

CURRICULUM VITAE

Dr. NATARAJ JAGADEESAN

Postdoctoral Fellow

Chapman University

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SUMMARY

Dr. Nataraj Jagadeesan joined as a Postdoctoral Research Fellow under the mentorship of Dr. Rachitha K Sumbria at Chapman University School of Pharmacy in August 2021. His current research focuses on solving the brain drug delivery problem for Alzheimer's disease pathology. He subsequently worked at Shantou University Medical College, China as a postdoctoral fellow (2019-2021). Dr. Jagadeesan worked as a Postdoctoral research fellow at Shantou University Medical College, China (2019-2021). He obtained his Ph.D. degree in Neuroscience from Annamalai University, Tamil Nadu, India, where he made a seminal contribution to the Neuroprotective effect of Asiatic Acid, a triterpene of *Centella asiatica* on in vivo and in vitro models of Parkinson's disease. He is the recipient of the DST-SERB Junior Research Fellowship and Senior Research Fellowship from Govt. of India. He has excellent skills and training in mouse, and zebrafish model, in-vitro, in-vivo studies, Molecular, Biology, toxicology, and Pharmacology. Proven abilities to critically evaluate data, quickly become proficient in new subjects and techniques, identify key concepts, and troubleshoot problems. Work productively both independently and in teams, multi-task, set and meet deadlines, and supervise others. Dr Nataraj has authored 20+ publications in various peer-reviewed international journals and recognized as a reviewer for various internationally reputed journals in the field of neuroscience and biochemistry.

ACADEMIC PROFILE:

- Ph.D **Biochemistry** (Area of Specialization: Neuroscience) Annamalai University, 2017
Area of Specialization: Neuroscience
Dissertation: Neuroprotective effect of Asiatic Acid, a triterpene of *Centella asiatica* on *in vivo* and *in vitro* models of Parkinson's disease
- M.Phil **Biochemistry** (Area of Specialization: Neuroscience) Annamalai University, 2014
Area of Specialization: Neuroscience
Dissertation: Neuroprotective effect of lutein on 1-methyl-4-phenyl-1, 2, 3,6 tetrahydropyridine induced mice model of Parkinson's disease.
- M.Sc **Biochemistry** (Annamalai University), 2011
- B.Sc **Biochemistry** (Periyar University), 2009

RESEARCH EXPERIENCE

- Aug 2021- present** Postdoctoral Research Fellow: Chapman University School of Pharmacy, 9401 Jeronimo Rd, Irvine, CA 92618, USA.

Project title : Blood Brain Barrier penetrating biologic TNFI in experimental AD models.
- May 2019- 2021** Postdoctoral Research Fellow: Center for Neuroscience, Shantou University Medical College, Shantou, Guangdong, China

Project title : L1 mimetic compounds against neurodegenerative diseases in zebrafish model.
- SRF(2015- 2016):** DST-SERB Fast Track Project, Annamalai University, Annamalai nagar - 608 002, India.
Project title: Neuroprotective effect of Asiatic Acid, a triterpene of *Centella asiatica* on *in vivo* and *in vitro* models of Parkinson's disease
- JRF(2013- 2015):** DST-SERB Fast Track Project, Annamalai University, Annamalai nagar - 608 002, India.
Project title: Neuroprotective effect of Asiatic Acid, a triterpene of *Centella asiatica* on *in vivo* and *in vitro* models of Parkinson's disease

TEACHING EXPERIENCE

Assistant Professor (Biochemistry) Faculty of Allied Health Science, Vinayaka Mission's Research Foundation, Salem, Tamilnadu, India
(Sep, 2017-May, 2018)

RESEARCH PUBLICATIONS

Peer-reviewed Publications (in chronological order)

