

Dr. KASTHURI NATARAJAN

ADDRESS FOR COMMUNICATION:

No.35/10 Subramani Iyar Street, Vasanthapuram,

Vellore – 632 001, Tamil Nadu, India.

Mobile No: +91-9698906577

Email: kasthurinm02@gmail.com



PROFESSIONAL EXPERIENCE

Scientist and Faculty, Department of Translational Medicine Research, Adjunct faculty in Medical Biochemistry, Scientific staff in clinical central laboratory, Research collaborator in medical research, pharmacology, microbiology, nuclear research and biotechnology, SRM Medical College Hospital and Research Centre, SRM Institute of Science and Technology, SRM Nagar, Kattankulathur, Kanchipuram district, Tamilnadu, India. (2019 to till date).

- Lectures for undergraduates and post graduates, seminars, webinars, practicals, case studies, statistics, review discussions and research projects in biochemistry department. Conducted internal assessments, online classes and university exams.
- Ph.D. Supervisor (Guideship) from SRMIST. Assisted Ph.D scholars and post graduates research works in experiments, data analysis and publications.
- Supervisor for two ICMR-short term studentship project of MBBS students.
- All india MHRD mentor Hackathon Research Projects and National Drug Assessment Good Clinical Practice Course to proceed clinical trial
- Received Young researcher award and Young achiever award 2020
- Cell culture facility and core research lab incharge, troubleshooting, quality control assessment, stocks, reagents and instruments maintenance.
- Demonstrator on cell culture and molecular biology scientific member.
- Handled five individual research projects, four collaboration research projects, completed one ICMR project and published six research articles.
- Active participation in COVID vaccination COVAXIN clinical trial, biochemical and molecular analysis, doctoral personnel protective training and research projects
- Participations in international conferences, webinars, workshops and seminars, Faculty development programs, CME programs, Research viva, Colloquium, academic meetings, examination duty and other internal or external programs.

Faculty and Researcher, Department of Pharmacology and Environmental Toxicology, National centre for neurotoxicity research, Adjunct faculty in Department of Medical Biochemistry, Institute of BioMedical Sciences, University of Madras, Taramani, Chennai (2017 to 2019)

- Lectures for post graduates, seminars, practicals, internal assessments, research projects and university exams in biochemistry department.
- Handled Core papers and Elective courses
- Handled Biochemistry and Bioanalytical Practicals
- Accompanied University Examinations and Administration Activities
- Organization and Maintenance of Laboratories and Instruments
- Established Tissue Culture laboratory and implemented cell culture studies
- Preliminary research work on effect of drugs in animal models
- Implemented research projects of phytochemicals and its effects
- Guided master projects for Biochemistry and Biotechnology M.Sc students
- Supervised ten external projects for B.Tech students
- Organized departmental seminars, lectures, symposium and conferences

Visiting Researcher, at Sri Ramachandra Medical College and Hospital, Chennai (2017 to 2018)

- Assisted the research projects and directed the progress of DST research work
- A study on the socio economic and cultural correlation of nutritional anemia and vitamin D deficiency in south indian population
- A part of worldwide study was carried out on the effect of corn starch consumption in gastro intestinal system of youngsters and adults
- Facilitated the research scholars for their research progress and publications

Post Ph.D. Research Fellow, ICMR research project, Centre for Stem Cell Research, A unit of Institute for Stem Cell Biology and Regenerative Medicine, Christian Medical College, Vellore (2015 – 2017)

- Generated human induced pluripotent stem cells from skin fibroblast and blood cells using reprogramming technology
- Differentiation of induced pluripotent stem cells to haematopoietic stem cells
- iPSC generation for haematological disorders

- Disease modelling of Fanconi anaemia human induced pluripotent stem cells
- Characterization of induced pluripotent stem cells and disease was standardized
- Implemented gene editing technology for targeting defective gene in cells
- Involved in gateway cloning and ipsc clone database generation
- Epigenetic factors screening, RNAi screening in stem cell differentiation
- Established new strategies and sterile research lab unique for human stem cell work
- Supervising M.Sc. and Ph.D. candidates for research projects and thesis

Research Fellow, CSIR research project, Department of Biochemistry, Christian Medical College, Vellore (2013 – 2015)

- Created a rodent model for Gestational diabetes using streptozotocin
- Analysis of glucose metabolism – key enzymatic screening of glycolysis and gluconeogenesis mechanisms using molecular biology techniques
- Screening the beneficial effect of biotin for the treatment and management of experimental gestational diabetes
- Endometrial cancer mouse model was developed using nitroso methyl urea
- Effect of silibinin against endometrial cancer was assessed
- Guiding and facilitate research projects of M.Sc. and MD candidates

Senior Research Fellow, ICMR research project, Department of Biochemistry, Christian Medical College, Vellore (2012 – 2013)

- Generated a rodent model for Cyclophosphamide induced kidney damage
- Assessed the oxidative stress, nitrosative stress and peroxisomal stress parameters
- Protective effect of nitrosative stress inhibitor and peroxisome stress inhibitor done
- Assisting research scholars for fluid research grant projects

Junior Research Fellow, CSIR research project, Department of Biochemistry, Christian Medical College, Vellore (2009 – 2012)

- Methotrexate induced small intestinal damage was induced in rodent model
- Oxidative and nitrosative stress parameters was analysed
- Role of mitochondrial damage, reactive nitrogen species and reactive oxygen species
- Identified nitrated and nitrosylated proteins that responsible for pathogenesis
- Assessed the NFkB mediated inflammatory pathway and Intrinsic apoptotic pathway
- Protective effect of aminoguanidine and melatonin against methotrexate induced small intestinal toxicity was evaluated.

