Curriculum Vitae

Name and Affiliation: **Dr. Manorama Patri,**
Associate Professor
Department of Computational Biology and Bioinformatics,
School of Life Sciences,
Central University Himachal Pradesh,
Shahpur Campus,
Pin-176206, HP, India
Phone: +91-6712527202 (R); +91-8763642486 (Mobile)
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Education (Post Doc Positions): 2009-11-Post-doc, School of Life Sciences**, JNU**, New Delhi,
2008-09-Post-doc, Dept of Animal Sciences, **HCU**, Hyderabad
2006-08- Post-doc, HSSRC, AIST, Osaka, **JAPAN**

Professional Qualifications: 2000- PhD in Zoology, Sambalpur University, Sambalpur
1990- M. Phil in Environmental Science, SU, Sambalpur
1987- M.Sc. Zoology, Ravenshaw College, Cuttack
1985- B. Sc. CBZ (H), Bhadrak College Bhadrak, Odisha

Honours/Awards: 2023- Awarded IIAS 'Fellow Designate', IIAS, Shimla, Himachal Pradesh, India
2022 -Awarded Guest Fellowship on 'Study of Animal Diversity in IIAS Campus', Shimla, Himachal Pradesh
2009-2013 - Women Scientist Award (WOS 'A'), DST, India

Employment History: 2011- 2023, Asst Prof in Zoology, Ravenshaw University, CTC
1995 - 2006-Lect. in Zoology, Bhadrak Women's College, BDK

Research Guidance: PhD: Awarded **08;** Thesis Submitted 01; Research Ongoing 03
M. Phil: **09** (Completed)
M.Sc. Special Paper (Project Work/Dissertation): 84

Research Interest:

Research in our laboratory examines neural mechanisms underlying learning and memory in wistar rat model. Of particular interest are the neural processes and the role of hippocampus in regulating receptor expression e.g., NMDA receptor. My main research interest is to understand how degeneration of brain cells occurs, in particular, how exposure to environment stress leads to neuronal damage in PD, AD and epilepsy like neurological disorders. We primarily use behavioral techniques combined with *in vivo* oxidative stress mechanism and protein expression by florescence microscopy and pharmacology to understand the modulation of these behavior circuits in both zebra fish and murine model. We have focused on understanding the impact of dietary nutrients on diversity and function of microbial communities associated with behavioral changes. The first aim of our research is to understand the structural and chemical basis of changes in specific biological system. The second is to understand why, biologically and evolutionarily, the particular interaction strengths do the neuronal cells have for modifications by applying high-throughput genomic and bioinformatics tools (including microarrays and RNA-seq) to translational study.

Research Projects:

1. Project Title: Learning and memory deficits with molecular dysfunction following environmental exposure to B[a]P; Year (2009-2013); DST (WOS 'A'), No.SR/WOS-A/LS-22/2009
2. Project Title: To study the possible mechanism and role of NMDA R in B[a]P-induced behavioral changes and neuronal apoptosis. Year (2015-2018); DAE-BRNS, No. 37(1)/14/27/2015/BRNS, Mumbai.
3. Project Title: Behavioral changes and oxidative DNA damage via. DNA methylation on early exposure to B[a]P during the development of Zebra fish embryos. Year (2016-2019)-Dept. of S&T, Govt. of Odisha. No. 2762800402014/ 20/665; 10.02.16
4. Project Title: Study the effects of hypoxia on B[a]P induced behavioral changes and expression of neurotrophic factors during devp of zebra fish (*Danio rerio*) embryo Year (2017-2020); No.O/o DG(TM)/81/48222/LSRB-294 /PEE&BS/2017, DRDO, New Delhi.

Mentor for N-PDF: Dr. Saroj Kumar Das

1. Project Title: Evaluation of the neuro-toxic potential of B[a]P on neuro- behavioral responses and dopaminergic systems in zebra fish (*Danio rerio*) and its consequences on F1 offspring.
   Year (2016-2019); DST (SERB), New Delhi No. PDF/2015/000573

Mentor for ZSK Fellow: Mr. Achyutananda Samal

2. Project Title: Understanding the role of EDC-induced neuro-behavioral transformation through regulation of aromatase enzyme activity.
Year (2021-22); ZSK No. ZSK/NIA-21/B2-2021

International and National Conferences/
Workshops/Symposia Organised:

1. October 2017 International Conference and Annual Meet IAN 2017 on 29-31st Oct., 2017; Convention Center, Ravenshaw University, Cuttack, Odisha, India
2. January 2017; National conference on Environmental Impact on Life; 28th Feb. 2017, Convention Center, Ravenshaw University, Cuttack, Odisha, India
3. November 2015; National Symposium on Neuroscience-2015, 15th Nov., 2015; Convention Center, Ravenshaw University, Cuttack, Odisha, India
4. October, 2013; International Conference on Neurosciences-2013, 11-13th Oct. 2013; Convention Center, Ravenshaw University, Cuttack, Odisha, India.

