

## Detailed CV



Name: Dr. Monika Sadananda  
Educational Qualification: PhD (Germany); Post doc (Germany)  
Designation: Professor-Biotechnology  
Address for Correspondence: Department of Biosciences, Mangalore University,  
Mangalagangothri – 574199, Karnataka, India  
E-mail: monikasadananda@gmail.com  
Phone: +91 9448869719  
Research Areas: Neuroscience, Immunology, Biotechnology

**Professional Teaching Experience** 16 years (PG); 1 year (UG)

### **Research Guidance (Ph.D.):**

#### **Completed students**

1. Dr. Rashmi Rao M.
2. Dr. Reshma A. Shetty
3. Dr. Deepthi D'Souza

#### **Ongoing Registered Students**

1. Mr. Hariprasad Shetty
2. Ms. Vidya Shukla
3. Mr. Alemayehu Yismaw
4. Ms. Poojitha G.
5. Ms. Akshata T. Inavally
6. Ms. Susmi Sojan
7. Mr. Lokesh Shetty J.

### **Research Projects**

#### **Completed:**

1. Anticipation in genes: Molecular, physiological and behavioural correlates of response of circa-annual clocks to seasons in night-migratory song birds. Funding Agency: DBT (BT/PR4676/MED/30/752/2012). Amount: Rs. 40,43,000. DOS: 13-09-2013. Duration: 6 years
2. Behavioural and neural correlates of social preferences in birds: A study in the chick and in the zebra finch. Funding Agency: DST-SERB (SR/S0/AS-38/2011). Amount: Rs. 40,60,000. DOS: 01.09.2012. Duration: 3½ years
3. Brain anatomy, neurochemistry and behaviour in a murine model of adolescent depression. Funding Agency: UGC (41-545/2012 (SR)). Amount: Rs. 1,73,000. DOS: 01.09.2012. Duration: 3½ years
4. Adolescent stress and depression: a behavioural study. Funding Agency: DBT (BT/PR4676/MED/30/735/2012). Amount: Rs. 17,84,300. DOS: 01.10.2012. Duration: 3 years
5. Activity mapping in the brain in response to positive and negative stimulation: a study at the behavioural, neural and cognitive levels. Funding Agency: DST - Cognitive Science Initiative (SR/CSI/05/2009). Amount: Rs. 38, 76,000. DOS: 01.11.2010. Duration: 3 years
6. Role of the avian amygdale in the development of filial preferences and emotional memory: a study in the chick and the zebra finch. Funding Agency: DST - Fast Track (SR/FT/L-41/2004) Amount: Rs. 10,11,000. Duration: 01.04.2005-31-03-2007 (2 years).
7. Neurobiology of acquisition and retention of phonetic in birds: A study in the common Mynah and the Indian Hill Mynah. Funding Agency: DST - Fast Track (SR/FTP/LS-192/2001). Amount: 12,00,000. Duration: 16.07.2001-15.07.2004 (3 years).

### **Ongoing:**

1. PUFAs as potential radiomodifiers: Implications in radiation therapy and countermeasures. Funding Agency: BRNS-DAE (35/17/118/2017-BRNS/311). Amount: Rs. 22,40,400. DOS: 26-12-2016. Duration: 3 years

### **Professional Collaboration:**

#### **International**

1. With Prof. Dr. H-J. Bischof, University of Bielefeld, Germany – Post-doctoral work in April-May 2004
2. With Prof. Dr. RKW. Schwarting, Philipps University, Marburg, Germany – Visiting scientist April 2008 - May 2009

#### **National**

1. Anticipation in genes: Molecular, physiological and behavioural correlates of response of circa-annual clocks to seasons in night-migratory song birds – Multi-institutional project with **University of Delhi, North Eastern Hill University-Shillong, CCS University-Meerut, Lucknow University, NISER-Bhubaneshwar**, 2013-2019
2. PUFAs as potential radiomodifiers: Implications in radiation therapy and countermeasures – Collaborative research project with **Bioscience Research Lab, GVP Institutions, Vizag**
3. Effect of Arsenicum album on anxiety- and depressive-like profiles using neurobehavioural paradigms - **Fr Muller's Homoeopathic Medical College, Derlakatte**, 2019-2020
4. Effect of Astaxanthin on cognition and social communication in the progeny of undernourished and nutraceutical supplemented dams – **KSHEMA, Nitte deemed to be University**, 2020

