BIOGRAPHICAL SKETCH

NAME: **L Gowtham**

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POSITION TITLE: PhD Scholar

EDUCATION/TRAINING:

INSTITUTION AND LOCATION	DEGREE	Duration MM/YY	Percentage (%)	FIELD OF STUDY
PSG college of Pharmacy, Coimbatore, Tamil Nadu	B.Pharm	(09/09) to (09/13)	**76.9**	Pharmacy
Madras Medical College, Chennai, Tamil Nadu	M.Pharm	(04/14) to (05/16)	**80.8**	Pharmacology
All India Institute of Medical Sciences,New Delhi	Ph.D.	(08/16)- till date	ongoing	Ocular Pharmacology

A. Personal Statement

I am a pharmacologist and bio-analyst with a specialization in mass spectrometry-based omics. My research in the past 6 years has focused on discovering the molecular mechanisms involved in glaucoma pathology using mass spectrometry-based multi-omics tools, understanding the molecular physiology of yoga therapy, evaluating the pharmacokinetics variation of second-line anti-tubercular therapy among the responders and non-responders of multidrug-resistant children. I have done my M.Pharm thesis on understanding the beneficial effects of yoga in patients with type 2 diabetes mellitus and hypertension by analyzing their changes in their RBC morphology relative to oxidative stress. I am currently perusing a Ph.D. under the supervision of Prof. T Velpandian (Pharmacologist at AIIMS, New Delhi, INDIA). The title of my Ph.D. thesis is 'Metabolomics and pharmacogenomic evaluation of glaucoma therapy**.**' In my Ph.D. thesis, I have analyzed the changes in the metabolomic, proteomic, lipidomic profiles of aqueous humor and plasma obtained from the two major types of glaucomatous patients (Primary Open-angle and angle-closure glaucoma) with respect to cataract controls. I have also studied the polymorphism of the genes encoding the protein targets of first-line anti-glaucoma drugs. Interestingly, the outcomes of my research work have opened a new understanding towards the development of newer pharmacological targets for the treatment of glaucoma. Other than my Ph.D. work, I have also studied the pharmacokinetics of second-line anti-tubercular drugs in multi-drug resistant pediatric children for which I have developed and validated the LC-MS/MS analytical methods for the estimation of their respective plasma levels. I have also been actively involved in projects related to antibiotic disposal and its upcoming threat towards antimicrobial resistance.

B. Positions

July 2018 –June 2020 **Senior Research Fellow (ICMR-SRF),** Department of Ocular Pharmcology and Pharmacy Divsion, All India Institute of Medical Sciences, New Delhi, INDIA

Oct 2017 –June 2018 **Junior Research Fellow (JRF),** Department of Paediatrics, All India Institute of Medical Sciences, New Delhi, INDIA

Sep 2016 –Aug 2017 **Pharmacist**, Defence Research and Development Organisation (DRDO), New

Delhi, India

Other Experience and Professional Memberships

2020-2021	Member of Association of Research in Vision and Ophthalmology (ARVO)
2018-till date	Delhi Pharmacological Society (DPS)

Honors

2019	Best poster presentation award at proceedings of 65th Annual meeting of Association of Physiologists and Pharmacologists of India (APPI), APPICON 2019.
2018	Travel Grant at proceedings of 26th Indian Eye Research Group Annual Meeting, ARVO India.
2018	Best oral presentation award at proceedings of 64th Annual meeting of Association of Physiologists and Pharmacologists of India (APPI), APPICON 2018
2018	Awarded “Senior research fellowship” from Indian council of Medical research
2015	First place in Elocution competition
2015	Second place in national level pharmacy quiz competition
2014	awarded “Rajiv Gandhi Memorial Fellowship” from MGR Medical University for securing first position in Tamilnadu M.Pharm entrance examination.
2013	Award for “Excellence in Pharmaceutical analysis” from PSG College of Pharmacy.
2013	Received “Best outgoing student” from PSG College of Pharmacy.
2012	Ranked 147 in All India graduate pharmacy aptitude test.