Membership and Recognitions:

Life member Indian Academy of Neurosciences (**IAN**),
Life Member Odisha Bigyan Academy (OBA),
National Academy of Sciences India (NASI-Member),
International Society of Developmental Neuroscience (ISDN Member)
International Zebrafish Society (INZS Member)
Indian Society of Developmental Biologists (InSDB Member)
Indian Science Congress Association (ISCA- Member),
Indian Women Scientists Association (ISWA Member)
Society for Neuroscience (SfN Member)
Editorial member **SPATIK**

Invited Guest, Speaker and Public lectures:

Resource Person in Seminars (54)
Delivered More than 70 Invited Talks
Research Paper presented National (68) and
International Conferences (22)
Science Popularization Talks (48)

Publications (Journals):

Muduli N, Aparna S, Sahoo K and **Patri M (**2023**)** Saffron stigma extract and crocin play an important neuro-protective role in therapeutic measures against B[a]P-induced behavioral alterations in zebra fish; Journal of **Drugs and Chemical Toxicology**; doi:10.1080/01480545.2023.

Mohanty I **and Patri M (**2023**)** Neuroprotective efficacy of *Marsilea quadrifolia* leaf extract against PTZ-induced seizure in the rat model of epilepsy; **Journal of Psychological Neurosciences;** doi: 10.1037/pne0000312

Sai Aparna **and Patri M (**2023**)** *Lactobacillus rhamnosus* GG (*LGG*) treatment potentiates ethanol-induced behavioral changes through modulation of intestinal epithelium in *Danio rerio;* **Int. Microbiol** 26, 551–561; doi.org/10.1007/s10123-022-00320-2.

Mohanty I **and Patri M (**2022) *M. quadrifolia* leaf extract ameliorates PTZ-induced CA1 neuronal damage causing anxiolytic effects through neurochemical changes in epileptic rats; Journal of Chemical and Pharmaceutical Research (**JCPRCS)**; 14(9):01-09.

Martha SR and **Patri M** (2022) Energy-based virtual screening of drugs documented for schizophrenia against DRD2 and HTR2A; **Int. Journal Computational Vision and Robotics** 12(1)53-85, doi:10.1504/IJCVR.2022.10042251.

Das P and **Patri M** (2022) Association of air pollution with pathology in pregnant women of Odisha, India: A Case Study; **International Journal of Creative Research Thoughts (IJCRT);** 10(10); 1-25. IJCRT2210365.

Patri M (2021) Impact of Covid-19 on the inner GPS of the brains; Journal School of Humanities and Social Sciences; Vol. XXVIII, No. 2, 8.

Nanda A and **Patri M (**2021**)** Effect of Amlodipine in Proliferative Retinopathy: Biochemical Estimation and Zebrafish (*Danio rerio*) Modelling; **RJPT**, Vol: 15, Issue: 3, 2022.

Rath, SN, Jena L and **Patri M** (2021) *In silico* discovery and evaluation of phytochemicals binding mechanism against human Catechol-O-methyltransferase as a putative bioenhancer of L-DOPA therapy in Parkinson's disease, **Genomics & Informatics**, 2021; 19(1): e7doi.org/ 10.5808/gi.20061.

Rath, SN, Ray M and **Patri M** (2020) Computational discovery and assessment of non-synonymous SNPs from target gene pool associated with PD, **Gene Reports**; doi.org/10.1016/j.genrep.2020:100947.

Panda A and **Patri M** (2020) Histopathological changes and presence of rodlet cells in different organs of common finfish *Liza tade* in the Chilika Lagoon brackish water; **International Journal of Fisheries and Aquatic Studies**; 8(5); 186-196.

Panda A and **Patri M** (2020) Food and Feeding Behaviour of *Tade gray* Mullet, Lizatade in Chilka Lagoon, Odisha, India; **J. Appl. Zool. Res.** 2; PP 184-192.

Sai Aparna and **Patri M** (2020) Benzo[a]Pyrene exposure and overcrowding stress impacts anxiety-like behavior and impairs learning and memory in adult zebrafish, *Danio rerio*, **Environmental Toxicology**; 36: (3), 352-361. 10.1002/tox.23041

Mohanta L, Das BC and **Patri M** (2020) Microbial communities modulating brain functioning & Behaviours in zebra fish: A mechanistic approach; **J. Microbial Pathogenesis**, 145:104251; doi.org/10.1016/j.micpath.2020.104251.

Mahanta C.S., **Patri M** and Satapathy R.K. (2020) Star-shaped phenylene BODIPY: Synthesis, properties, and biocompatibility assessment using zebra fish **ChemistrySelect** Volume 5, Issue 28 July 31, 2020 pages 8429-8434:doi.org/10.1002/slct.202001954.