## Research Journal Publications:

### International

1. Shukla V, Rani S, Malik S, Kumar V, **Sadananda M. (2020)** Neuromorphometric changes associated with photo stimulated migratory phenotype in the Palaearctic-Indian male redheaded bunting, *Experimental Brain Research* (Springer) 238: 2245-2256
2. Das, U., Bathina, S., Gundala, N., Rhenghachar, P., Polavarapu, S., Devi, A. and **Sadananda M. (2020)** Resolvin D1 ameliorates nicotinamide-streptozotocin-induced type 2 diabetes mellitus by its anti-inflammatory action and modulating PI3K/Akt/mTOR pathway in the brain, *Archives of Medical Research* (Elsevier) 51: 492-503
3. D'Souza, D. and **Sadananda M. (2019)** Stressor during early adolescence in hyperreactive female Wistar Kyoto rats induces a 'double hit' manifested by variation in neurobehaviours and brain monoamines, *Neuroscience* (IBRO, Elsevier) 414: 200-209
4. D'Souza, D. and **M. Sadananda (2017)** Estrous phase-dependent changes on anxiety- and depression-like profiles in the late adolescent Wistar-Kyoto rat, *Annals of Neurosciences* (Karger) 24:136-145
5. Shetty, R.A. and **M. Sadananda (2017)** Brief social isolation in the adolescent Wistar-Kyoto rat model of endogenous depression alters corticosterone and regional monoamine concentrations, *Neurochemical Research* (Springer) 42:1470-1477.
6. Shetty, R.A. and **M. Sadananda (2017)** Immediate and delayed anxiety- and depression-like profiles in the adolescent Wistar-Kyoto rat model of endogenous depression following postweaning social isolation, *Behavioural Brain Research* (Elsevier) 320:323-332.
7. D'Souza, D. and **M. Sadananda (2017)** Anxiety- and depression-like profiles during early- and mid-adolescence in the female Wistar Kyoto rat, *International Journal of Developmental Neuroscience* (Elsevier) 56:18-26
8. Rao R.M. and **M. Sadananda (2016)** Influence of state and/or trait anxieties of Wistar rats in an anxiety paradigm, *Annals of Neurosciences* (Karger) 23:44-50
9. Rao R.M. and **M. Sadananda (2015)** Strain- and context-based 50 kHz ultrasonic vocalizations and anxiety behaviour in the Wistar-Kyoto rat, *Journal of Biosciences* (Springer) 40: 561-570.
10. **Sadananda, M.,** Natusch, C., Karrenbauer, B., and R.K.W. Schwarting **(2012)** 50-kHz calls in rats: effects of MDMA and the 5-HT<sub>1A</sub> receptor agonist 8-OH-DPAT, *Pharmacology, Biochemistry and Behavior* (Elsevier) 101, 258-264.
11. **Sadananda, M.,** Wöhr, M., and R. K. W. Schwarting, **(2008)** Playback of 22-kHz and 50-kHz ultrasonic vocalizations induces differential c-fos expression in rat brain, *Neuroscience Letters*, (Elsevier) 435, 17-23.
12. **Sadananda, M.,** Korte, S., and H-J. Bischof, **(2007)** Afferentation of a caudal forebrain area activated during courtship behaviour: a tracing study in the zebra finch (*Taeniopygia guttata*). *Brain Research* (Elsevier) 1184, 108-120.
13. **Sadananda, M.,** and R. Shetty, **(2007)** Stress-induced changes in a spatial memory test in the domestic chick. *Behavioral Pharmacology* (Elsevier) 18, 103-104.
14. **Sadananda, M.,** and H-J. Bischof, **(2006)** C-fos induction in forebrain areas of two different visual pathways during consolidation of sexual imprinting in the zebra finch (*Taeniopygia guttata*). *Behavioural Brain Research* (Elsevier) 173, 262-267.
15. **Sadananda, M.,** and H-J. Bischof, **(2006)** Afferentation of the lateral nidopallium: A retrograde and anterograde tract-tracing study of a brain area involved in sexual imprinting in the zebra finch (*Taeniopygia guttata*), *Brain Research* (Elsevier) 1106, 111-122.
16. **Sadananda, M.,** and H-J. Bischof, **(2004)** C-fos is induced in the hippocampus during consolidation of sexual imprinting in the zebra finch (*Taeniopygia guttata*), *Hippocampus* (Wiley) 14, 19-27.

