp)* 2022; **2022**: e64064.
- 3 **Christopher AC, Venkatesan V**, Karuppusamy K V, Srinivasan S, Babu P, Azhagiri MKK *et al.* Preferential expansion of human CD34+CD133+CD90+ hematopoietic stem cells enhances gene-modified cell frequency for gene therapy. *Hum Gene Ther* 2021; : 1–33.
- 4 **Venkatesan V**, Srinivasan S, Babu P, Thangavel S. Manipulation of Developmental Gamma-Globin Gene Expression: an Approach for Healing Hemoglobinopathies. *Mol Cell Biol* 2020; **41**: 1–18.

AS CO-AUTHOR

- 1 Lohchania B, Christopher AC, Arjunan P, Mahalingam G, Kathirvelu D, Prasannan A *et al.* Diosgenin enhances liposome-enabled nucleic acid delivery and CRISPR/Cas9-mediated gene editing by modulating endocytic pathways. *Front Bioeng Biotechnol* 2023; **10**: 1–8.
- 2 Rapaka H, Manturthi S, Arjunan P, **Venkatesan V**, Thangavel S, Marepally S *et al.* Influence of Hydrophobicity in the Hydrophilic Region of Cationic Lipids on Enhancing Nucleic Acid Delivery and Gene Editing. *ACS Appl Bio Mater* 2022; **5**: 1489–1500.
- 3 Prasad K, Devaraju N, George A, Ravi NS, Mahalingam G, Rajendiran V *et al.* Precise modelling and correction of a spectrum of β -thalassemic mutations in human erythroid cells by base editors. *bioRxiv* 2022; : 2022.06.01.494256.
- 4 Karuppusamy K V., Demosthenes JP, **Venkatesan V**, Christopher AC, Babu P, Azhagiri MK *et al.* The CCR5 Gene Edited CD34+CD90+ Hematopoietic Stem Cell Population Serves as an Optimal Graft Source for HIV Gene Therapy. *Front Immunol* 2022; **13**: 792684.
- 5 Bagchi A, Devaraju N, Chambayil K, Rajendiran V, **Venkatesan V**, Sayed N *et al.* Erythroid lineage-specific lentiviral RNAi vectors suitable for molecular functional studies and therapeutic applications. *Sci Rep* 2022; **12**: 1–13.
- 6 Bagchi A, Nath A, Thamodaran V, Ijee S, Palani D, Rajendiran V *et al.* Direct Generation of Immortalized Erythroid Progenitor Cell Lines from Peripheral Blood Mononuclear Cells. *Cells* 2021; **10**: 1–18.
- 7 Azhagiri MKK, Babu P, **Venkatesan V**, Thangavel S. Homology - directed gene - editing approaches for hematopoietic stem and progenitor cell gene therapy. *Stem Cell Res Ther* 2021; : 1–12.

PERSONAL DETAILS

- Date of Birth: 23rd October 1994.
- Languages: English, Tamil, Telugu, Hindi.
- Nationality: Indian.

REFEREES

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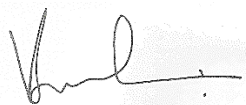
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DECLARATION

I hereby declare that all the information given herein is accurate to the best of my knowledge and belief.



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