



**UNIVERSITY OF CALCUTTA**  
**FACULTY ACADEMIC PROFILE/CV**

1. Full name of the faculty member: **NILKANTA CHAKRABARTI**
2. Designation:
  - (a) **Director**, S. N. Pradhan Centre for Neurosciences, University of Calcutta
  - (b) **Professor**, Department of Physiology, University of Calcutta.
  - (c) **Principal Investigator**, Centre with Potential for Excellence in Particular Area (CPEPA)-UGC centre for "*Electrophysiology & Neuroimaging studies including Mathematical Modeling*", University of Calcutta.
3. Specialization : **Physiology**  
(Brain & Cognitive Physiology; Neuro-endocrinology; Reproductive Physiology)
4. Passport size photograph



5. Contact information:

Contact address:

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- (b) Department of Physiology, University of Calcutta, 92 APC Road, Kolkata - 700 009, India

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6. Academic qualifications: *Degrees (graduation onward)*

College/ university from which the degree was obtained	Abbreviation of the degree
Vidyasagar University (India)	<b>B.Sc.</b> (Physiology)
University of Calcutta (India)	<b>M.Sc.</b> (Physiology; Biochemistry Specialization)
University of Calcutta (India)	<b>M.Phil.</b> (Environmental Science)
University of Calcutta (India) Place of work: Bose Institute, Kolkata	<b>Ph.D.</b> (Physiology/Neuroendocrinology)

**Postdoctoral Research (2 years): USA**

Department of Physiology, Morehouse School of Medicine, Atlanta, Georgia  
[Research topic: Neuroendocrine vs. Peripheral (local) peptides (GnRH)]

**7. Positions held/ holding:**

Position	Period	Place of Work
Lecturer & Senior Lecturer	23.04.1997 to 16.06.2008	Rammohan College, Kolkata (under University of Calcutta)
Reader	17.06.2008 to 16.06.2011	University of Calcutta
Associate Professor	17.06.2011 to 31.03.2016	University of Calcutta
Professor	01.04.2016 - continuing	University of Calcutta

**8. Research interests (Brief of the areas of research interests)**

**Research Topic :**

- (a) Ageing and Neurodegenerative Diseases (Parkinson; Alzheimer, Epilepsy): Molecular and cellular studies
- (b) Brain imaging and Integrative Physiology of cellular and molecular Cognition.
- (c) Neuro-Computational approach of Cognitive Physiology

**Research experience & Technical specialization :**

Animal (rodent) and Human model : Biochemical assays, Molecular Biological techniques (including WB, IHC, PCR, FACS), Imaging (microscopy, MRI, EEG, f-NIRS), Behavioural & Cognitive studies.

**9. Research guidance:**

Number of researchers awarded M.Phil/ Ph.D. degrees : 2 Ph.D.

Number of researchers pursuing M.Phil/ Ph.D. degrees : 7 Ph.D.

**10. Research Projects:**

### Completed projects:

DST-CSI (Govt. of India); Period: Jul. 2010 to Jan. 2014 (3 years 6months); Grant / Amount: 27.48 Lakh : Title : Thyroid hormone and cognition: *in vitro* study in quest of molecular events induced by T3 in synaptosomes isolated from adult rat brain cerebral cortex. (PI) [Co-PI : Prof. Arun Ray, Bose Institute, Kolkata]

DBT (Govt. of India); Period Jul. 2013 for 3 years ; 61.31 Lakh : Mechanism of neuroinflammation in Parkinson's Diseases : Putative role of estrogen and NF $\kappa$ B. (Co-PI) [PI : Dr. Arindam Bhattacharyay, Dept of Zoology, University of Calcutta]

### Current projects:

1. UGC-CPEPA (Under University of Calcutta) ; Period Feb. 2012 for 5 years, 615 Lakh shared by 9 PIs : Brain structure and activation pattern correlates of cognition: Identification by EEG and brain MR-imaging of healthy young adults. (PI)
2. UGC Major Research Project; Period Jul. 2015 For 3 years ; 11.60 Lakh : Evaluation of Molecular Marker(s) and Therapy by Multi-targeted Drugs for Parkinson's Diseases in Paraquat-induced mice model. (PI) [Co-PI : Dr. Arindam Bhattacharyay, Dept of Zoology, University of Calcutta]
3. UPE, (Under University of Calcutta) Title of the Project: "Finding Peripheral Biomarkers and related Biosensors for Alzheimer's and Parkinson's Disease. 2016 [Co-PI: Prof. Dilip Maity, Department of Chemistry & Dr. Sourav Pal, Department of Applied Physics, University of Calcutta.

### Research Collaboration

#### *In house*

1. Department of Food & Nutrition, University of Calcutta.
2. Department of Zoology, University of Calcutta.
3. Department of Chemistry and Department of Applied Physics, University of Calcutta.

