

Dr.Thangavel Muthusamy, Ph.D.

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Faculty of Allied Health Sciences
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Qualifications:

- 1999-2003 Ph.D. Medical Biochemistry, P.G. Institute of Basic Medical Sciences University of Madras, Taramani, Chennai, India
- 1995-1997 M.Sc. Biochemistry, Barathidasan University, Trichy, India
- 1992-1995 B.Sc. Chemistry, University of Madras, Chennai, India

Research Interests:

Cellular and Molecular Biochemistry, Molecular Neuroscience, Protein trafficking, Cell signaling and GPCR

Post-Doc / Work Experience:

- 2014- Present Associate Professor, Dept of AHS, College of Medicine, Chettinad Health University and Research Institute, Kelambakkam, Chennai, India
- 2011-2013 Senior Research Scientist, Department of Psychiatry and Behavioral Sciences, School of Medicine, University of Louisville and VA Medical center, Kentucky, USA
- 2010-2011 Associate Professor, Dept of Biotechnology, School of Bioengineering, SRM University, Kattankulathur, Chennai, India
- 2009-2010 Post Doctoral Research Scholar, Department of Cellular and Molecular Biochemistry, The Ohio State University Medical Center, Columbus Ohio, USA
- 2003-2009 Post Doctoral Fellow, Dept of Biochemistry, Microbiology and Immunology University of Tennessee Health Science Center, Memphis, Tennessee, USA

Extramural projects ongoing/completed

1. Co-Principle Investigator: Caveolar Dependent Trafficking of Membrane Transporters” Grant –In-Aid American Heart Association, Southeast Affiliate Chapter 7/1/03 - 6/30/05

2. Co-Principle Investigator: 2005 to 2009: National Institutes of Health (NIH) grant to pursue basic research on the organization of pathways inside smooth muscle cells that control muscle contraction.
3. Co-Principle Investigator: 2011 to 2014: VA Merit Review Major Grant program for research related to mood stabilizing medications and the brain inositol signaling system.
4. Principle Investigator: 2015 to 2018: Neuronal Cytoskeleton as a Target For Drug Therapy in Bipolar Disorders. (DST), Government of India, Ministry of Science and Technology, Technology Bhavan, New Delhi-110016. (RS=58.9 lakhs) under review.

Patents Submissions: Patent filed

Research Guidance

Ph.D.: 1

M.Sc.: 2

Summary of Research:

Papers	20	Citations	242	h-index	9	i10-index	8
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Publications:

1. **Thangavel.M**, Seelan, R., Lakshmanan, J., Vadnal RE, Stagner, JI, Parthasarathy LK, Casanova MF, El-Mallakh RS, Parthasarathy RN. Proteomic analysis of rat prefrontal cortex after chronic valproate treatment. **J Neurosci Res. 2014 Jul;92(7):927-36. (Impact factor: 3.243) (ISSN)1097-4547**
2. **Thangavel. M**, Xiao L, Kaminsky BJ and Ostrom R. The C1 and C2 domains target human type 6 adenylyl cyclase to lipid rafts and caveolae. **Cell Signal, (2009) 21(2):301-308.(Impact factor:4.743) (ISSN)0898-6568**
3. Lakshmanan, J., Seelan, R., **Thangavel, M.**, Janckila, A., Casanova, MF, Parthasarathy, L.K., and Parthasarathy, R.N., Proteomic analysis of rat prefrontal cortex after lithium treatment. **Journal of Proteomics and Bioinformatics, (2012): 5:140-146.(Impact factor:2.22) (ISSN)0974-276X**
4. Parthasarathy, R.N., Lakshmanan, J., **Thangavel, M.**, Seelan, R., Stagner, J.I., Janckila, A.J., Vandal, R.E., Casanova, M.F., and Parthasarathy, L.K., Rat brain myo-inositol 3-phosphate synthase is a phospho-protein, **Molecular and Cellular Biochemistry, (2013): 2013 Jun;378(1-2):83-9. (Impact factor:2.05) (ISSN)0300-8177**
5. Le-Nguyen Huynh, **Thangavel M**, Timothy Chen, Ryan Cottrell and Mette Praetorius- Ibba. Linking tRNA localization with activation of nutritional stress responses. **Cell cycle, (2010) 3112-3118.(Impact factor:5.2) (ISSN)1551-4005**
6. Liu X, Li F, Sun SQ, **Thangavel M**, Kaminsky J, Balazs L, Ostrom RS. Fibroblast specific expression of AC6 enhances β -adrenergic and prostacyclin signaling and blunts bleomycin-induced pulmonary