ROLES AND RESPONSIBILITIES

My prime responsibility includes serving the student community in academics, passionate in diagnostics, bio techniques and research projects.

Academics:

- Teaching and training Undergraduate medical (MBBS) students, Postgraduate medical students (M.D., M.Phil, M.Sc. Medical Biochemistry), doctoral (CRRI, Junior resident, Senior resident), Paramedical students (MLT, Nursing, BPT, BOT, AHS) and Research fellows (Ph.D, scholars, Post doctoral fellow) to indoctrinate knowledge and achieve the educational objectives.
- Implementing new methods of teaching along with book/board/presentation based learning, like problem based learning modules, Self Directed Learning (SDL) & early clinical exposure (ECE) as per competency based medical education.
- Coordinating with clinical departments (Medicine/Surgery, etc.) and organizing vertical integrated teaching which will facilitate the students to apply the theoretical knowledge in case based learning, lectures with case scenario and practicals with case studies
- Maintenance of the attendance & academic performance of individual student, periodic evaluation of undergraduate / post graduates, conducting internal formative assessment examination, pre and post test during lectures and motivate the students for clinical practice trainings and research works.
- Encourage students and faculties for active participation in various faculty development programmes (FDP) like seminars, symposium, Guest lectures, Conferences, Continuing Medical education (CME), training programs, technical orientation programs etc.

Diagnostics:

- Evaluating the patients reports (OP & IP) and communicating with the clinicians for correlating with the provisional diagnosis so that accuracy/credibility of the result is ensured.
- Monitoring & maintaining the entire quality control activities – both internal & external
- Maintaining the day to day precision and accuracy of all results
- Involving in documentation and updates of NABH/NABL accreditation work
- Maintenance of the documents (EQAS, IQAS, Quality indicator chart, corrective action report, repeat sample register, critical alert register, etc.,)

- Instruments, apparatus, reagents, chemicals, estimation kits, personal protective equipment and stock maintainance
- Routine monitoring the availability and work update of lab technicians, supporting staffs, attenders and frontline workers
- Day to day meetings, enquiries, error check, practical problems and solving current issues
- Supervising the safety, peaceful and fault free work environment

Research:

- Research in charge activities like setting a proper research lab with the required instruments, equipments, reagents and organizing the lab with orientation of dry lab and wet lab for secure work environment of research scholars
- Actively engage in independent and collaborative research work contributing to medical knowledge by scientific paper publications in peer reviewed indexed journals with high impact factor and their presentation at international conferences.
- Drafting comprehensive Scientific proposals and obtain grants from extramural funding agencies like CSIR, ICMR, DBT and DST
- Being a research supervisor (by obtaining guideship from institutions and universities) keen to mentor the research scholars in all activities like drafting proposals, work planning, laboratory experiments, instrumentation handling, stock maintainance, data generation, statistical analysis, thesis writing and valuable publications.
- Training the students in Research and making them to get actively engaged in Research oriented activities - Research projects, lab management and research presentations.

Future plans:

- Implementing simple and new methods of teaching, virtual learning, quick tricks for recall, small group discussions, practical implications, clinical correlations in academics
- Lab management trainings, problem solving modules, report assessment, novel diagnostic tool, advanced technology utilization, clear clinical association in diagnostics
- Biotechnical trainings, instrumentation maintenance, demonstrations, workshops, hands on trainings, clinical trials, bioethics, translational medicine in research

ACADEMIC QUALIFICATIONS

Post Ph.D - Centre for Stem Cell Research, A unit of instem, Bengaluru, in collaboration with Department of Biotechnology, an Indian government and Christian Medical College, Tamilnadu (2015 to 2017)

Research Title: Generation of induced pluripotent stem cells for haematological diseases and Disease modeling

Ph.D Biochemistry - The Tamilnadu Dr. M.G.R. Medical University, Chennai.
Christian Medical College, Vellore (2009 to 2015)

Research Title: Identification of nitrated proteins that may play a critical role in the pathogenesis of methotrexate induced small intestinal damage in the rat and possible ways to prevent the damage by the administration of nitric oxide synthase inhibitors

M.Sc Biochemistry - Thiruvalluvar University, Vellore

D.K.M. College for Women, Vellore (April 2009) - 81.5 %

Research Title: Analysis of metal toxicity in selected animal model with reference to chromium compound, submitted to D.K.M College for Women in March 2009.

Qualified in “**SET EXAM**” subject **BIOCHEMISTRY**, conducted by Bharathiar University, accredited by **University Grants Commission**, New Delhi, at Dec 2008.

B.Sc Biochemistry - Thiruvalluvar University, Vellore

D.K.M. College for Women, Vellore (April 2007) - 81.7 %

Research Title: Chromium (VI) uptake by Sulphonated *Ficus religiosa* Ash, submitted to D.K.M. College for Women, Thiruvalluvar University in September 2006. UGC project

Higher Secondary - State Board, Tamilnadu

E.V.R.N. Govt. Girls Hr. Sec. School, Vellore (March 2004) – 81.1 %

Senior Secondary - State Board, Tamilnadu

E.V.R.N. Govt. Girls Hr. Sec. School, Vellore (March 2002) – 88.2 %

ACADEMIC PROFILE

Qualified in State Eligibility Test (SET) for Lectureship, Subject BIOCHEMISTRY, UGC accredited 2008

ACADEMIC EXPERIENCE

Experience acquired by teaching for medical graduates, paramedical graduates, postgraduate and undergraduate, nursing, diploma and research scholars for more than ten years.