17. **Sadananda, M., (2004)** Acetylcholinesterase in central vocal control nuclei of the zebra finch (*Taeniopygia guttata*), *Journal of Biosciences* (Springer) 29, 189-200.
18. **Sadananda, M., and H-J. Bischof, (2002)** Enhanced fos expression in the zebra finch (*Taeniopygia guttata*) brain following first courtship, *Journal of Comparative Neurology* (Wiley) 448, 150-164.

## National

19. **Sadananda, M., Natusch, C., and R. K. W. Schwarting, (2008)** 50-kHz vocalizations in rats: A dose-dependent study of 3,4-methylenedioxymethamphetamine (MDMA). *Annals of Neurosciences*, 15, 63-64.
20. **Sadananda, M., (2005)** Avian brain nomenclature changes, *Current Science*, 89, 1662-1664.
21. **Sadananda, M., (2004)** Adult neurogenesis in the brain of higher vertebrates: the paradigm shift, *Current Science*, 87, 297-307.

## Books / Book chapters / Translations published:

22. Shetty, R., and **M. Sadananda (2009)** Stress-induced behavioural changes in novelty test in the domestic chick. In: Sridhara, S., Nagachaithanya, B., Chakravarthy, A.K., Shetty, T.K.P. (Eds.) Recent trends in animal behaviour, New India Publishing Agency, New Delhi, pp. 115-117 (ISBN 978-8189422-54-7)
23. **Sadananda, M. (2017)** Biodiversity and Biotechnology - Interfacing between science, society. In: Chakravarty, K.K., Chattopadhyay, S., Chaubey, N.P. (Eds.), Emerging interfaces of social science and public policy in India, Indian Academy of Social Sciences, Allahabad, pp. 230-236 (ISBN 978-81-7097-318-8)

## Papers / poster presentations in Conferences / Seminars / Symposia:

### International

1. **Sadananda M. (2016)** Ibotenate induced c-fos expression as a tool for mapping multi-synaptic pathways. *International Conference on Genomics*, Central University of Kerala, 3-4 April 2016
2. **Sadananda, M, Natusch, C, and Schwarting RKW. (2008)** 50-kHz vocalizations in rats: A dose-dependent study of 3,4-methylenedioxymethamphetamine (MDMA). *International Conference on Advances in Neurosciences, Indian Academy of Neurosciences*, Cochin. Annals of Neurosciences, CUSAT, Kochi, 15, 63-64.
3. **Sadananda, M., (2005)** Nidopallial circuitry in birds. *XXIII Annual Conference of the Indian Academy of Neuroscience and International Symposium on Emerging Trends in the Neurosciences*, NIMHANS, Bengaluru, p. 68.
4. **Sadananda, M., and H-J. Bischof, (2003)** Archistriatal afferents to the lateral neostriatum – the amygdalar influence on mate choice in birds. *NCBS Neurobiology Symposium on Networks and Behaviour*, NCBS, Bengaluru, p. 117.
5. **Sadananda, M., and H-J. Bischof, (1997)** The afferentation of the lateral neostriatum – a brain area implicated in sexual imprinting in the zebra finch. *Göttingen Neurobiology Conference*, Goettingen, Germany, p.654
6. **Sadananda, M., and H-J. Bischof, (1996)** Fos expression in the zebra finch brain following courtship and unspecific arousal. *Göttingen Neurobiology Conference*, Goettingen, Germany, p.512

### National

7. Rao, RM, **Sadananda, M. (2012)**. Ultrasonic vocalization - Spectral analysis of context-specific emission in rats, *Satellite Symposium on Neurobiology of Cognition, Indian Academy of Neurosciences*, p.77