fibrosis. **Am J Physiol Lung Cell Mol Physiol, (2010) 298:L819-L829, (Impact factor: 4.137) (ISSN)**

7. Dorsey FC. **Thangavel Muthusamy.**, Whitt MA and Cox JV. A novel role for a YXX ϕ motif in directing the caveolin-dependent sorting of membrane-spanning proteins **Journal of Cell Science, (2007)120:2544-2554. (Impact factor:6.731) (ISSN)1477-9137**
8. Confeng XU., Li L., **Thangavel M.**, Bin Z., Rennolds O and Xin A. CD82 endocytosis links tetraspanin-enriched microdomain to lipid rafts and regulates cell migration. **FASEB Journal, (2009) FJ 08-123414. (Impact factor:7.201) (ISSN)1530-6860**
9. Xiaoqiu L., **Thangavel M.**, Qiang S., Kaminsky BJ., Mahautmr P., Stitham., Hwa J and Ostrom R. Adenylyl cyclase type 6 over expression selectively enhances β -adrenergic and prostacyclin receptor inhibition of cardiac fibroblast function due to co-localization in lipids rafts. **Naunyn-Schmiedeberg's Arch Pharmacology, (2008) 377:359-369 (Impact factor:2.63) (ISSN)1432-1912**
10. Seth P., Seth A., **Thangavel M.**, Basuroy S and Rao RK. Epidermal growth factor prevents acetaldehyde induced paracellular permeability in caco-2 cell monolayer. **Alcoholism: Clinical and Experimental Research, (2004) 28(5) 797-804. (Impact factor:3.468) (ISSN)1530-0277**
11. Thirunavukkarasu C., Prince vijeya sing J., **Thangavel M.**, Selvendiran K and Sakthisekaran D. Dietary influence of selenium on the incidence of N-nitrosodiethylamine-induced hepatoma with reference to drug and glutathione metabolizing enzymes. **Cell Biochemistry and Function, (2002) 21:1-10 (Impact factor:1.89) (ISSN)1099-0844**
12. **Thangavel M.**, Palanivel R and Sakthisekaran D. The cytoprotective effect of curcumin on Adriamycin induced hepatotoxicity. **Biomedicine, (2002) 21(4):21-27. Indexed journal. (ISSN) 0970-2067**
13. Palanivel R., **Thangavel M.**, Selvendiran K and Sakthisekaran D. Insulin-like effect of ammonium paratungstate on protein metabolism in streptozocin induced experimental diabetes in rats. **Biomedicine, (2001) 21:23-30. Indexed journal. (ISSN) 0970-2067**
14. **Thangavel M.**, Roshini Yadav L, Murugesan R, Satish R, and Ilangovan R. Synergistic Effect Of 5-Fluorouracil Combined With Naringin In MDA-MB-231 Human Breast Cancer Cells. **Oncology Letter. Submitted (2017)**
15. **T Muthusamy**, MP Ibba. Karyopherin-mediated regulation of autophagy in breast cancer cells **Cancer Research** 70 (8 Supplement), 4852-4852
16. T Muthusamy, FC Dorsey, JV Cox. Caveolin 1 regulates the caveosome to Golgi sorting of protein and lipid cargo. **Molecular biology of the cell** 15, 441A-441A
17. S Mumtaz Banu, R Padmavathi, **M Thangavel**, D Sakthisekaran. Chemotherapeutic efficacy of adriamycin against den induced oxidative stress in hepatocellular carcinoma bearing rats with reference to LPO, antioxidants and membrane stability. **Biomedicine** 21(4) 21-27.