- Lectures and practicals
- Seminars and presentations
- Journal clubs and discussions
- Demonstrations and trainings
- Projects supervision and review

ACADEMIC INTEREST

- Biomolecules and Cell biology
- Analytical and Clinical biochemistry
- Enzymology and Intermediary Metabolism
- Genetics and Molecular biology
- Anatomy and Human physiology

GUEST LECTURES

“Role of Biochemist in healthcare management during COVID pandemic” at DKM College for women, February, 2021

“Stem cell and Gene editing technology in health care industry” at Vellore Institute of Technology (VIT), October 2020

“Mechanistic screening of drugs” at IBMS, University of Madras, March 2019

“Stem cell and therapeutic applications” at D.KM college for women, February 2018

“Induced pluripotent stemcell generation” at Sri Ramachandra university, June 2017

“Advanced biomedical technology” at Thiruvalluvar university, January 2017

“Flow Cytometry – A tool to track cell” at School of Biosciences and Technology, Vellore Institute of Technology (VIT), November 2016

“Stem cell technology and applications” at Department of biotechnology, D.K.M college for women, March 2016

“Molecular biology techniques” at Department of biochemistry, D.K.M. College for women, September 2015

BOARD OF STUDIES MEMBER

- UG Biochemistry subjects – D.K.M. College for women, Vellore
- PG Biochemistry subjects – D.K.M. College for women, Vellore

MEMBERSHIP / FELLOWSHIP

- NSS Cell Membership – D.K.M. College for Women (2004-2009)
- Enviro Club Membership – D.K.M. College for Women (2005-2009)
- Junior Research Fellowship – Christian Medical College (CSIR project – 2009)
- Senior Research Fellowship – Christian Medical College (ICMR project – 2012)
- Board of Studies Member – D.K.M. College for Women (2015)
- Senior Research Fellowship – Christian Medical College (ICMR project – 2016)
- Board of Studies Member – D.K.M. College for Women (2016)
- Society of Free Radical Research – Delegate Member
- Society of Biological Chemist – Delegate Member
- Winter symposium CMC – Delegate Member
- Cell and Gene therapy CSCR – Delegate Member
- Institute of Scholars (InSc) – Professional Member
- Research India Foundation (RIF) – Founding Member
- Rest society for research international (RSRI) – Senior Member

RECOGNITIONS FROM ADMINISTRATION

- Secretary of Chemistry Association – D.K.M. College for Women (2005-2006)
- Organizer of National Symposium – Biochemistry (2006)
- Secretary of Biochemistry Association – D.K.M. College for Women (2006-2007)
- Organizer of National Symposium – Biochemistry and Nutrition (2007)
- Secretary of Enviro Club – D.K.M. College for Women (2007-2008)
- Organizer of Enviro club association meet – D.K.M. (2008)
- Secretary of Biochemistry Association – D.K.M. College for Women (2008-2009)
- Organizer of National Symposium – Biochemistry (2009)
- Organizer of workshop on techniques – Christian Medical College (2010)
- Organizer of Symposium – Center for Stem Cell Research (2016 & 2017)
- Research Head – National centre for neurotoxicity research (2018)
- Organizer of National symposium – Institute of Biomedical Sciences (2019)
- Organizer of International conference – SRM Medical College Hospital (2020)
- Scientific research coordinator – SRMIST research unit (2020)

RESEARCH PROFILE

RESEARCH EXPERIENCE

Experience gained through working as research fellow in Government of India funded projects from 2009 onwards, in Christian Medical College, Vellore, Tamil Nadu, India.

- Department of Science and Technology (DST)
- Council of Scientific and Industrial Research (CSIR)
- Indian Council of Medical Research (ICMR)
- Department of Biotechnology (DBT)
- University Grant Commission (UGC)

RESEARCH INTEREST

- Clinical and preclinical studies
- Invitro and Invivo studies
- Proteomic and Genomic studies
- Cell – regeneration, differentiation, signalling studies
- Pharmacotoxicology studies

RESEARCH FIELDS

- Biomedical sciences
- Cell biology
- Pharmacology and toxicology
- Stem cell technology
- Disease modeling

REVIEWER OF JOURNALS

- Journal of Human and Experimental Toxicology
- Journal of Cell biochemistry and Function
- International Journal of Basic and Applied Sciences

RESEARCH LINKS

https://www.researchgate.net/profile/Kasthuri_Natarajan

<https://scholar.google.com/citations?user=jeyljvkAAAAJ&hl=en>

<https://www.scopus.com/authid/detail.uri?authorId=55426781600>

<https://orcid.org/0000-0001-8809-1987>

<https://publons.com/researcher/906551/kasthuri-natarajan>

PROJECTS DONE

A study on hepcidin and its association with inflammatory markers in Gestational Diabetes Mellitus, **ICMR** project, 2020

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Association of Serum Fructose levels with Polycystic Ovarian Syndrome in Chennai based Population – A Pilot Study, **ICMR** project, 2020

Correlation of biochemical markers with ferritin levels in Covid-19 patients: A retrospective study, **SRM** project 2020

Association between oxidized LDL and eNOS gene polymorphism in Coronary Heart Disease. **ICMR** project, 2020

An association between APO-E gene polymorphism and risk of premature coronary heart disease in young smokers. **SRM** project 2020

Evaluation and comparison of expired and extant metformin drug by method validation using UV-VIS spectrophotometry, **SRM** project, 2020

A study on effect of phototherapy on serum liver enzymes, electrolytes and minerals in hyperbilirubinemic neonates, **SRM** project, 2020

Role of combined HbA1c and Haematocrit for early screening of Gestational diabetes mellitus, **SRM** project, 2019

Invitro evaluation of cartilage constructs developed from autologous chondrocytes seeded 3D scaffolds of collagen – Melatonin and epigallocatechin gallate, **ICMR** project, 2019

Protective effect of phytochemicals against diabetes and hyperlipidemia, **IBMS** project, 2019
Drug screening on colon cancer cell line, **IBMS** project, 2018

Generation of induced pluripotent stem cells for haematological diseases, an **ICMR** project.

