

Amarnath Anbarasu

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[Research gate](https://www.researchgate.net/profile/Amarnath-Anbarasu)



G.R.O.W research laboratory <https://www.nnf.org.in/>



I am a dedicated researcher with a strong interest in biological sciences, seeking to further my knowledge by pursuing a PhD in Biophysics. I am committed to conducting thorough research and aspire to make meaningful advancements in the field of human health through innovative scientific inquiry.

Research interests:

Genetic Disease, Cardiovascular disease, Computational Biology & Bioinformatics, Regenerative Medicine.

Location:

Bangalore, India.

EDUCATION

Master of Sciences in Biotechnology

(5 years) (Integrated Bachelors and Masters)

Vellore Institute of Technology ([VIT](https://www.vit.ac.in)), Vellore, Tamilnadu, India.

2016 – 2021

GPA 8.11/10

WORK EXPERIENCE

Research Fellow

Genes, Repair & Regeneration in Ophthalmic Workstation (GROW) Research Laboratory, [Narayana Netralaya](https://www.narayana.netralaya.com) (Eye Hospital), Bangalore, India.

- Genetic disorders and Gene therapy.
- Organoids development.

[September 2022 to Present]

Researcher intern

Advanced Centre for Treatment, Research and Education in Cancer ([ACTREC](https://www.actrec.org)), Navi Mumbai, India.

- Chemo prevention for lung cancer.
- Clinical research - chemotherapy in oral cancer.

[February 2022 to August 2022]

Graduate researcher

Vellore Institute of Technology ([VIT](https://www.vit.ac.in)), Vellore, India.

- Biomodelling and prediction of novel pathogenic variants of Apolipoprotein A 1

[August 2020 to May 2021]

SKILLS

Core Skills:

- Molecular biology techniques, Immunostaining.
- Genetic Engineering.
- Cell culture, iPSC, Organoid development, Animal handling.
- Viral Vector production.
- Basic bioinformatic tools, molecular dynamic simulation.

Software skills: EMBOSS, Python, BLAST, PyMOL, Autodock, Graph pad, GROMACS

Personal Skill: Team worker, Proactive learner, Effective communicator, Active listener, strong work ethic, time management.

RESEARCH EXPERIENCE & PROJECTS

Regenerative Treatment options for Duchenne Muscular Dystrophy (DMD)

- Successfully generated two Induced Pluripotent Stem Cells (iPSCs) from individuals diagnosed with Duchenne Muscular Dystrophy (DMD).
- Established an organoid model to evaluate the efficacy of pharmaceuticals and gene therapy treatments for DMD, advancing into preclinical research.
- Designed innovative assays for detailed analysis of the physical characteristics of muscle organoids related to contractile strength, calcium signaling, regenerative potential, etc., enhancing the precision of phenotypic evaluations.
- Personalized medicine research on diverse approaches to mitigate Duchenne Muscular Dystrophy, focusing on drug interventions and gene augmentation techniques.

Investigating the chemo-preventive effects of polyphenols on a lung cancer mouse model

- Research on the impact of thearubigins as a potential chemo-preventive measure for lung cancer.
- Designed and executed innovative experiments using mouse models, successfully evaluating the effectiveness of chemoprevention strategies and lung cancer induction.
- Performed detailed protein expression analysis and immunohistochemistry to assess outcomes, revealing that chemoprevention with polyphenols had minimal impact on lung cancer prevention in mouse models, thereby directing future research towards more promising avenues.

Molecular simulation unravels the amyloidogenic misfolding of nascent ApoA1 protein

- biomodelling analyses on mutations linked to Amyloidosis in a global population, identifying key genetic variants for further study
- Classified mutations by severity utilizing protein molecular dynamics analysis and Insilco pipeline.
- Quantified and pinpointed the most pathogenic mutation associated with Amyloidosis, providing crucial insights for targeted therapeutic development.

CONFERENCE PRESENTATIONS

1. Progress In Regenerative and Investigational Medicine in Eye (PRIME) 2023 - Amarnath A, Chakraborty K, Ghosh A, "Enhancing iPSC derived skeletal muscle cells as a regenerative approach for muscular dystrophy"
2. Science and Engineering Conference (SET) 2019 – Amarnath A, Mohanasrinivasan V, "Production of enzyme protease from novel sources and its potential industrial applications".
3. Science and Engineering Conference (SET) 2020 – Amarnath A, Febin Prabu Das J, "Prediction of inhibitors for pathogenic hemolysin produced by Vibrio species bacteria using bioinformatics and computational simulations.
4. Regional presentation 2019 - Amarnath A, Rajkumar R, "Harmful effects of over usage of smartphones in Indian youth cohort".

JOURNAL PUBLICATIONS

1. Chandrasekhar, G., Chandra Sekar, P., Srinivasan, E., **Amarnath, A.**, Pengyong, H., & Rajasekaran, R. (2022). Molecular simulation unravels the amyloidogenic misfolding of nascent ApoA1 protein, driven by deleterious point mutations occurring in between 170–178 hotspot region. *Journal of Biomolecular Structure and Dynamics*, 40(23), 13278-13290.
2. Shaikh, Z. M., Bhatia, N., Aradhye, P., **Anbarasu, A.**, Gawde, J., Thorat, R., & Mahimkar, M. B. (2023). Thearubigins/Polymeric black tea polyphenols (PBPs) do not prevent benzo [a] pyrene (B [a] P) induced lung tumors in A/J mice. *American Journal of Translational Research*, 15(9), 5826.
3. Panagrahi T, **Amarnath A**, Nalla thambi J, Ghosh A. Autophagy modulation on AAV production and Transduction in vitro and in vivo. (under review)
4. Post-treatment by Thearubigins does not infer a chemopreventive effect against B[a]P and/or NNN-induced pulmonary tumors in A/J mice. Zaid M Shaikh , Subhangi Banerji, Shruthi Sunil , Prasad Aradhye , Amarnath Anbarasu, Jitendra Gawde, Rahul Thorat, Manoj B Mahimkar. (under review)
5. Amarnath A, Vinutha A, Chandrasekhar G, Rajasekaran, R; "Beyond the Venom: Exploring the Antimicrobial peptides from Androctonus species of Scorpion", *Journal of Peptide Science*. (<https://doi.org/10.1002/psc.3613>)

SERVICE & OUTREACH

Co-founded, and organized, the Sustainable Organic Living and Agriculture Initiative (S.O.L.A.I) VIT Vellore, Tamilnadu, India (2018)

Organized medical camp, National Service Society (N.S.S), India (2018)

Coordinated a Bio-Expo in 2019 held at VIT Vellore, Tamil Nadu, India. (2019)

Conducted Progress in Regenerative & Investigative Medicine in Eye (PRIME), Bangalore, India. (2023)

LANGUAGES

English - Advanced, Japanese - Beginner, Tamil – Native.