18. FC Dorsey, **T Muthusamy**, JV Cox. A novel role for a YXX Phi sorting signal in directing the caveolar-dependent endocytosis of an AE1 anion exchanger/Fc receptor chimera. **Molecular biology of the cell 15, 441a-441a.**
19. Thangavel, X Liu, RS Ostrom. Proteomic analysis detects cytoskeletal-related proteins that interact with the intracellular C1 domain of adenylyl cyclase 6. **The FASEB Journal 22 (1 Supplement), 728.1-728.1**
20. M Thangavel, P Adris, R Ostrom. Localization and coupling of adenylyl cyclase isoforms 2, 3 and 6 with G protein-coupled receptors in mouse bronchial smooth muscle cells. **The FASEB Journal 23 (1 Supplement), 582.3-582.3**

Conference / Workshop / Invited Lecture/ Resource person / Seminar/:

1. **Thangavel M.** and Mette Ibba. Karyopherin-mediated Regulation of autophagy in breast cancer cells. April 17-21, 2010, Washington DC, Convention center, Washington DC., **USA: 101st** American Association for Cancer Research. Poster Presented
2. **Thangavel M.** Lenguyen H, Timothy C, Ryan C and Mette Ibba. Karyopherin-mediated Regulation of autophagy in breast cancer cells. February 19, 2010, Greater Columbus Convention center, Columbus, Ohio, **USA: 12th** Annual Scientific Meeting Targeted cancer Therapies: Discovery to personalized Medicine. Poster Presented
3. **Thangavel M.** Lenguyen H, Timothy C, Ryan C and Mette Ibba. Karyopherin-mediated regulation of autophagy. February 3-6, 2010, Coronado, California, **USA: An ACCR Special Conference on Protein Translation and Cancer Meeting.** Poster Presented
4. **Thangavel M.** Piyatilake Adris, Rennolds Ostrom. Localization and coupling of adenylyl cyclase isoforms 2, 3 and 6 with G protein-coupled receptors in mouse bronchial smooth muscle cells. 2009 New Orleans, **USA: EB2009-ASPET'S Meeting.** Poster Presented
5. **Thangavel M.** Xiaoqi L and Rennolds Ostrom. Proteomic analysis detects cytoskeletal-related proteins that interact with the intracellular C1 domain of adenylyl cyclase 6. *2008 Abstract Viewer/Itinerary Planner.* San Diego, California: EB2008-ASPET'S Centennial Meeting. Poster Presented
6. **Thangavel M.,** Xiaoqi L and Rennolds Ostrom. The proximal segments of the cytosolic C1 domain of adenylyl cyclase 6 localize to plasma membrane lipid rafts and caveolae. *2007 Abstract Viewer/Itinerary Planner.* **Washington, DC: 27th** Annual meeting The experimental Biology, 2007. Online. Poster Presented
7. Xia Liu., **Thangavel M** and Rennolds Ostrom. C1 and C2 AC6 adenylyl cyclase involved lipid rafts and caveolae. *2006 Abstract Viewer/Itinerary Planner.* **San Francisco, California: 26th** annual meeting The experimental biology 2006, Online. Poster Presented
8. **Thangavel M.,** Dorsey.FC.and Cox JV. Caveolin-1 regulates the caveosome to Golgi sorting of protein. *2004 Abstract Viewer/Itinerary Planner.* **Washington, DC: 44th** Annual meeting The American Society for Cell Biology, 2004. Online. Poster presented
9. Dorsey FC. **Thangavel M.,** Cox JV. A novel role for a YXXØ sorting signal in directing the caveolar dependent endocytosis of an AE1 anion exchanger/Fc receptor chimera. *2005 Abstract Viewer/Itinerary*