#### *Other Institutes*

1. Bangur Institute of Neurosciences (BIN), IPGME&R-SSKM Hospital, Govt. of West Bengal, India
2. Department of Radiology, IPGME&R-SSKM Hospital, (MRI section) Govt. of WB, Kolkata in association with NBRC (National Brain Research Center), Gurgoan under the NKN (National Knowledge Network) program, Govt. of India [Human brain MR-imaging].
3. Division of Molecular Medicine, Bose Institute, Kolkata, India
4. Centre for Bioinformatics, Pondicherry University, India

## 11. Selected list of Research Publications:

### a) Journals:

1. Mitra S, **Chakrabarti N**, Bhattacharyya A. (2011) : Differential regional expression

patterns of alpha-synuclein, TNF- $\alpha$ , and IL-1 $\beta$ ; and variable status of dopaminergic neurotoxicity in mouse brain after Paraquat treatment. *J Neuroinflammation*, (BioMed Central) Nov 24; 8:163-184. **[impact factor: 5.79]**

2. Mitra S, **Chakrabarti N**, Dutta SS, Ray S, Bhattacharya P, Sinha P, Bhattacharyya A. (2015) :Gender-specific brain regional variation of neurons, endogenous estrogen, neuroinflammation and glial cells during rotenone-induced mouse model of Parkinson's disease. *Neuroscience* (Elsevier). Apr 30; 292:46-70. **[impact factor:3.357]**
3. Datta S, Sarkar S, Chakraborty S, Mulpuru SK, Basu S, Tiwary BK, **Chakrabarti N**, Roy PK. (2015) MRI characterization of temporal lobe epilepsy using rapidly measurable spatial indices with hemisphere asymmetries and gender features. *Neuroradiology* (Springer) Sep;57(9):873-86. **[impact factor: 2.485]**
4. Mitra S, Ghosh N, Sinha P, **Chakrabarti N**, Bhattacharyya A. (2015) : Alteration in Nuclear Factor-KappaB Pathway and Functionality of Estrogen via Receptors Promote Neuroinflammation in Frontal Cortex after 1-Methyl-4-Phenyl-1,2,3,6 Tetrahydropyridine Treatment. *Scientific Reports*. (Nature Group of Publications) Sep 14;5:13949. **[impact factor: 5.578]**
5. Soham Mitra, Nabanita Ghosh , Priyobrata Sinha , **Nilkanta Chakrabarti** , Arindam Bhattacharyya (2016) : Alteration of nuclear factor-kappaB pathway promote neuroinflammation depending on the functions of estrogen receptors in substantia nigra after 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine treatment. *Neuroscience Letters* (Elsevier) Jan 28; 616: 86–92. **[impact factor: 2.03]**
6. **Nilkanta Chakrabarti** (2016) : Trends in research on paraquat-induced parkinsonism. Indian Journal of Physiology and Allied Sciences (Physiological Society of India), 69(4):103-115 (Issue year 2015). [ISSN: 03678350]
7. Datta S, Samanta D, Sinha P, **Chakrabarti N**. (2016) : Gender features and estrous cycle variations of nocturnal behavior of mice after a single exposure to light at night. *Physiol Behav* (Elsevier). May 27;164(Pt A):113-122. **[impact factor: 2.97]**
8. Sengupta A, Manna K, Datta S, Das U, Biswas S, **Chakrabarti N** & Dey S, (2017) : Herbicide exposure induces apoptosis, inflammation, immune modulation and suppression of cell survival mechanism in murine model, *RSC Advances*, , 7, 13957-13970. **[impact factor: 3.29]**
9. **Chakrabarti N**, Datta S, Samanta D, Chaudhuri AG & Ray AK, (2017) : Alterations in cerebrocortical synaptosomal acetylcholinesterase activity and histomorphology of thyroid gland of adult rat during different thyroidal conditions, *Indian Journal of Experimental Biology*, 55, 201-208. **[impact factor: 1.13]**
10. Ghosh N, Mitra S, Sinha P, **Chakrabarti N**, Bhattacharyya A. (2018) : TNFR2 mediated TNF- $\alpha$  signaling and NF- $\kappa$ B activation in hippocampus of 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine-treated mice. *Neurosci Res*. (Elsevier) Feb 23. pii: S0168-0102(17)30687-9. **[Impact Factor 2.277 ]**
11. Datta S, **Chakrabarti N**. (2018) Age related rise in lactate and its correlation with lactate dehydrogenase (LDH) status in postmitochondrial fractions isolated from different regions of brain in mice. *Neurochem Int*. (Elsevier) Apr 18;118:23-33. **[Impact Factor 3.026]**

b) Books/ book chapters : NA

c) Conference/ seminar volumes: NA

d) Other publications : NA

## 12. Membership of Learned Societies:

(a) Physiological Society of India

- (b) Indian Academy of Neurosciences
- (c) Zoological Society of India
- (d) Indian Science Congress Association