## Regional

### Invited / plenary talks delivered:

1. **Sadananda M.,** Shetty RA, D'Souza D. (2019) Critical periods of brain and behavioural development as time windows of vulnerability and adaptability: Modelling adolescent anxiety- and depressive-like disorders in animals, *International Symposium on Biological Rhythms and Biennial Meeting of the Indian Society of Chronobiology*, 11-13 March 2019 (INVITED LECTURE)
2. **Sadananda M.** (2019). Role of higher order sensory and associative brain areas in migration-related cognition. *Workshop on Time, Brain and Behaviour*, 6-10 March 2019, CCS University, Meerut, UP (INVITED LECTURE)
3. **Sadananda M,** D'Souza D & Shetty RA (2018) – Modelling of adolescent anxiety- and depressive-like disorders at neurobehavioural and neurochemical levels in the Wistar-Kyoto rat: age- and sex-specific differences, *International Symposium on Translational Neuroscience: From basic to clinical research & XXXVI Annual meeting of the Indian Academy of Neurosciences*, BHU, Varanasi, 29-31 October 2018 (SYMPOSIUM LECTURE)
4. **Sadananda M.** (2018). Modeling depression / adolescent depression in animal models, *UGC-sponsored National Conference on Mind Body Matters - An interdisciplinary insight*, Jyoti Nivas College (Autonomous), Bengaluru, 1-2 February 2018 (INVITED LECTURE)
5. **Sadananda, M.** (2016) Contributions of the Basel missionaries to science and environment – a glimpse, *International Seminar on Mission Moves 200 years of Basel Mission*, Mangaluru, October 2015 (INVITED LECTURE)
6. Rao RM & **M Sadananda** (2013) - Activity mapping in the brain and anxiety-related behaviours in a state anxiety paradigm, *International Conference on Comparative Endocrinology and Physiology*, Nagpur University, 21-23 October 2013 (INVITED LECTURE)
7. **Sadananda, M.** (2012). Psycho-stimulation of dopaminergic and serotonergic pathways: Bioprocesses in the brain of animal model system, *National seminar on Biomolecules and Biocatalysts in Bioprocesses*, p.24 (INVITED LECTURE)
8. **Sadananda, M.,** (2004) Activity-dependent plasticity in developing neuronal networks: Mechanisms underlying sexual imprinting in birds. *Indian Society of Developmental Biologists, Symposium on Epigenetics, Plasticity and Imprinting*, p. 19. (INVITED LECTURE)

### Impact of publications in terms of:

**h-index: 11**

**i10 index: 13**

**Citation index: 432**

### Conferences / Seminars / Workshops / Symposia organized:

1. **Bio-Quiz 2019** under the auspices of **India Bio@Bengaluru Tech Summit of the Dept. of IT & BT, Govt. of Karnataka**, 8 November 2019. Degree and BTFS students from colleges in Dakshina Kannada District participated.
2. **5-day MHRD-GIAN Course on Neuropeptides in socio-emotional behaviour: From health to disease** from 2-6 July 2019 with **Prof. Inga D. Neumann, Professor & Dean, Faculty of Biology and Preclinical Medicine, University of Regensburg, Germany** was the Foreign

Faculty. Rs. 5.44 lakhs received from MHRD for the Course. A total of 25 participants from Delhi, Orissa, Tamil Nadu and Karnataka participated.

3. **UGC-sponsored National Seminar on Research Trends in Frontier Areas of Biological Sciences**, 20 March 2019 under SAP Program UGC-SAP Rs. 60,000/-, Mangalore University 25,000/-
4. Interaction Workshop on **Biotechnology Ignition Grant (BIG)**, 26 July 2018
5. **BRNS and UGC-sponsored 2-day National Seminar on Lab to clinic: Approaches and challenges in drug discovery, design and delivery** jointly organized by Mangalore University and Royal Society of Chemistry (London) on 23-24 February, 2018, Grant received: UGC-SAP Rs. 60,000/-, BRNS Rs. 75,000/-, RSC-IDLS Rs. 9,000/- + travel of RSC speakers
6. **VGST-sponsored One-day Lecture Workshop on Frontier Areas in Biological Sciences" cum Project Presentations of VGST Grantees** on 13 January, 2018, Grant received Rs. 1,00,000/-
7. **IAS, INSA, NASI-Science Academies sponsored 3-day-Lecture Workshop on "Genomics, transcriptomics and beyond"** on 9-10 November, 2017. Grant received Rs. 1,53, 500/-
8. **Lecture Series in Avian Neuroscience by Prof. Dr. Hans-Joachim Bischof, University of Bielefeld, Germany**, 3-4 March 2015
9. **14-day SERB School in Chronobiology** 21 Dec 2014 – 4 Jan 2015. Grant of Rs. 18,00,000/- received from SERB for the conduct of the School
10. **Workshop on Animal Welfare, Ethics and Experimentation**, 17 August 2012
11. **Three-day International Workshop on Applications of Nanotechnology to Energy, Environment and Biotechnology**, 14-16 Dec 2010
12. **Two-day Lecture Workshop and Poster/Model Exhibition on Brain Awareness**, 20-21 March 2009. Grant received from **International Brain Research Organization**, Paris France for conduct of this workshop.
13. **IAS-INSA-NASI sponsored 3-day-Lecture Workshop on Evolutionary Biology: Darwin and Beyond**, 17-19 Dec 2009. Rs. 90,000/- + travel expenses of resource persons received from the Science Academies.
14. **Two-day Lecture Workshop and Poster/Model Exhibition on Brain Awareness**, 20-21 March 2009. Grant received from **International Brain Research Organization**, Paris France for conduct of this workshop.