Planner. Washington, DC: 44th Annual meeting The American Society for Cell Biology, 2004. Online Publication. Poster Presented

10. **Thangavel M** and Sakthisekaran D. Antioxidant effect of curcumin along with adriamycin in N-nitrosodiethylamine (DEN)-induced DNA damage and apoptosis. 2002 *Abstract Viewer/Itinerary Planner 2002 Bangalore, India: International symposium on cancer and Cell death, 2002. Poster Presented*.
11. **Thangavel M** and Sakthisekaran D. Protective effect of Curcumin along with adriamycin on N-nitrosodiethyl amine induced alterations in glycolytic enzymes in hepatocellular carcinoma. 2002 *Abstract Viewer/Itinerary Planner. Jawaharlal Nehru University, New Delhi, India: International conference on emerging trends in cancer research, 2002. Poster Presented*
12. **Thangavel M** and Sakthisekaran D. Antioxidant and antitumor effect of curcumin along with adriamycin on diethylamine induced hepatocellular carcinoma in experimental animals. 2001 *Abstract Viewer/Itinerary Planner. Mumbai, India: International Conference on Natural Antioxidant and Free radicals in Human health And Radiation biology, 2001. Poster Presented*
13. **Thangavel M** and Sakthisekaran D. Cytoprotective role of curcumin on adriamycin induced Neurotoxicity. *Abstract Viewer/Itinerary Planner. 2001. Christ Church, New Zealand: 34th International congress of Physiological Sciences from Molecule to Malady, 2001. Poster Presented*
14. Sakthisekaran D and **Thangavel M**. Protective role of curcumin against adriamycin induced alterations in brain acetylcholine esterase and glycolytic enzymes. *Abstract Viewer/Itinerary Planner 2001, Christ Church, New Zealand: 34th International Congress of Physiological Sciences from Molecule to Malady. 2001. Poster Presented*
15. **M.Thangavel** has participated in the 98th Indian Science Congress held at SRM University, Chennai
16. **M.Thangavel**, R.S. Seelan and R.N. Parthasarathy. Proteomic analysis of rat prefrontal cortex after chronic valproate treatment. Society of Neuroscience, 23rd Annual Louisville Neuroscience day, Louisville, USA. Abstract 2013, Poster Presented
17. R.N. Parthasarathy, M.Thangavel and R.S. Seelan. Proteomic analysis of rat prefrontal cortex after chronic valproate treatment. Society of Neuroscience, 23rd Annual Louisville Neuroscience day, Louisville, USA. Abstract 2013, Poster Presented
18. Le-Nguyen H, Maria N, **Thangavel Muthusamy**, Hiep L, Devi N, and Mette Ibba. tRNA-mediated regulation of nutrient-responsive pathways in breast cancer cell. Proceedings: AACR 102nd Annual Meeting 2011- Apr 2-6, 2011; Orlando, FL, USA. Poster Presented
19. **M.Thangavel**, R.S. Seelan and R.N. Parthasarathy. Proteomic analysis of rat prefrontal cortex after chronic valproate treatment. Society of Neuroscience, Sandiego, California, USA. Abstract 2013, Poster Presented
20. **M.Thangavel** and Ibba.M. Karyopherin-mediated regulation of autophagy in fibroblast and breast cancer cells. 2nd International conference on frontiers in biological sciences (InCoFIBS-2015) India. Oral Presentation

