

Dr. Monika Sadananda



Dr. Monika Sadananda did her Ph.D. at the University of Bielefeld, Germany. She was first rank holder at the M.Sc. examinations in Karnatak University. She has carried out post-doctoral research at the University of Bielefeld, Germany in April-May 2004 and at the Philipps University, Marburg, Germany from April 2007 to May 2008. Her field of research in Neuroscience.

From 2001 to 2007 she worked as Principal Investigator of two DST fast track young scientist projects at the Department of Applied Zoology, Mangalore University.

She was recipient of the Graduierten Foerderung doctoral fellowship awarded by the German Government from 1996-1997. She has completed three DST major research projects and is currently Principal Investigator of 4 ongoing major research projects funded by SERB, UGC and DBT. One of these projects is a multi-institutional project with Delhi University, NISER-Bhubaneshwar, Lucknow University, Meerut University and NEHU-Shillong.

She has presented papers at national and international conferences. She has peer-reviewed research publications in national and international journals. She is presently guiding 4 PhD students. She has organized national and international seminars/workshops, among them International Brain Research Organization (IBRO)-sponsored lecture series and IAS-INSA-NASI-sponsored lecture workshop.

**Education:**

- M.Sc. (Karnatak University) - Dr. M. Appaswamy Rao Prize for obtaining First Rank, 1989
- Ph.D. (University of Bielefeld, Germany), 1997
- Post-doctoral work-University of Bielefeld (2004);
- Post-doctoral work-Philipps University Marburg, Germany (2007-2008)

Additional Qualifications:

**Certificate, Diploma and Advanced Diploma in German, Karnatak University 1987-1989**  
**Mittelstufe of Goethe Institute, Germany - 1993**

**Research fellowships:**

1996-1997      Graduierten Foerderung, State of Nordrhein Westfalen, Germany  
2001-2005      Young Scientist Project and Fellowship, DST, New Delhi  
2005-2007      Young Scientist Project and Fellowship, DST, New Delhi  
2007-2008      Visiting Scientist Fellowship, Philipps University, Marburg, Germany

**Completed Projects:**

1. Neurobiology of acquisition and retention of phonetic in birds: A study in the common Mynah and the Indian Hill Mynah-DST Fast Track Proposal for young scientists
2. Role of the avian amygdale in the development of filial preferences and emotional memory: a study in the chick and the zebra finch-DST Fast Track Proposal for young scientists
3. Activity mapping in the brain in response to positive and negative stimulation: a study at the behavioural, neural and cognitive levels-DST-Cognitive Science Initiative

### Ongoing Projects:

1. Adolescent stress and depression – a behavioural study; Funding agency-DBT (BT/PR4676/ MED/30/735/2012) – Rs. 18.56 lakhs – (2012-2015)
2. Brain anatomy, neurochemistry and behaviour in a murine model of adolescent depression; Funding agency-UGC (41-545/2012 (SR) – Rs. 11.73 lakhs (2012-2015)
3. Behavioural and neural correlates of social preferences in birds: a study in the chick and in the zebra finch; Funding agency-SERB (SR/SO/AS-38/2011) – Rs. 40.60 lakhs (2012-2016)
4. Anticipation in genes: Molecular, physiological and behavioural correlates of response of circ-annual clocks in night-migratory birds; Funding agency-DBT (BT/PR4676/ MED/30/752/2012) Rs. 40.43 lakhs (2013-2018) (Multi-institutional project with Universities of Delhi, Lucknow, Meerut, NEHU Shillong and IISER-Bhubaneshwar)

### MEMBERSHIPS

Member - The Ethological Society of India (2002-

Member - Indian Academy of Neurosciences (2005-

Member - Indian Society of Developmental Biologists (2004-

### RESEARCH PAPERS

1. 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*, 101, 258-264.
2. 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*, 435, 17-23.
3. 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.
4. 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*, 1184, 108-120.
5. Sadananda, M., and R. Shetty, (2007) Stress-induced changes in a spatial memory test in the domestic chick. *Behavioral Pharmacology*, 18, 103-104.
6. 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*, 173, 262-267.
7. 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*, 1106, 111-122.

8. Sadananda, M., (2005) Avian brain nomenclature changes, *Current Science*, 89, 1662-1664.
9. 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*, 14, 19-27.
10. Sadananda, M., (2004) Adult neurogenesis in the brain of higher vertebrates: the paradigm shift, *Current Science*, 87, 297-307.
11. Sadananda, M., (2004) Acetylcholinesterase in central vocal control nuclei of the zebra finch (*Taeniopygia guttata*), *Journal of Biosciences*, 29, 189-200.
12. Sadananda, M., and H-J. Bischof, (2002) Enhanced fos expression in the zebra finch (*Taeniopygia guttata*) brain following first courtship, *Journal of Comparative Neurology* 448, 150-164.

#### **PROCEEDINGS**

13. Shetty P, Rodrigues C, Sadananda M. (2009) Effect of the fungicide captan on non-target organisms and its bioremediation. In *Abstracts: Bio-sym 2009: National Symposium on Trends and Advancements in Biotechnology*, p.55

#### **BOOK CHAPTER**

14. Shetty, R., and M. Sadananda (2009) Stress-induced behavioural changes in novelty test in the domestic chick. In: Sridhara, S. et.al. (Eds.) *Recent trends in animal behaviour*, New India Publishing Agency, New Delhi, pp. 115-117.