Generation of hiPSCs from blood cells from patients with the haematological diseases, Diamond Blackfan anaemia (DBA) and Congenital Diserythropoietic anaemias (CDAs) in 2017.

Generation of fanconi anaemia induced pluripotent stem cells by inducible expression of complementation group protein, a **DBT** project in 2016.

Does Silibinin protect against endometrial cancer in a mouse model?, a **CMC** project in 2015.

A study on the possible beneficial effects of the B complex vitamin biotin, an activator of glucokinase in the treatment / management of experimental gestational diabetes, a **CSIR** project in 2014.

To investigate the roles of nitrosative stress and peroxisomal stress in the pathogenesis of cyclophosphamide- induced kidney damage and possible ways to reduce the damage by the administration of selective inducible nitric oxide synthase inhibitor, aminoguanidine and peroxisomal proliferation alpha antagonist GW6471, an **ICMR** project in 2013.

Identification of nitrated proteins that may play a critical role in the pathogenesis of methotrexate induced small intestinal damage in the rat and possible ways to prevent the damage by the administration of nitric oxide synthase inhibitors, submitted to **CSIR** in 2012.

A study on the possible role of mitochondrial damage, reactive nitrogen species and reactive oxygen species in the pathogenesis of methotrexate induced small intestinal damage in the rat, submitted to **CSIR** in 2011.

Oral glutamine attenuates cyclophosphamide induced oxidative stress in the bladder but does not prevent hemorrhagic cystitis in rats, submitted to **DST** in 2010.

Analysis of metal toxicity in selected animal model with reference to chromium compound, submitted to D.K.M College for Women (autonomous) in March 2009. **Master** project

Chromium (VI) uptake by Sulphonated *Ficus religiosa* Ash, submitted to D.K.M. College for Women, Thiruvalluvar University in September 2006. **UGC** project

Pollution Hazards and Analysis in and around CMC, submitted to D.K.M College for Women, Thiruvalluvar University in February 2006. **Enviro** project

Independent research contributions:

- A study on iron metabolism specific hepcidin and its association with inflammatory markers in Gestational Diabetes Mellitus
- Effect of Colistin, Edaravone and Rosuvastatin in an animal model
- Drug screening on oral cancer cell lines
- Anti diabetic effect of flavonoids from *clitoria ternatea*
- Isolation of Gossypol from *thespesia populnea* and its effect in animal model
- Biodegradation of major pesticides using *pseudomonas aeruginosa*
- Hepato protective effect of andrographolide from *andrographis paniculata*
- Anti diabetic screening of mimosine from *mimosa pudica*
- Characterization of Potassium bromate in commercially available bread samples and Comparative effect of potassium bromate and ascorbic acid in an animal model
- Evaluation and comparison of expired and extant metformin drug by method validation using UV-VIS spectrophotometry

Collaborative research contributions:

- Effect of nutrient compound betaine against zika virus induced apoptosis in placental trophoblast cells
- A mechanistic approach of Non-steroidal Anti-inflammatory drug loaded Zinc oxide nanoparticle as a novel drug candidate for inflammatory disorders
- A study on the socio economic and cultural correlation of nutritional anemia and vitamin D deficiency in south indian population
- Effect of corn starch consumption in gastro intestinal system of adults
- Protective effect of troxerutin against Diethylnitrosamine and acetylaminofluorene induced liver cancer
- Comparative study of aqueous and ethanolic extract of *Vetiveria zizanioides* on experimentally induced dyslipidemia
- Assessment of anti-inflammatory potential of plant peptide using invivo model of colitis
- Association between oxidized LDL and eNOS gene polymorphism in Coronary Heart Disease
- An association between APO-E gene polymorphism and risk of premature coronary heart disease in young smokers

- Effectiveness of educative session on knowledge, attitude and practice, on diabetes and dyslipidemia of patients attending a private medical college hospital in South-India
- Correlation of biochemical markers with ferritin levels in COVID-19 patients: A retrospective study
- A study on effect of phototherapy on serum liver enzymes, electrolytes and minerals in hyperbilirubinemic neonates
- Association of serum fructose levels with polycystic ovarian syndrome in Chennai based population – A pilot study
- Early screening biomarker HbA1c and Hematocrit for Gestational Diabetes Mellitus
- Early detection of preeclampsia based on deep neural network combining biomarkers

PUBLICATIONS

Saswati Tripathy, Anuradha Murugesan, **Kasthuri Natarajan**, Balaji Ramraj, Satyajit Mohapatra. Early screening bio marker HbA1c and Hematocrit for gestational diabetes mellitus. **Clinical Epidermiology and Global Health**. 13, January 2022, 100945, 1- 4.

Thirunavukkarasu Jaishankar, Karini Keerthi, **Kasthuri Natarajan**, Shantha Kanamma. A study on the relationship between small dense LDL and an extended lipid profile including non - HDL, APO - Lipoproteins and their ratio in the diagnosis of cardio vascular risk. **Journal of Cardiovascular Disease Research**. Vol 12, Issue 03, Sep 2021, 1343 - 1353.

Karini Keerthi, Thirunavukkarasu Jaishankar, **Kasthuri Natarajan**, Balasubramanian Kannan. Measurement of Oxidized LDL and Remnant Lipoprotein Cholesterol Associated with High-Sensitive C-Reactive Protein in Coronary Heart Disease. **International Journal of Current Research and Review**, Vol 13, Issue 14, July 2021, 135-141.