### **13. Patents: NA**

### **14. Invited lectures delivered:**

- (a) National and International Conferences held at India : 22 (last 7 years)
- (b) Orientation Program & Refresher Courses for University and College teachers, Organized by Academic Staff College, University of Calcutta.
- (c) Postgraduate classes in Rammohan College, Kolkata (upto 2015)

### **Details of Lecture/Academic Session & conference / Seminar**

1. "Ovarian GnRH in mammals : Plot thickens but mystery remains". : National Colloquium on Recent Advance in Molecular & Cellular Endocrinology. BHU, Dept Zoology, Varanasi Sep. 23-25, 2011
2. "Role of Thyroid Hormone in Adult Mammalian Brain." : 23<sup>rd</sup> Annual National Conference of Physiological Society of India (PSI). NRI Med. Coll., Dept Physiology, AP., Dec. 21-23, 2011
3. Judge a scientific session : 23<sup>rd</sup> Annual National Conference of Physiological Society of India (PSI). NRI Med. Coll., Dept Physiology, AP., Dec. 21-23, 2011
4. "Cognitive impact of light: Interplay of melatonin and thyroid hormone action in synaptic plasticity – A prediction" : National Symposium on Recent Palestraei in Photosciences. BHU, Dept Zoology, Varanasi. Sep. 3-4, 2012
5. Chair a scientific session : National Symposium on Recent Palestraei in Photosciences. BHU, Dept Zoology, Varanasi. Sep. 3-4, 2012
6. "Brain thyroid hormone & cognitive function: Do they interact with photoperiods?" : 100<sup>th</sup> Session of Indian Science Congress. University of Calcutta Jan. 3-7, 2013
7. "Molecular Crosstalk and Systemic Approach to Cognition" : National Conference on Brain & Conciousness. ISI-Kolkata & others. Sep. 20-21, 2013
8. Chair a scientific session : National Conference on Brain & Conciousness. ISI-Kolkata & others. Sep. 20-21, 2013
9. "Maze & Rodent Behaviour: Animaze video tracking" : One day Seminar cum Workshop on Modern Research in Integrative Physiology and Medicine: Implication of Advance Techniques with High-throughput & Real-time assessment in Animal and Human University of Calcutta and Gentech Marketing & Distribution Pvt. Ltd., Sep. 10, 2014
10. Chair a scientific session of hands-on training : One day Seminar cum Workshop on Modern Research in Integrative Physiology and Medicine: Implication of Advance Techniques with High-throughput & Real-time assessment in Animal and Human University of Calcutta and Gentech Marketing & Distribution Pvt. Ltd. Sep. 10, 2014
11. "Special effects of Paraquat Toxicity in Brain to develop Parkinsonism" : International symposium on Translational Neurosciences & 32<sup>nd</sup> Annual conference of Indian Academy of Neurosciences. NIMHANS, Bangaluru, Nov.

- 1-3, 2014.
12. "Integration of Molecules to systems in Brain signifies Physiology of Cognition" : 26<sup>th</sup> Annual National Conference of Physiological Society of India (PSI). Berhampur Girls College, (Murshidabad), WB, Dec. 19-21, 2014
  13. Brain structure and activation pattern signify cognitive diversity among healthy human subjects" : 27<sup>th</sup> Annual National Conference of Physiological Society of India (PSI), University of Calcutta, Dec. 18-20, 2015
  14. "Light at night alters cognitive behaviours differentially in male and female mice." : International Symposium on Integrative Physiology & Comparative Endocrinology along with Brain-storming session on Geo-Eco-Neuroendocrinology and 34<sup>th</sup> Annual meeting of Society for Reproductive Biology and Comparative Endocrinology (SRBCE), BHU, Dept Zoology, Varanasi. Feb. 12-14, 2016
  15. Chair a scientific session : International Symposium on Integrative Physiology & Comparative Endocrinology along with Brain-storming session on Geo-Eco-Neuroendocrinology and 34<sup>th</sup> Annual meeting of Society for Reproductive Biology and Comparative Endocrinology (SRBCE), BHU, Dept Zoology, Varanasi. Feb. 12-14, 2016
  16. Rapporteur a scientific session : 23<sup>rd</sup> West Bengal State Science and Technology Congress 2016. Presidency University, Kolkata, 28-29 February, 2016
  17. Rotenone-induced Parkinsonism and Brain Estrogen." : UGC sponsored two days National seminar on Trends in Physiology Researches from Laboratory to Community. Vidyasagar University, Department of Human Physiology with Community Health, March 30-31, 2016
  18. "Multiple biomarkers signify multi-targeted therapy for Parkinson's diseases: Preclinical studies". 34<sup>th</sup> Annual conference of Indian Academy of Neurosciences. NBRC, Manesar, India, Oct. 19-21, 2016.
  19. "Neuro-diversity & Cognitive variability among healthy young adult population", 28<sup>th</sup> Annual National Conference of Physiological Society of India (PSI). Midnapore College (Autonomous), WB, India, 18-20 Nov, 2016.
  20. "Translational Brain-Behaviour Research on Mammalian Neuro-diversity and Cognitive Variability" 35<sup>th</sup> Annual conference of Indian Academy of Neurosciences, Ravenshaw University, Cuttack, Odisha, India, Oct. 29-31, 2017.
  21. "Male vs. Female cognitive behavioural endocrinology and biological clock: an orchestral rhythms of life", 7<sup>th</sup> Congress of Federation of India Physiological Society (FIPS) & 29<sup>th</sup> Annual Conference of Physiological Society of India (PSI), Defence Institute of Physiology & Allied Sciences (DIPAS), Delhi, India, 5-7 Nov., 2017.
  22. "Multiple Biomarkers & Multi-targeted Therapy for Parkinson's Diseases: An update", National Conference on Biomarkers, Department of Biochemistry, College of Medicine & JNM Hospital, WBUHS, Kalyani, Nadia, India, 19-20 Jan., 2018.