1. Ou W, Ohno Y, Yang J, Chandrashekar DV, Abdullah T, Sun J, Murphy R, Roules C, **Jagadeesan N**, Cribbs DH, Sumbria RK. Efficacy and Safety of a Brain-Penetrant Biologic TNF- α Inhibitor in Aged APP/PS1 Mice. *Pharmaceutics*. 2022 Oct 16;14(10):2200
2. Ou W, Yang J, Simanauskaite J, Choi M, Castellanos DM, Chang R, Sun J, **Jagadeesan N**, Parfitt KD, Cribbs DH, Sumbria RK. Biologic TNF- α inhibitors reduce microgliosis, neuronal loss, and tau phosphorylation in a transgenic mouse model of tauopathy. *J Neuroinflammation*. 2021 Dec 31;18(1):312.
3. Li C, Sahu S, Kou G, **Jagadeesan N**, Joseph TP, Li Lin S, Schachner M. Chondroitin 6-sulfate-binding peptides improve recovery in spinal cord-injured mice. *Eur J Pharmacol*. 2021 Nov 5;910:174421.
4. Joseph TP, **Jagadeesan N**, Sai LY, Lin SL, Sahu S and Schachner M (2020). Adhesion Molecule L1 Agonist Mimetics Protect Against the Pesticide Paraquat-Induced Locomotor Deficits and Biochemical Alterations in Zebrafish. *Front. Neurosci*. 14:458. doi: 10.3389/fnins.2020.00458. **(Impact factor 3.648)**.
5. Manigandan V, **Nataraj J**, Karthik R, Manivasagam T, Saravanan R, Thenmozhi AJ, Essa MM, Guillemin GJ (2018). Low Molecular Weight Sulfated Chitosan: Neuroprotective Effect on Rotenone-Induced In Vitro Parkinson's Disease. *Neurotox Res*. doi: 10.1007/s12640-018-9978-z. **(Impact factor 3.186)**.
6. Balakrishnan R, Elangovan N, Mohankumar T, **Nataraj J**, Manivasagam T, Thenmozhi AJ, Essa MM, Akbar M, Khan MAS (2017). Isolongifolene attenuates rotenone-induced mitochondrial dysfunction, oxidative stress, and cell apoptosis. *Front Biosci*. 10:248-261. **(Impact factor 2.484)**.
7. Rather MA, Thenmozhi AJ, Manivasagam T, **Nataraj J**, Essa MM, Chidambaram SB (2017). Asiatic acid attenuates aluminium molybdate induced in vitro model of Alzheimer's disease. *Front Biosci*. 10:287-299. **(Impact factor 2.484)**.
8. **Nataraj J**, Manivasagam T, Thenmozhi AJ, Essa MM (2017). Neurotrophic effect of Asiatic acid, a triterpene of Centella asiatica against chronic 1-methyl 4-phenyl 1, 2, 3, 6-tetrahydropyridine hydrochloride/probenecid mouse model of Parkinson's disease: The role

of MAPK, PI3K-Akt-GSK3 β and mTOR signalling pathways. *Neurochem Res.* 42(5):1354-1365. **(Impact factor. 2.581)**.

9. **Nataraj J**, Manivasagam T, Thenmozhi AJ, Essa MM (2017) Neuroprotective effect of asiatic acid on rotenone-induced mitochondrial dysfunction and oxidative stress-mediated apoptosis in differentiated SH-SY5Y cells. *Nutr Neurosci.* 20(6):351-359. **(Impact factor. 3.765)**.
10. Dhanalakshmi C, Manivasagam T, **Nataraj J**, Thenmozhi AJ, Essa MM (2015). Neurosupportive role of vanillin, a natural phenolic compound, on rotenone induced neurotoxicity in SHSY5Y neuroblastoma Cells. *Evid Based Complement Alternat Med.* 2015:626028. **(Impact factor. 1.74)**.
11. **Nataraj J**, Manivasagam T, Thenmozhi AJ, Essa MM (2016). Lutein protects dopaminergic neurons against MPTP-induced apoptotic death and motor dysfunction by ameliorating mitochondrial disruption and oxidative stress. *Nutr Neurosci.* 2016;19(6):237-46. **(Impact factor. 3.765)**.
12. Kavitha M, **Nataraj J**, Essa MM, Memon MA, Manivasagam T (2013). Mangiferin attenuates MPTP induced dopaminergic neurodegeneration and improves motor impairment, redox balance and Bcl-2/Bax expression in experimental Parkinson's disease mice. *Chem Biol Interact.* 206:239–247. **(Impact factor. 3.143)**.

BOOK CHAPTER PUBLISHED

1. **Nataraj J**, Manivasagam T, Thenmozhi AJ, Essa MM, Khan MAS. (2016). Antiparkinsonic effect of black tea and its components. In *Food and Parkinson's Disease* (pp. 115-131). Nova Science Publishers, Inc.
2. Manigandan V, **Nataraj J**, Arumugam V, Srivarshini S, Ramachandran K, Aruna Devi S, Umamaheshwari S, Manivasagam T, Thenmozhi AJ, Saravanan R. Ascidiarians as Bioactive Sources for Huntington Disease. In *Food for Huntington's Disease* (PP. 181-214). Nova Science Publishers, Inc.
3. **Nataraj J**, Manivasagam T, Thenmozhi AJ, Sarvana Babu C, Essa MM. Therapeutic Options for Huntington's Disease: Ayurvedic Medicinal Plants. *Food for Huntington's disease* (PP. 239-250). Nova Science Publishers, Inc.