Mario Prateek Selvam, Nisha Muthukumaran, Sangamithra Senthilkumar, Sandhiya Vaidhyalingam K. Dharshene, **Kasthuri Natarajan** and S. Rupachandra. In vitro Assessment of Cytotoxic Activity of Bioactive Peptides from Momordica dioica and Solanum trilobatum against Human Colon Cancer Cells. **Biomedical & Pharmacology Journal**, June 2021. Vol. 14(2), p. 1007-1018.

Thirunavukkarasu Jaishankar, Karini Keerthi, **Kasthuri Natarajan**, Balasubramanian Kannan. Effects of Remnant Lipoprotein Cholesterol associated with Nitric Oxide in Diabetic and Non-Diabetic Subjects: An Risk Predictor for Future Coronary Heart Disease. **Journal of Cardiovascular Disease Research**, April; 2021, 12 (1): 97–104

Sangeetha Raja, **Kasthuri Natarajan**, Jamuna rani R. Evaluation and comparison of expired and extant metformin drug by method validation using UV-VIS spectrophotometry. **International journal of research and pharmaceutical sciences**, 2021, 12(1), 857-862.

Keerthi Karini, Thirunavukkarasu Jaishankar, **Kasthuri Natarajan**, Balasubramanian Kannan. Study on role of Nitric oxide and high sensitive C-reactive protein in subjects with coronary heart disease. **International journal of research and pharmaceutical sciences**, 2020, 11(SPL4), 3068-3072.

Swathi M, Jothirmayi B, **Kasthuri N**, Vinodhini V.M., Renuka. P, Arul Senghor K.A., Electrolyte imbalances in preterm and term hyperbilirubinemic neonates following phototherapy. **International journal of research and pharmaceutical sciences**, 2020, 11(4), 6668-6674.

Manjunath Kamath S., Subha Krishna Rao, Jaison D., Sridhar K., **Kasthuri N.**, Melatonin delivery from PCL scaffold enhances glycosaminoglycans deposition in Human chondrocytes Bioactive scaffold model for cartilage regeneration. **Process Biochemistry**, 99 (2020) 36-47.

S. Manjunath Kamath, D. Jaison, Subha Krishna Rao, K. Sridhar, **N. Kasthuri**. In vitro augmentation of chondrogenesis by Epigallocatechin gallate in primary Human chondrocytes - Sustained release model for cartilage regeneration. **Journal of Drug Delivery Science and Technology**, 60 (2020) 101992.

Kasthuri Natarajan, Premila Abraham, Rekha Kota, Bina Isaac. NF- κ B-iNOS-COX2-TNF α inflammatory signaling pathway plays an important role in methotrexate induced small intestinal injury in rats. **Food and Chemical Toxicology** 2018 June, 118: 766-783 [PMID: **29935243**]

Kasthuri Natarajan, Premila Abraham, Rekha Kota. Activation of the mitochondrial apoptotic pathway contributes to methotrexate – induced small intestinal injury in rats. **Cell Biochemistry and Function** 2017 Oct, 35(7):378-391. [PMID: **28871597**]

Kasthuri Natarajan, Premila Abraham, Rekha Kota and Dhayakani Selvakumar. Aminoguanidine pretreatment prevents methotrexate-induced small intestinal injury in the rat by attenuating nitrosative stress and restoring the activities of vital mitochondrial enzymes. **Journal of Basic Clinical Physiology and Pharmacology** 2017 May 1;28(3):239-247. [PMID: **28099126**]

Sumitha P Bharathan, Krittika Nandy, Dhavapriya Palani, Nancy B Janet, **Kasthuri Natarajan**, Biju George, Alok Srivastava, Shaji Ramachandran Velayudhan. Generation of an induced pluripotent stem cell line that mimics the disease phenotypes from a patient with Fanconi Anaemia by conditional complementation, **Stem Cell Research**, 2017 Apr;20:54-57. [PMID: **28395741**]

Kasthuri Natarajan, Premila Abraham, Bina Isaac. Effect of Methotrexate treatment on iNOS gene expression, protein tyrosine nitration, protein cysteine nitrosylation and the activities of mitochondrial enzymes in the small intestinal mucosa of rats. **Asian Journal of Pharmacology and Toxicology**. 2016 Jul 25; 04(15):01-12.

Kasthuri Natarajan and Premila Abraham. Methotrexate administration induces differential and selective protein tyrosine nitration and cysteine nitrosylation in the subcellular organelles of the small intestinal mucosa of rats. **Chemico and Biological interactions** 2016 May 5;251:45-59. Epub 2016 Mar 30. [PMID: 27038877]

Premila Abraham, Suganthi Rabi, Deepak Vinod Francis, Mohana Priya D, **Kasthuri Natarajan**, Anita Amaladass. Increased hepatic gluconeogenesis and decreased glucose uptake, and increased hepatic *de novo* lipogenesis in rat model of maternal diabetes. **Biomedical research**, 2016 Feb;27(3):632-640.

Kasthuri Natarajan and Premila Abraham. An Anti-Cancer drug impair and repair mechanism (Methotrexate induced mucositis and its prevention in rat model. **Journal of Cancer science and therapy**. 2015 Oct;7(10):119.