Martha SR and **Patri M** (2020) Network Driven Discovery of Dopamine, Serotonin and Glutamate Receptors as Key Players in Schizophrenia, JSIR; Vol. 79, May 2020, pp.1-7.

Rath SN, and **Patri M** (2020) Understanding miRNA-based gene regulation in Parkinson's Diseases: an *in silico* approach; **International Journal Bio-automation**; 2020, 24(1), 15-28. doi:10.7546/IJBA.2020.24.1.000555.

Rath, SN and **Patri, M** (2020) Computational screening and validation of suitable natural compounds against peripheral metabolism of L-Dopa: An alternative approach towards treatment of PD; Proceedings of ICDD 2020, abstract=3540847.

Patri M (2020) Neuropeptide Y expression confers Benzo[a]pyrene induced DNA damage and microtubule disruption in human neuroblastoma SH-SY5Y cells; Preprints 2020, 2020030357. https://doi.org/10.20944/preprints202003.0357.v1.

Das, S. K., Sai Aparna and **Patri M** (2019) Chronic waterborne exposure to B[a]P-induces locomotor dysfunction & developt of neurodegenerative phenotypes in zebra fish, **Journal of Neuroscience Letter**; Vol. 716. doi.org/10.1016/j.neulet.2019.134646.

Das L, Patel B and **Patri M** (2019) Adolescence B[a]P treatment induces learning and memory impairment and anxiolytic like behavioral response altering neuronal morphology of the hippocampus in adult male Wistar rats, **Toxicology Reports** 6, 1104–1113; doi.org/10.1007/s11626-019-00378-9.

Singh A and **Patri M (**2019) Protective effects of Noradrenaline on B[a]P induced oxidative stress responses in brain tumor cell lines; ***In Vitro*** **CDB-Animal,** 55:665–675.

Das L and **Patri M** (2019) Prenatal exposure to B[a]P causes learning and memory impairment and loss of neurons in hippocampus during development of rats; **IJMB**: Open A, 4(4), 124-130. doi: 10.15406/ijmboa.2019.04.00108.

Das L and **Patri M** (2019) Impact of Environmental Pollution on Respiratory System of Human & Animals in Angul and Talcher Industrial Areas, Odisha, India: A Case Study; **IJZAB**, 2(6), 1-15.

Rath SN and **Patri M (**2019) Understanding ligands driven mechanism of wild and mutant AhR in presence of phyto-chemicals combating PD: an *in silico* and *in vivo* study, **J Bio molecular Structure and Dynamics**, 5:1-20; doi.org/10.1080/07391102.2019.1590240.

Das S.P. and Patri, M (2019) Therapeutic Uses of Curd: A Review; IOSR Journal, Vol. 13 (1), 1-4; doi: 10.9790/2402-1301010104.

Das P and **Patri M** (2018), Exposure of Pregnant Women to Air Pollution in Odisha, India: A Case Study; **JSM** Health Education & Primary Health 2(3); 1034-1038.

Martha SR, Mallik D and **Patri M (**2017) Genome wide screening and analysis of *Homo sapiens* genes and proteins associated with schizophrenia, **RJRS**; 6(7), 63-70.

Rath SN, and **Patri M** (2017) In silico screening of potent natural inhibitor compounds against Human DOPA Decarboxylase for management of Parkinson's Disease; **Canadian Journal of Biotechnology,** 1, 238, 2017, doi.org/10.24870/cjb.2017-a223.

Martha SR, Mallik D and **Patri M (**2017) Bioinformatics Database Tools in Analysis of Genetics of Neurodevelopmental Disorders; **Canadian Journal of Biotechnology,** Volume 1, Special Issue, Page 49. doi.org/10.24870/cjb.2017-a36.

Mohanty R, Das SK and **Patri M (**2017); Modulation of benzo[a]pyrene induced anxiolytic-like behavior by retinoic acid in Zebrafish: involvement of oxidative stress and antioxidant defence system; **Neurotoxicity Research**; **31(4)**, 493-504, 2017.

Das SK and **Patri M (**2016); Neuropeptide Y (NPY) expression confers B[a]P induced anxiolytic like behavioral response during early adolescence period of male Wistar rats; Journal **Neuropeptides**; 61:23-30. doi.org/10.1016/j.npep.2016.07.001

Patel B, Das SK and **Patri M** (2016) Neonatal B[a]P exposure induces oxidative stress & DNA damage causing neurobehavioral changes during early adolescence period of rats **J. Developmental Neuroscience** 38(2): 150-62 doi.org/10.1159/000446276.