21. Geeva, **Thangavel M**, Murugesan R and Shoba narayan. Studies on Li₂Co₃-loaded chitosan nanoparticles: With potential application for enhanced drug efficacy. International conference on frontiers in Nanoscience & Nanotechnology, Sastra university, Thanjavur, India. Feb 27-28, 2017, Paper presented.
22. Sakithisearan D, **Thangavel M**, Selvendiran K and Thirunavukkarasu C. Anticancer effect of selenium against N-nitrosodiethylamine induced alterations in drug metabolizing enzymes studied in albino rats. *Abstract viewer/Itinerary Planner 2000*, Grand Rapids, Michigan, USA: 7th ICMAA, International conferences on Mechanisms of Anti mutagenesis and anti carcinogenesis. Poster Presented
23. Thangavel M and Sakthisekaran D. Rehabilitating role of curcumin along with adriamycin on N-nitrosodiethylamine-induced alterations in carbohydrate metabolizing enzymes in experimental hepatocellular carcinoma. *Abstract viewer/Itinerary Planner 2002* National University of Singapore: 2nd International Conference on natural products, 2002, Paper presented.
24. **Thangavel M**, Magesh V and Sakthisekaran D. Rehabilitating role of curcumin against N-nitrosodiethylamine induced experimental hepatocellular carcinoma with reference on glutathione metabolism. XXXV Annual conference of Indian Pharmacological society, Defence Research and Development Establishment , Min of defence, Govt of India, Gwalor, India. 26th-29 Nov 2002. P148. Poster presented.
25. Sakthisekaran D., Mumtaz banu S and **Thangavel M**. Chemotherapeutic efficacy of adriamycin against N-nitrosodiethylamine induced experimental hepato cellular carcinoma. 2002 *Abstract Viewer/Itinerary Planner*, JIPMER, Pondicherry, India: XXIII Annual Conference of Indian Association of Biomedical Scientists. 2002. Presented.
26. Mumtaz Banu., **Thangavel M** and Sakthisekaran D. Effect of Adriamycin in the treatment of experimental hepatocellular carcinoma with reference to liver ATPase. 2002. *Abstract Viewer/Itinerary Planner 2002*. JIPMER, Pondicherry, India: XXIII Annual Conference of Indian Association of Biomedical Scientists. 2002. Poster Presented
27. **Thangavel M.**, Prince Vijeya Singh J and Sakthisekaran D. The Antioxidant and cyto protective effect of curcumin against adriamycin induced experimental hepatotoxicity. *Abstract Viewer/Itinerary Planner 2000*. Hyderabad, India: Biennial National Conference Indian Society of Oncology, 2000, Paper Presented
28. Sakthiseakran D., Thangavel M., Selvendiren K and Thirunavukkarasu C. Anticancer effect of selenium against N-nitrosodiethylamine induced alterations in drug metabolizing enzymes studied in albino rats. *Abstract Viewer/Itinerary Planner 2000*, Grand Rapids, Michigan, USA: 7th ICMAA, International conference on Mechanisms of Anti-mutagenesis and anti-carcinogenesis. Paper presented.
29. Thangavel M and Sakthisekaran D. Rehabilitating role of curcumin along with adriamycin on N-nitrosodiethylamine-induced in carbohydrate metabolizing enzymes in experimental hepatocellular carcinoma. *Abstract Viewer/Itinerary Planner 2002*. National University of Singapore, Singapore: 2nd International Conference on Natural products. Paper Presented.

30. **Thangavel M** and Sakthisekaran D. Attenuation effect of Curcumin on adriamycin induced acute neurotoxicity in albino rats. *Abstract Viewer/Itinerary Planner* 1999, Annamali University, Annamalai nagar, India: XXI Annual conference, Indian Association of Biomedical Scientists, Abstract 1999. **Paper Presented.**
31. **Thangavel M** and Sakthisekaran D. Invitro studies on the selective cytotoxic effect of crocetin and quercetin. 1999. University of Madras, Chennai, India.2000, **Paper Presented.**
32. **Thangavwl M.**, Magesh V and Sakthisekaran D. Rehabilitating role of curcumin against n-nitrosodiethylamine induced experimental hepatocellular carcinoma with reference to glutathione metabolism. XXXV Annual conference of Indian Pharmacological Society, Defence Research and Development Establishment Min. of Defence, Govt of India, Gwalor, India. 26th -29th November, 2002. P148. **Paper Presented.**
33. G.P. Dubey, **Thangavel M**, Aruna Agrawal, Vasanth, S. K1. Ilango, R.G. Singh. Pro-inflammatory and pro-thrombotic adipokines involved in Metabolic Syndrome-benefits of an Ayurvedic formulation National Institute of Ayurveda conference (NIACON, 2011)