Vk Kolli, **K Natarajan**, B Isaac, D Selvakumar, P Abraham. Mitochondrial dysfunction and respiratory chain defects in a rodent model of methotrexate-induced enteritis. **Human and Experimental Toxicology**. 2014 Oct;33(10):1051-65. [PMID: 24347301]

Kolli VK, Kanakasabapathy I, Faith M, Ramamoorthy H, Isaac B, **Natarajan K**, Abraham P. A preclinical study on the protective effect of melatonin against methotrexate-induced small intestinal damage: effect mediated by attenuation of nitrosative stress, protein tyrosine nitration, and PARP activation. **Cancer Chemotherapy and Pharmacology** 2013 May;71(5):1209-18. Epub 2013 Feb 19. [PMID: 23420439]

Viswa Kalyan Kolli, Premila Abraham, Bina Isaac, N. **Kasthuri**. Preclinical Efficacy of Melatonin to Reduce Methotrexate-Induced Oxidative Stress and Small Intestinal Damage in Rats. **Digestive Diseases and Sciences**. 2013 Apr;58(4):959-69. Epub 2012 Oct 10. [PMID: 23053903]

Abraham P, Isaac B, Ramamoorthy H, **Natarajan K**. Oral glutamine attenuates cyclophosphamide-induced oxidative stress in the bladder but does not prevent hemorrhagic cystitis in rats. **Journal of Medical Toxicology**. 2011 Jun;7(2):118-24. Epub 2010 Jul 27. [PMID: 20661687]

ACKNOWLEDGED ARTICLES:

Murugan Chinnaraj, Logaraj M, K R John, Balakrishnan S. Ramakrishna, **Kasthuri N**. Prevalence of Presumptive Pulmonary Tuberculosis among Residents of Homeless Shelters in Chennai Corporation. **Annals of Romanian Society for Cell Biology**, ISSN: 1583-6258, Vol. 25, Issue 1, 2021, 5993 - 6001

John Mechenro, Giriprasad Venugopal, M. Buvnesh Kumar, D. Balakrishnan and Balakrishnan S. Ramakrishna, **Kasthuri N**. Vitamin D status in Kancheepuram District, Tamil Nadu, India. **BMC Public Health** (2018) 18:1345, 1-8

Viswa Kalan kolli, Premila Abraham, Suganthi Rabi, **Kasthuri N**. Methotrexate-induced nitrosative stress may play a critical role in small intestinal damage in the rat. **Arch Toxicol**, (2008) 82:763-770.

EXPERTISE

Invitro studies:

Evaluations using cell cultures – Cell lines handling, primary culture and sub-culture preparation, maintenance of cell cultures and processing – Enzymes, metabolites, protein and gene expression studies.

Invivo studies:

Evaluations using animals (rat/mice) – Animal handling, dosing and dissection, surgery, tissue isolation, sample collection, storage and processing – Enzymes, metabolites, protein and gene expression studies.

Pharmacological studies:

Pharmacokinetic, pharmacodynamic and pharmacotoxicology analysis

Histo techniques:

Histology, Histopathology, Immuno Histochemistry

Microscopic techniques:

Light microscopy, Fluorescence microscopy and Confocal microscopy

Bio-analytical techniques:

Centrifugation, Chromatography, Electrochemical, Electrophoresis, Spectroscopy – Separation, isolation, purification of cells and cellular components and analysis of biochemicals, proteins, nucleic acids and haematological parameters

Molecular Biology techniques:

RT-PCR, Western blot, ELISA, Immunoprecipitation, Immunofluorescence, Immunohistochemistry, Molecular cloning, Gene scanning, Sanger Sequencing, Cell cycle analysis, Cell sorting and FACs analysis, Gene complementation, Gene knockdown, Gene editing by CRISPR.

Stemcell techniques:

Reprogramming technology, Induced Pluripotent Stem Cell generation, Stem Cell characterization, Stem cell differentiation, maintenance and cryopreservation.

Advanced techniques:

Gas Chromatography – Mass spectrometry, Liquid Chromatography – Mass spectrometry, High Performance Liquid Chromatography, Restriction Fragment Length Polymorphism, Next Gen Sequencing, Exome sequencing, Plant genome sequencing, 3D bioprinting, Proteomics and Genomics.

SYMPOSIUM / CONFERENCES ATTENDED

- Mar 2021** – India probiotic symposium on “Role of gut microbiota and probiotics in reducing viral infections – Mechanisms to combat them” organized by Gut Microbiota and Probiotic Science Foundation, India
- Jan 2021** – Virtual workshop on “Advances in Protein Biology Research” organized by School of Bioengineering, SRMIST, Chennai
- Jan 2021** – International symposium on “Polycystic ovarian syndrome” organized by Genetic engineering, SRMIST and PCOS foundation, Chennai
- Jan 2021** – Webinar on “Energy materials, devices and characterization” organized by Nanotechnology Research Centre, SRMIST, Chennai
- Dec 2020** – International virtual conference on “Recent advancements in Bioinformatics”, organized by Vels institute of science, Technology and Advanced Studies, Chennai
- Oct 2020** – Virtual conference on “Emerging opportunities in biotechnology”, organized by Vellore Institute of Technology, Vellore
- Sep 2020** - Virtual workshop on “ Ethical issues in biomedical research 2020”, organized by SRM medical college hospital, SRMIST, Chennai
- Aug 2020** – International level webinar on “A-Z writing and publication in scopus indexed journals” Organized by GMR institute of technology, Andrapradesh
- Jul 2020** – National level webinar on “Application of molecular techniques in biomedical research” organized by University of Madras, Chennai.
- Jul 2020** – International conference on “Role of health professionals in combating the emergence and spread of antimicrobial resistance” Organized by Sathyabama institute of science and technology, Chennai
- Jul 2020** – International webinar on “the battle against COVID-19” organized by Arasu womens College, karur
- Jun 2020** – International webinar on “Recent advances in life sciences” organized by Marudhar kesari Jain college for women, vaniyambadi
- Jun 2020** – National conference on “ Role of natural products in drug discovery” organized by IQAC And Annai violet arts and science college, chennai
- May 2020** - International level alumini series webinars, organized by SRMIST, Chennai
- Apr 2020** – National level mentorship program “Samadhan” Organized by MHRD, GOVT, Delhi
- Mar 2020** – SRM COVID awareness programs organized by SRMIST, Chennai