#### **PAPER PRESENTATION AT INTERNATIONAL CONFERENCE SEMINAR/ SYMPOSIUM**

15. 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*, p. 68.
16. Sadananda, M., and H-J. Bischof, (2003) Archistriatal afferents to the lateral neostriatum – the amygdalar influence on mate choice in birds. *NCBS International Neurobiology Symposium on Networks and Behaviour*, p. 17.
17. Rao RM & M Sadananda - 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*
18. 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*, 15, 63-64.
19. 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, Germany*, p.654
20. Sadananda, M., and H-J. Bischof, (1996) Fos expression in the zebra finch brain following courtship and unspecific arousal. *Göttingen Neurobiology Conference, Germany*, p.512

#### **Ad-hoc Review Work:**

PLOS One; Cell Tissue Research (Springer); Journal of Biosciences (Springer); Journal of Medicinal Plant Research (Academic Journals); African Journal of Microbiology Research (Academic Journals); DBT Project Proposals; SERB Project Proposals.

#### **Active Memberships:**

- Member, National Advisory Committee, International Conference on Chronobiology (2012)
- Member, National Planning Committee, SERB School in Chronobiology (2014)
- Member, Nitte University Stem Cell Research Ethics Committee (2014-)
- Member, Institutional Animal Ethics Committee - St. Aloysius College (2010-2012)

#### **Organizational Work:**

- Course Coordinator, 5<sup>th</sup> Annual SERB School in Chronobiology, 2014 (Director: Prof. Vinod Kumar, Delhi University) from 21<sup>st</sup> Dec 2014 to 4<sup>th</sup> January 2015. Funds received from SERB Rs. 18 lakhs
- Joint Organizing Secretary, International Workshop on Applications of Nanotechnology to Environment, Energy and Biotechnology, 2010
- Coordinator, IAS-INSA-NASI Academies Workshop on Evolutionary Biology-Darwin and Beyond, 2009 (Convener: Prof. Vidyanand Nanjundiah, IISc, Bangalore)
- International Brain Research Organization (IBRO) Award Recipient to organize Brain Awareness Week – Lecture Workshop and Exhibition, 2009
- International Brain Research Organization (IBRO) Award Recipient to organize Brain Awareness Week – Lecture Workshop on Degenerating Brain Disorders, 2010

#### **Institutional Work:**

- Deputy Coordinator – DST-FIST Project Implementation Group (2014-2019)
- Chair – BOE PhD in Biotechnology (2015)

#### **Invited Lectures at Conferences/Symposia/Seminars:**

1. Activity mapping in the brain and anxiety-related behaviours in a state anxiety paradigm, *International Conference on Comparative Endocrinology and Physiology*, Nagpur University, 2013
2. Psycho-stimulation of dopaminergic and serotonergic pathways: Bioprocesses in the brain of animal model system, *National seminar on Biomolecules and Biocatalysts in Bioprocesses*, St Aloysius College, Mangalore, 2012
3. Activity-dependent plasticity in developing neuronal networks: Mechanisms underlying sexual imprinting in birds. *Indian Society of Developmental Biologists Symposium on Epigenetics, Plasticity and Imprinting*, JNCASR, Bangalore, 2004

#### **As Resource Person / Chairperson:**

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| 2002 | Refresher Course in Zoology, Mangalore University – <i>Techniques used to study vertebrate brain anatomy and Vocal control system of birds with application of image analysis on vocal control regions in bird brain</i> |
| 2003 | St. Aloysius College, Mangalore – <i>Bird Brain and Behaviour</i>  |
| 2003 | St. Agnes College, Mangalore – <i>Bird Brain and Behaviour</i>   |

- 2004 University of Bielefeld, Germany – *Nidopallial circuitry in birds*
- 2005 Unilever Research Center, Hindustan Lever Ltd. – *Cognition and neurogenesis*
- 2007 Philipps University, Marburg – *Playback induces differential brain activation*
- 2008 Philipps University, Marburg – *Acute effects of MDMA on communication*
- 2009 Karnataka Theological Research Institute – *Darwin and brain evolution*
- 2012 St. Agnes College, Mangalore – *Career options in the life sciences*
- 2012 St. Aloysius College, Mangalore - *National Seminar on Recent Trends in Biological Sciences,*
- 2012 St. Aloysius College, Mangalore - *National Seminar on Waste Management,*
- 2013 Parvatibai Chowgule College, Goa – *The changing brain: necessity, opportunity and challenge*
- 2013 St Aloysius College Mangalore - *Life Science Associations Inauguration - The plastic brain*
- 2013 SERB School in Neuroscience, University of Hyderabad – *Learning and memory in relation to anxiety and Stable forms of learning in relation to social preferences*
- 2013 SERB School in Avian Biology, SACON, Coimbatore – *Avian brain-structure and function; Neurobiology of learning and cognition in birds and Techniques in avian brain research*
- 2014-15 SERB School in Chronobiology, Mangalore University – *Timed events in learning and memory in birds and Neuroanatomy of circadian system.*
- 2014 Adult neurogenesis, Yenepoya University
- 2015 SERB School in Avian Biology, GKV University, Haridwar – *Avian Neurogenesis; Homologies between avian and mammalian brain and Neuroanatomy of avian brain*