National Seminar

34. **M.Thangavel** has Participated in the National Seminar on “Noval Neuroactive molecules’ in Helminth parasites” organized by the Department of Biotechnology, University of Madras, Guindy Campus, Chennai 600 025, On 10th April, 2001
35. **M.Thangavel** attended a Seminar Trends in molecular Biology and Biotechnology held at the Department of Zoology, University of Madras, Guindy Campus, Chennai-25 sponsored by British Deputy High Commission, South India, Chennai on 20th August, 1999
36. **M.Thangavel, Associate Professor, Faculty of Allied Health Sciences**, actively participated as delegate at the Chettinad Institutional Fertility colloquium, held on September, 2014, at chettinad Hospital and Research Institute, Kelambakkam, Tamilnadu, India.
37. **M.Thangavel, Associate Professor, Faculty of Allied Health Sciences**, participated as delegate in the seminar on “Examination And Evaluation reforms In Health Sciences” conducted on 23rd March 2015, by the Internal Quality Assurance Cell.
38. **M.Thangavel, Associate Professor, Faculty of Allied Health Sciences**, participation as Delegate in the CME CHETPSYCON 2016 organised by Department of Psychiatry at Chettinad Hospital & Research Institute on 28th Sep, 2016.

Workshop

39. **M.Thangavel, Associate Professor, Dept of Biotechnology** participated in the one day work shop on Biological Nuclear Transmutations: Historical Perspective and Applications held in SRM University, in association with Indian Institute of Metals Kalpakkam Chapter IGCAR during 15th February 2011.Chennai.

40. **M.Thangavel, Associate Professor, Dept of Biotechnology Speaker, Department of Biochemistry, VRR Institute of Basic Medical Sciences, DBT-Sponsored short term training course on “Molecular Techniques in diagnosis of Infectious diseases, Autoimmune & Genetic disorders” from Nov 17 to 30, 2014. Chennai, India.**
41. **M.Thangavel, Associate Professor, Dept of Allied Health Sciences, Chettinad Academy of Research and Education, Chettinad University, Kelambakkam, 603103. Workshop on in vivo Small Animal Optical Imaging at Central Research Lab, 14th March 2016.**
42. **M.Thangavel, Associate Professor, Dept of Allied Health Sciences, for successful completion of 3T-IBHSc Training Course In Bioethics Training For Health Professionals of Health Science Universities (Accredited by the UNESCO Chair In Bioethics, Haifa) 28th-30th April, 2016.**
43. **M.Thangavel, Associate Professor, Dept of Allied Health Sciences, Chettinad Academy of Research and Education, Chettinad University, Kelambakkam, 603103. Two days workshops on cellular & Molecular Diagnostics 10th –11th February, 2017.**

Invited Speaker

44. **Invited Speaker:** Linking of tRNA localization with activation of nutritional stress responses at the center for advanced studies in Botany, Gunidy Campus, University of Madras. Dated: 24.01.2014 at the Seminar hall.
45. **Invited Speaker:** Department of General Surgery, Sri Ramachandra University, Porur, and Chennai, India. Title: G-Protein coupled receptors functions and Mechanism on lipid raft protein caveolin-1 in cardio vascular diseases”: Oct- 2010.
46. **Invited Speaker:** Title-Karyophorin-mediated Regulation of Autophagy in breast cancer cells. Biomedical Research tower. Sep, 2009, The Ohio State University Medical Center, Columbus, Ohio, USA.
47. **Invited Speaker:** 2nd International Conference on Frontiers in Biological Sciences (InCoFIBS-2015) 22nd to 24th January, 2015, National Institute of Technology, Rourkela, Odisha, India.