- Mar 2020** – International level mentorship program “Fight Corona Ideathon”, Organized by MHRD Government of India, New Delhi
- Jan 2020** – CME program on “Obesity” organized by SRM institute of Science and Technology, Chennai
- Nov 2019** – International Conference on “Bioethics in Health Sciences” Organized by UNESCO and SRM Medical College Hospital and Research Centre, SRM IST, Chennai
- Mar 2019** – International Seminar on “Recent Innovations in Pharmacology and Pharmacogenomics” Organized by UGC-SAP and IBMS University of Madras, Chennai
- Nov 2018** – International conference on “1st International proton therapy Educational Program” Organized by PTCOG (Particle Therapy Co-operative Group) and APCC (Apollo Proton Cancer Centre), Chennai
- Feb 2018** – International conference on “Current trends and Emerging Challenges in Biological Sciences” at DKM college for women, Vellore
- Nov 2017** - National symposium on “DNA in Heart” Genetics of Cardiovascular Diseases at Clinical Genetics Unit, Christian Medical College and Hospital, Vellore
- Sep 2017** - 2nd Annual Symposium on “Cell and Gene therapy” at Centre for stem cell research, CMC, Vellore.
- Feb 2017** - International conference on “Recent Advances in Bioresource Technology – RABT 2017” at Thiruvallurvar University, Vellore
- Dec 2016** - 8th India Probiotic symposium on “Probiotics in Health – Emerging Opportunities” at SRM institute of Medical Sciences and Gut microbiota and probiotic foundation (India).
- Aug 2016** - 1st Annual Symposium on “Cell and Gene therapy” at Centre for stem cell research, CMC, Vellore.
- Mar 2016** - InStem Annual Review of Research and sab meeting, NCBS, Bangalore
- Nov 2015** - 9th Indo Global Summit on “Cancer therapy- precision therapeutics and curative approaches to curb cancer” at Hyderabad, India.
- Feb 2015** - National symposium on “Recent Advances in Biomedical Technology” at Thiruvalluvar university, Vellore.
- Feb 2014** - 12th Winter symposium on “Haematology : Bench to Bedside” at CMC, Vellore.
- Feb 2013** - Society of free radical research and International Symposium on “Free Radical Damage and Herbal Antioxidants in Health and Disease” at Avinashilingam university, Coimbatore.
- Dec 2012** - International conference on “Cancer and Diabetes” at annamalai university, Chidambaram
- Nov 2012** - 81st Society of Biological Chemists annual conference on “Chemistry and Biology – Two weapons against Diseases” at Science city, Kolkata.

Jan 2012 - 10th Winter Symposium on “Cellular and Molecular Medicine” at CMC, Vellore.

Dec 2010 - 40th Annual Conference of the “Endocrine Society of India” at CMC, Vellore.

Jan 2010 - 8th Winter Symposium on “Evidence Informed Healthcare” at CMC, Vellore.

Jan 2009 - National Level Management events on “Stress management” at DKMC, Vellore.

Jan 2009 - 7th Winter Symposium on “Integrating Basic sciences into public health” at Christian medical College, Vellore.

Oct 2008 - National Level symposium on “Recent Trends in Molecular Diagnosis and nanotherapeutics” at Adhiparasakthi College of Arts and Science, Kalavai.

Feb 2008 - IV Annual National Symposium on “Renal Disorder - 08”, Intersociety of Biochemistry and Nutrition, DKMC, Vellore.

Sep 2007 - National Level Seminar on “Stem cells” at Auxilium College, Vellore.

Aug 2007 - State Level Symposium on “GIDE – 07” at Jaya College, Thiruninravur.

Feb 2007 - III Annual National symposium on “Cancer today-07” ISBN, DKMC, Vellore.

Feb 2007 - National Conference on “Energy and Environment” at DKMC, Vellore

Jan 2006 - National level Symposium on “Eke - lore Diabetologia”, at DKMC, Vellore

Feb 2005 - National level symposium on “CVD - The Global Challenge” at DKMC, Vellore.

PAPERS / POSTERS PRESENTED

Presented a paper on “**Stem cell research – Challenges in Therapy**” in Annual Research Day, SRM institute of science and technology, Chennai, Feb 2021

Presented a lecture on “**Role of Biochemist in healthcare management during COVID pandemic**” in DKM College for Women, Vellore, Feb 2021

Presented a lecture on “**Stem cell and gene editing technology in health care industry**” in Vellore Institute of Technology, Vellore, Oct 2020

Presented a paper on “**Drug screening on colon cancer cell lines**” in Annual Research Day, SRM institute of science and technology, Chennai, Jan 2020

Presented a lecture on “**Mechanistic evaluation of drugs**” in Institute of biomedical sciences, Chennai, Jun 2019

Presented a paper on “**Stem cell Research – Trends and Challenges in Therapy**” in International conference at DKM college for women, Vellore, Feb 2018

Presented a paper on “**Methotrexate - Impair and Repair mechanism in rodent model**” in International conference at Thiruvalluvar university, Vellore, Feb 2017 (Secured Best Paper Award)

Presented a poster on “**Mitochondrial damage in anticancer drug induced mucositis**” in National symposium at Thiruvalluvar university, Vellore, Feb 2015 (Secured Best Poster Award)

Presented a poster on “**Evidence for the role of Mitochondrial damage in anticancer drug (Methotrexate) induced enteritis in rats**” in international symposium at Avinashilingam university, Coimbatore, Feb 2013. (Secured Best Post Award)

Presented a paper on “**Inflammatory mechanism of an anticancer drug**” in International conference at Annamalai university, Chidambaram, Dec 2012.