C. Contribution to Science

1. a. Gowtham, L., Halder, N., Angmo, D., Singh, SB., Jayasundar, R., Dada, T., Velpandian, T. (2021) Elevated histamine levels in patients with glaucoma. Molecular vision, 27, 564-573.

   b. Kumar, S., Gupta, N., Velpandian, T., Gupta, V., Vanathi, M., Vashist, P., Gowtham, L., Saxena, R., & Tandon, R. (2021). Myopia, Melatonin and Conjunctival Ultraviolet Autofluorescence: A Comparative Cross-sectional Study in Indian Myopes. Current eye research, 1–8. Advance online publication.

   c. Mahalingam, K., Chaurasia, A. K., Gowtham, L., Gupta, S., Somarajan, B. I., Velpandian, T., Sihota, R., & Gupta, V. (2018). Therapeutic potential of valproic acid in advanced glaucoma: A pilot study. Indian journal of ophthalmology, 66(8), 1104–1108.

   d. Velpandian, T., Halder, N., Nath, M., Das, U., Moksha, L., Gowtham, L., & Batta, S. P. (2018). Un-segregated waste disposal: an alarming threat of antimicrobials in surface and ground water sources in Delhi. Environmental science and pollution research international, 25(29), 29518–29528.

e. Gowtham, L., Vasanthi, B., Jayshree, N., Ambika and Jacob, SM. (2018) Yoga on RBC Morphology for Diabetics and Hypertensive Patients. Effects of Yoga in Type 2 Diabetes Mellitus With Hypertension: Alteration in RBC Morphology as a Marker for Oxidative Stress. Indian J Physiol Pharmacol 62(1), 51-58.

2. In my Ph.D, I have extensively analyzed the changes in metabolomic profiles (both untargeted and targeted) in aqueous humor of glaucoma patients. One of the interesting observations was the localized elevation of histamine in the POAG which has opened a new understanding for the therapeutic application of H_3-receptor antagonist for the glaucoma treatment. This research findings has been recently published (Inpress) in the Journal of "Molecular Vision".

   a. Gowtham, L., Halder, N., Angmo, D., Singh, SB., Jayasundar, R., Dada, T., Velpandian, T. (2021) Elevated histamine levels in patients with glaucoma. Molecular vision, 27, (Accepted, article no. MOLVIS0035)

3. Yoga is an ancient discipline designed to balance physical, mental, emotional, and spiritual well-being in an individual. Practicing yoga is useful in managing various lifestyle diseases like type 2 diabetes and hypertension. Patients with diabetes and hypertension cannot perform all the yoga asanas as like healthy individuals. Therefore, we designed specific yoga postures suitable for patients with both diabetes as well as hypertension and evaluated the effects of 45 days of yoga intervention on their therapeutic outcome. We also measured the oxidative stress markers like changes in RBC morphology and malondialdehyde levels along with patient's quality of life. We reported that regular yoga practice is effective in minimizing the oxidative stress-induced damage in RBC morphology and malondialdehyde levels. Yoga therapy also improved the glycemic parameter, blood pressure, and body mass index with the potential to minimize disease complications.

   a. Gowtham, L., Vasanthi, B., Jayshree, N., Ambika and Jacob, SM. (2018) Yoga on RBC Morphology for Diabetics and Hypertensive Patients. Effects of Yoga in Type 2 Diabetes Mellitus With Hypertension: Alteration in RBC Morphology as a Marker for Oxidative Stress. Indian J Physiol Pharmacol 62(1), 51-58.

4. Valproic acid used as an anticonvulsant has been shown to improve contrast threshold sensitivities in patients receiving it in long-term. The neuroprotective effect of valproic acid is postulated through its suppression of pro-apoptotic molecules and inducing anti-apoptotic factors. We evaluated the efficacy of oral valproic acid in improving visual function in eyes with advanced-stage glaucoma. Interestingly, three months of oral valproic acid therapy (once daily, 500mg) resulted in some improvement in visual acuity in a subgroup of eyes with advanced glaucoma, and the effect was seen to persist 9 months after the drug was stopped.

   a. Mahalingam, K., Chaurasia, A. K., **Gowtham, L**., Gupta, S., Somarajan, B. I., Velpandian, T., Sihota, R., & Gupta, V. (2018). Therapeutic potential of valproic acid in advanced glaucoma: A pilot study. Indian journal of ophthalmology, 66(8), 1104–1108.

Reference

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