### **Awards / Fellowship / Recognition:**

1. Dr. M. Appaswamy Rao Prize for obtaining **FIRST RANK** in the M.Sc. Examination of Karnatak University, Dharwad, 1989
2. **Graduierten Foerderung (Graduate Fellowship), State of Nordrhein Westfalen, Germany** for PhD work on activity-dependent neuronal gene expression and afferentation of the brain loci involved in consolidation of imprinting in the zebra finch – University of Bielefeld, Germany July 1996-June 1997
3. **Visiting Scientist Fellowship** for carrying out **post-doctoral work and part time teaching at Philipps University, Marburg, Germany** (Ultrasonic vocalizations as indices of positive and negative affective states: a behavioural, pharmacological and neuroanatomical study in rats), April 2007-May 2008
4. **Visiting Scientist, University of Bielefeld, Germany** (Afferentation of ANC, a brain area implicated in courtship in zebra finch, April-May 2004

5. **Young Scientist Project and Fellowship**, DST, New Delhi for Role of the avian amygdala in the development of filial preferences and emotional memory: a study in the chick and the zebra finch (SR/FT/L-41/2005), April 2005-March 2007
6. **Young Scientist Project and Fellowship**, DST, New Delhi for Neurobiology of acquisition and retention of phonetic in birds: A study in the common mynah and the Indian hill mynah (SR/FT/LS-192/2000) July 2001-June 2004
7. **Member-Executive Committee, Indian Society of Chronobiology 2019-2022**
8. **DBT Nominee**, Institutional Biosafety Committee, **Yenepoya University, 2016-2019**
9. **Member**, Institutional Stem Cell Research Committee, **Nitte University, 2014-2017: 2018-**
10. **Member**, National Advisory Committee, International Symposium on Chronobiology, March 2019
11. Member, Scientific Committee, 36<sup>th</sup> Meeting of Indian Academy of Neuroscience, Oct 2018
12. **Member**, National Advisory Committee, International Congress on Bioacoustics, Oct 2017 (*Reviewed abstracts of the International Congress*)
13. **Member**, National Advisory Committee, International Conference in Chronobiology, **Oct 2012**
14. **Member**, National Advisory Committee, SERB School in Chronobiology, **2014** (*Course Coordinator of 13<sup>th</sup> SERB School in Chronobiology 21 Dec 2014 – 3 Jan 2015*)

### **Membership of Professional Bodies:**

- Indian Society for Chronobiology (2012-
- Indian Academy of Neurosciences (2005-
- Indian Society of Developmental Biologists (2004-
- The Ethological Society of India (2002-

### **Any other Information**

#### **Additional Qualifications:**

- Certificate (1986-87), Diploma (1987-88) and Advanced Diploma (1988-89) in German, from the Department of Foreign Languages, Karnatak University (1986-1989).
- Mittelstufe of Goethe Institute, Rothenburg ob der Tauber, Germany (December 1992-February 1993).

#### **Peer review activity:**

- Frontiers in Behavioral Neuroscience
- Progress in Neuropsychopharmacology and Biological Psychiatry
- Indian Journal of Experimental Biology
- Behavioral Brain Research
- Brain Research
- Neuropsychopharmacology
- PLOS One
- Cell Tissue Research
- Colloids and Surfaces B: Biointerfaces
- Current Science
- Journal of Biosciences
- DST-SERB Project Proposals
- DBT Project Proposals

#### **BSc project guidance:**

06 (upto 2020)

**MSc project guidance in Biotechnology, Biosciences and Zoology:**

31 (upto 2020)

**Countries visited:**

Germany, Austria, Czech Republic, Poland, Switzerland, Italy and New Zealand.