Presented a poster on “**Evidence for the role of Mitochondrial damage in anticancer drug (Methotrexate) induced enteritis in rats**” in symposium at science city, Kolkata, Nov 2012.

Presented a poster on “**Evidence for the Mitochondrial damage in anticancer drug induced rats**” in Annual Research Day, CMC, Vellore, Oct 2012.

Presented a poster on “**An anticancer drug induced inflammatory mechanism**” in Tenth Winter Symposium at CMC, Vellore, Jan 2012.

Presented a poster on “**Nitrosative stress in intestinal damage**” in Annual Research Day Programme at CMC, Vellore, Oct 2011. (Secured Best Poster Award)

Presented a paper on “**Stress Management**” in National Level Management Events at DKMC, Vellore, Jan 2009.

Presented a Paper on “**Cystic fibrosis**” in Microbiology association meet at DKMC, Vellore, Oct 2008.

Presented a poster on “**Hormones**” in Biotechnology association at DKM College, Vellore, Nov 2007.

Presented a paper on “**Chromium uptake by SFRA**” in National Conference at DKMC, Vellore, Feb 2007.

Presented a paper on “**Pollution - hazards and analysis**” in National conference on energy and environment at DKM, Vellore, Feb 2007.

Presented a Poster on “**Transgenesis**” in State Level Symposium on “GIDE – 07” at Jaya College, Thiruninravur, Oct 2006.

WORKSHOPS ATTENDED

Skill on GC-MS, LC-MS, HPLC, RFLP, Gene sequencing, cell sorting and FACS analysis.

Orientation programme of Lab animal facility, CSCR, 2016

Basics in Molecular diagnostics and analysis, CMC, 2016

Zotero workshop, CMC, 2015

Proposal writing, Plagiarism, Patent, in CMC

Hands-on training in Western blot and Polymerase Chain Reaction, CMC, 2010

Research Ethics and Good Clinical Practice, CMC, 2010

Animal handling in CMC animal facility, CMC, 2009

Fundamentals of Biostatistics and SPSS, CMC, 2009

Workshop in Molecular Biology techniques, DKMC, 2007

Instrumental Handling and methods of analysis, VITCA, 2006

AWARD OR PRIZE RECEIVED

- Academic Excellence Award from D.K.M. College for Women, Vellore for outstanding student and academic record in 2007 and 2009
- Best NSS Volunteer Award from Thiruvalluvar University, Vellore, for Dynamic participation and contribution in NSS cell activities in 2008
- Best Research Poster Award from Christian Medical College, Vellore, 2011
- Young Scientist Award from Bharathiar University, Coimbatore, 2011
- Best Research Poster Award from Avinashilingam University, Coimbatore, 2013
- Best Research Poster Award from Thiruvalluvar University, Vellore, 2015
- Young Researcher Award from Omics international group, Hyderabad, 2015
- Best Research Paper Award from Thiruvalluvar University, Vellore, 2017
- Active Young Researcher Award from Conference world – International Research Publications in 2018
- Young Researcher Award from REST Society for Research International, India, 2020
- Young Scientist Award from International Scientist awards, India, 2020
- Young Achiever Award from Institute of Scholars, Bangalore, 2020

ADDITIONAL SKILLS

- Teaching skills - Conducting classes, practicals and tests, seminars and presentations, demonstrations, handson trainings, invigilation, instruction and investigation
- Organizing skills - Workshops, seminars, symposium, conferences, paper and poster presentations, academic exhibitions, medical and NSS camps, sports and competitions
- Research abilities - Literature review, New proposal writing, Experiments designing, Organizing bench works, Results generation, Biostatistic analysis, Conclusion and interpretations, Bio-sofwares handling, Paper writing for publications, Research presentations
- Others: Typing – English : Higher Grade, Computer – Advanced Diploma in Computer Applications

PERSONAL PROFILE

Name : N. KASTHURI
Father Name : S. Natarajan
Mother Name : N. Manjula
Date of Birth & Age : 02-10-1986, 35 years
Gender : Female
Nationality : Indian
Languages Known : English and Tamil (Read/Write/Speak)
Strength : Easy learner, Hard worker, Optimistic, Self Confident.

DECLARATION

I hereby affirm that all the details given above are true to the best of my knowledge and belief.



(KASTHURI. N)

REFERENCES / TESTIMONIALS

1. **Dr. Anna B. Pulimood**, MBBS, MD.,
Principal, Christian Medical College, Bagayam, Vellore – 632 002.
Tamil Nadu, India.
Email: princi@cmcvellore.ac.in , Phone: 91-416-2284201
2. **Dr. Premila Abraham**, M.Sc. Ph.D.,
Professor and Ph.D guide, Department of Biochemistry,
Christian Medical College, Bagayam, Vellore – 632 002. Tamil Nadu, India.
Email: premilaabraham@yahoo.com, Mobile: +91-9894746285
3. **Dr. P.N. Sudha**, M.Sc., Ph.D.,
Principal and Professor
D.K.M. College for Women, Vellore – 632 001. Tamil Nadu, India.
Email: parasu8@gmail.com, Mobile: +91-9842910157
4. **Dr. Prabha Suresh**, M.Sc., Ph.D.,
Professor and Head, Department of Biochemistry,
D.K.M. College for Women, Vellore – 632 001. Tamil Nadu, India.
Email: prabha.v1979@gmail.com , Mobile: +91-8098801567
5. **Dr. B.S. Ramakrishna** MD, DM, Ph.D.,
Director and Senior consultant, Medical Gastroenterology,
SIMS, SRM institutes for Medical Sciences, Chennai, Tamil Nadu, India.
(Former Professor and Head, Gastrointestinal Sciences, Christian Medical College)
Email: wurama@hotmail.com