#### 15. Awards:

- (1) Silver medal (1<sup>st</sup> Class 2<sup>nd</sup> Rank) in B.Sc. examination (Graduate level –

- 1989) : Conducted by Vidyasagar University, West Bengal, India.
- (2) Graduate Aptitude Test in Engineering (GATE - 1992, Fellowship award, qualified) in Basic Sciences : Conducted by Indian Institute of Technology (IIT) on behalf of Department of Education, Ministry of Human Resource Development, Government of India.
  - (3) State Level Eligibility Test for Lectureship (SLET – 1994, qualified) in Life Sciences : Conducted by The West Bengal College Service Commission (State Agency), India.
  - (4) Junior Research Fellowship (JRF - 13.12.1993 to 13.12.1995) : Granted by Department of Science & Technology (DST), Ministry of Science & Technology, Government of India.
  - (5) Senior Research Fellowship (SRF - 13.12.1995 to 22.04.1997) : Granted by Department of Science & Technology (DST), Ministry of Science & Technology, Government of India.
  - (6) Postdoctoral Research Fellow (PDF - 15.07.2005 to 30.06.2007) : NIH (USA) grant through Department of Physiology, Morehouse School of Medicine, Atlanta, Georgia, USA.
  - (7) A. K. Mukherjee Memorial Oration award (2014) by Physiological Society of India (PSI)

#### **16. Other notable activities:**

##### **Reviewed Research Articles (last 5 years)**

1. Integrative Biology (Published by Royal Society of Chemistry); Impact Factor: 3.37
2. Journal of Thyroid Research (Published by Hindawi Publishing Corporation); Impact Factor: 2.5
3. Hormone and Metabolic Research (Published by Thieme); Impact Factor: 2.03

##### **Served as Coordinator**

1. Orientation Program for University and College teachers, Organized by Academic Staff College, University of Calcutta, Held on : Jun. 11 – Jul. 09, 2011
2. Short term course in Life Sciences (Computational Biology), Organized by Academic Staff College, University of Calcutta, Held on : Mar. 13 – 19, 2012
3. Refresher Course in Life Sciences for University and College teachers, Organized by Academic Staff College, University of Calcutta, Held on : Mar. 30 – Apr. 22, 2015
4. Coordinator of Special paper in M.Sc. Physiology curriculum under the University of Calcutta: “Environmental Physiology” (upto 2015), “Endocrinology & Reproductive Physiology” (2016). Presently “Neurophysiology” (2017 continued)

##### **Courses updating & Design of Curriculum**

**CUIIPP (Calcutta University Industry Institute Partnership Program):** Act as an **Advisor of Ph.D. program in Institute of Neurosciences, Kolkata (INK)**, Sister Institute of the University of Calcutta including designing the Research Eligibility Test (RET) and its syllabus. Since 28.01.2016

**Members of Committees on Educational/Research Development**

1. Institutional Animal Ethics Committee (IAEC), Department of Physiology, University of Calcutta; since 2011
2. Institutional Human Ethical Committee (IHAC), Central body of the University of Calcutta; since 2016.

**International Conference Organized (Feb., 2017, Grand Oberoi, Kolkata)**

Topic: Neurodegenerative Diseases

Co-organizers INK (Institute of Neurosciences Kolkata), a Sister Institute of University of Calcutta., and Institute of Neurosciences, Newcastle Upon Tyne, UK