Mohanty R, Das SK and **Patri M** (2016); '*Withania somnifera* leaf extract ameliorate B[a]P induced behavioral and neuro-morphological alterations by improving brain antioxidant status in Zebrafish (*Danio rerio*)'; Journal **Zebrafish;** 13(3):188-96.

Das SK, Patel B and **Patri M** (2016) Neurotoxic effect of B[a]P and its possible association with 6-hydroxydopamine induced neurobehavioral changes during early adolescence period in rats'; **Journal of Toxicology**; doi: 10.1155/2016/8606410.

Patel B, Das SK and **Patri M (**2016**)** Neonatal exposure to B[a]P induces oxidative stress causing altered hippocampal histomorphometry & behavior during early adolescence rats; **IJDN**; 50:7-15; doi: 10.1016/j.ijdevneu.2016.01.006.

Satpathy, J and **Patri,** M (2015) Cognitive Underpinning in Neuro-Managerial Decision Making (September 10, 2015). SSRN: https://ssrn.com/abstract=2658546 or http://dx.doi.org/10.2139/ssrn.2658546.

Satpathy J, **Patri M (**2015) Research Note on Cognitive Underpinning in Neuro - Managerial Decision Making. ITIHAS - The Journal of Indian Management; 5(4):1-18.

Patri M, Singh A and Mallick BN (2013); Protective Role of Noradrenalin in Benzo[a]pyrene-Induced Learning Impairment in Developing Rat, **Journal Neurotoxic Reasearch**, 91:1450–1462; doi: 10.1002/jnr.23265.

Patri M, Singh A and Mallick BN (2012) Benzo[a]pyrene-induced learning impairment may be protected by noradrenaline: possibly by modulating Ca^{2+}-influx; **International Journal of Developmental Neuroscience;** 30(8): 647-48**;**10.1016/j.ijdevneu.2012.03.248

Patri M, Padmini A. and Babu P. P (2010); Poly cyclic Aromatic Hydrocarbons exposure induced oxidative stress and neurological disorders: A brief perspective; **Annals of Neurosciences** 16(1) January; 22-30.

Books and Book Chapters:

1. M Patri, (2016, 2019) Environmental Studies-CBCS (Odia), PG, +3 Arts, Science Commerce KALYANI Publisher, Ludhiana, N. Delhi, ISBN 978-93-272-6352-7
2. M Patri; (2016); Physiology: Life Sustaining Systems, KALYANI Publisher, Ludhiana, New Delhi, 2016, ISBN 978-93-272-6349-7.
3. M Patri; (2016); Physiology: Controlling and Co-ordinating Systems; KALYANI Publisher, Ludhiana, New Delhi, 2016. ISBN 978-93-272-6355-7**.**
4. M Patri; (2016); Comparative Anatomy of Vertebrates, KALYANI Publisher, Ludhiana, New Delhi, 2016. ISBN 978-93-272-6395-7.
5. M. Patri & S. Parida (2006) Paribesh Bigyan (Environmental studies), +3 Arts, Science and Commerce; Kalyani Publisher, Ludhiana, New Delhi, ISBN 81-272-3096-0.
6. M. Patri (2018) Book titled: Neurochemical Basis of Brain Function and Dysfunction chapter entitled-Synaptic transmission and Amino acid Neurotrasmitters'; doi:10.5772/intechopen.82121.
7. Martha S & Patri M (2021) Book Titled: Deep Learning, Machine Learning and IoT in Biomedical and Health Informatics Techniques and Applications, 'Classification of Schizophrenia Associated Proteins Using Amino Acid Descriptors and Deep Neural Network' **Taylor Francis Publisher,** doi: 10.1201/9780367548445.
8. M. Patri (2022) Glimpses of faunal diversity in and around **Indian Institute of Advanced Study** (IIAS) campus, Shimla, (Book); IIAS Publisher (Yet to be published).

Administrative Experiences in Ravenshaw University:

1. Program and Course Co-ordinator (Neuroscience Centre, Ravenshaw University)
2. Admission Committee (Member) Year (2012-2014).
3. Council of Warden (CoW) committee and in charge of Mahanadi Hostel (2015-17)
4. In charge (Assistant) Day Care Centre (2012-2016).
5. Core Committee Member, Anti-ragging Cell (2012-2016).
6. Campus Discipline Squad Member (2012-2017).

Reviewer of Journals:

World Journal of Surgical Oncology, Journal Cancer Research and Therapeutic Oncology, Journal of Biomolecular Structure & Dynamics, Current Biotechnology, Current Pharmaceutical Biotechnology, Translational Psychiatry Ecotoxicology and Environmental Safety, Toxicology Research, Current Molecular Medicine Toxicology, Neuropsychiatric Disease and Treatment, Chemosphere, Developmental Neuroscience, Int. Journal of Zoology & Animal Biology, Nutritional Research, iMeta, Computers in Biology and Medicine etc.