NCBI GENE PARTIAL SEQUENCE DEPOSITED – (7)

JOURNAL REVIEWER

- ❖ Neurochemistry International
- ❖ Chemico Biological Interactions
- ❖ Pesticide Biochemistry and Physiology
- ❖ Biotechnology and Applied Biochemistry

TECHNICAL EXPERTISE

- **Cell culture techniques** - Culturing Primary neurons and cell lines, Cell thawing and cryopreservation, cytotoxicity by the MTT assay. Analysis of ROS, MMP, Apoptosis in fluorescent microscope using different probe staining and Assessment of DNA damage (comet assay), DNA fragmentation, Mitochondrial isolation and Cytosolic and nuclear fractionation
- **Animal Handling** - Small animal handling (rat and mice) and maintenance, Drug administration (subcutaneous, intraperitoneal injection and oral gavage, Invivo imaging.
- **Zebrafish** - Breeding, maintenance, toxicity profiling studies and screening of compounds against neurodegenerative diseases and Zebrafish microinjection.
- **Behavioral Techniques in Animal & Zebrafish Model** - Open field, narrow beam walking, rotarod, hang test, swim test, tail suspension test, elevated plus maze test and Passive avoidance test using Smart3 Video Track. Light dark test, locomotor activity, shoaling behavior using Zebrabox Viewpoint (View Point Life Science, Lyon, France) and Ethovision, (Noldus, Wageningen, Netherlands)
- **Molecular Biology Techniques**- DNA and RNA isolation, RT-PCR and qPCR techniques, Western blotting, Immunohistochemistry and ELISA reader.
- **Analytical techniques** - HPLC-ECD (waters) & Empower pro 2 software system, Cell cycle and Apoptosis analysis using flow Cytometry (BD FACS Aria, BD FACS Diva software), CD Spectroscopy.
- **Computer skill** - Microsoft Office, Database searching, Statistical analysis, Graph-Pad Prism, SPSS, CAPS and Image J analysis.

WORKSHOPS ATTENDED (3 out of 5)

- Participated in the ***“UGC-SAP Sponsored National workshop on Cardiovascular Physiology (CVP-2017)”*** during 17th and 18th March-2017 at Department of Biochemistry and Biotechnology, Annamalai University, Annamalainagar.
- Participated in the ***UGC Sponsored National Workshop on “Animal Cell Culture Techniques Demonstration and Hands on Experiments” (ACTD-2014)*** organized by P.G. Department of Biotechnology, teresion College, Mysore on 17th to 19th September 2014.
- Participated in the ***National Workshop on Genomics, Proteomics and bioinformatics (GPB-2013)*** held on 19th to 21st July, 2013 organized by Department of Biochemistry and Biotechnology, Annamali University, Tamilnadu, India.

CONFERENCE PARTICIPATED AND PRESENTED (3 out of 13)

- Invited speaker on “**International Webinars on Recent Developments of micro to Nano Technology**” organized by School of Allied Health Sciences, Vinayaka Mission’s Research Foundation, during 17-22nd June, 2020.
- Presented a paper in the *National Conference on “Novel Approaches in Cognitive and Molecular Neurobiology” (NACMON-2015)*” held on 18th March 2015, organized by the Department of Medical Biochemistry, Dr. ALM PGIBMS, University of Madras, Taramani, Chennai-600113, Tamil Nadu, India.
- Presented a paper on *Mitochondria in Cancer and Neurodegenerative Disorders in the “5th Annual Conference of the Society for Mitochondrial Research and Medicine (SMRM-2015)”* held at Aravind Medical Research Foundation, Madurai, from 6th-7th November 2015.

REFERENCES

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PERSONAL PROFILE

Date of Birth : 29/05/1988
Gender : Male
Resident Address : No-2-60, Gorappalli, Somenahalli, Dharmapuri (DT), PIN: 636803, Tamil Nadu, India
Marital status : Married
Language Known : Tamil, English
Passport No : R0255710
Nationality : Indian

DECLARATION

I hereby declare that all the information furnished above is true and genuine to the best of my knowledge.



(J. NATARAJ)