

## Curriculum Vitae

**Dr. Soumyabrata Banerjee, M.Sc., Ph.D.**

**Permanent Address:** Vill. & P.O.- Panitras, P.S.- Bagnan, Dist.- Howrah,  
PIN-711303, State- West Bengal, India.

**Phone number (Mobile):** +91-8900592842

**Email address:** [soumyabrata29@gmail.com](mailto:soumyabrata29@gmail.com); [sbanerjee5@amity.edu](mailto:sbanerjee5@amity.edu)

**CURRENT POSITION**

2022-Present – **Assistant Professor (II)**, Amity Institute of Physiology and Allied Sciences (AIPAS), Amity University, Noida, Sector 125, Uttar Pradesh, PIN-201301, India.

**EDUCATION**

Qualification	Institution	Subject	Year of Completion
<b>Post Doc.</b>	Central Michigan University, USA	Neuropsychology, Neuropharmacology, Neuroscience	2020-2022
	Jadavpur University, India	Neuropharmacology, Neurophysiology, Neuroscience	2017-2020
<b>Ph.D. (Sc.)</b>	University of Calcutta, India	Physiology (Neuropharmacology, Neurochemistry, Neurophysiology)	2017
<b>M.Sc.</b>	Vidyasagar University, India	Physiology (Specialization in Neurophysiology)	2009 (Awarded University ranking: 1 <sup>st</sup> Class 2 <sup>nd</sup> )
<b>B.Sc. (Hons.)</b>	Vidyasagar University, India	Physiology (Hons.)	2007 (University ranking: 1 <sup>st</sup> Class 3 <sup>rd</sup> )

**AWARDS AND HONORS**Year

2021 - Awarded the **Young Investigator's Educational Enhancement (YIEE)** trainee awards 2021 of the *American Society for Neurochemistry (ASN)*, Florida, USA.

2020 - Awarded the **Trainee Professional Development Award (TPDA)** 2020 of the *Society for Neuroscience (SfN)*, Washington DC, USA.

2020- **Postdoctoral Research Fellowship** at the *Central Michigan University*, Mt. Pleasant, Michigan, USA.

2019 - **International Travel Award** of *International Society for Neurochemistry (ISN)* meeting 2019 held at Montreal, Canada.

2019 - **Travel Award** of *RUSA 2.0, Jadavpur University*, Kolkata, India to participate in the ISN-ASN Meeting 2019 at Montreal, Canada.

2019 – **International Travel Award** of *DST-SERB (ITS), Govt. of India* to participate in the ISN-ASN Meeting 2019 at Montreal, Canada.

- 2019 - Awarded for **the 2<sup>nd</sup> best oral presentation** in the *3<sup>rd</sup> Pharm. Tech. IAPST* (Indian Association for the Pharmaceutical Scientists and Technologists) International Conference.
- 2017 - **National Post Doctoral Fellowship (NPDF)**, *Science and Engineering Research Board*, Department of Science and Technology, New Delhi, *Govt. of India*.
- 2013 - **Senior Research Fellowship** of the *Indian Council of Medical Research*, New Delhi, India.
- 2011 - **Young Talent** award for **the best oral presentation** in the *NeuroUpdate Kolkata-2011*.
- 2010 - **Manpower Fellowship** (UGC-UPE) of the *University of Calcutta*, India.
- 2009 - **Silver Medal** for securing First class 2<sup>nd</sup> in M.Sc. in the Vidyasagar University.
- 2007 - **Merit-cum-Means Scholarship** (*Govt. of West Bengal*, India) for securing First class in B.Sc.

## AREAS OF EXPERTISE (Neurophysiology, Neuropharmacology, Neurobiochemistry, Neuroscience)

I want to explore myself as an academic neuroscientist with good morale. The aging brain and its related field of research is my keen area of research interest. I strongly believe that the implementation of my knowledge and ideas will enrich the geriatric research Nationally and Internationally in near future.

## PUBLICATIONS

### *Book Chapters*

1. Biswajit Mukherjee, Ashique Al Hoque, Apala Chakraborty, Samrat Chakraborty, Lopamudra Dutta, Debasmita Dutta, **Soumyabrata Banerjee**, Moumita Dhara, R. Manasa Deepa (2022) Recent development in cancer vaccines: where are we? In: **Nanotherapeutics in cancer vaccination and challenges** (eds. Mahfoozur Rahman, Sarwar Beg, Waleed H. Almalki, Nabil A. Alhakamy, Hani Choudhry), *Academic Press (Elsevier), UK, USA*, pp 29-64. ISBN: 978-0-12-823686-4. DOI: <https://doi.org/10.1016/C2020-0-00305-1>
2. Mrinal K. Poddar, Apala Chakraborty, **Soumyabrata Banerjee** (2021) Neurodegeneration: Diagnosis, prevention, and therapy. In: **Oxidoreductase** (ed. Mansour MA), *Intech Open, London, England*. ISBN: 978-1-83880-901-0. DOI: 10.5772/intechopen.94950.
3. Biswajit Mukherjee, Leena Kumari, Iman Ehsan, Prashanta Das, **Soumyabrata Banerjee**, Ashique Al Houque, Samrat Chakraborty, Manisheeta Roy, Ratan Sahoo (2021) Guar gum based nanomaterials in drug delivery and biomedical applications In: Biopolymer-based nanomaterials in drug delivery and biomedical applications (eds. Bera, H., Hossain, C.M., Saha, S.), *Academic Press (Elsevier), UK, USA*, pp 143-164. ISBN 978-0-12-820874-8. <https://doi.org/10.1016/B978-0-12-820874-8.00016-6>
4. Biswajit Mukherjee, Soma Sengupta, **Soumyabrata Banerjee**, Moumita Dhara, Ashique Al Hoque, Leena Kumari, Manisheeta Ray, Iman Ehsan, Alankar Mukherjee (2020) Transdermal nanomedicines for reduction of dose and site-specific drug delivery. In: **Nanomedicine and nanosafety-recent trends and clinical evidences** (eds. Malay K. Das, Yashwant V. Pathak), *Springer Nature, Singapore*, pp 175-211. Print ISBN 978-981-15-6254-9, Online ISBN 978-981-15-6255-6, DOI: <https://doi.org/10.1007/978-981-15-6255-6-8>.

5. Mrinal K. Poddar, **Soumyabrata Banerjee** (2020) Molecular aspects of pathophysiology of platelet receptors. In: **Platelets** (ed. Steve W. Kerrigan), *Intech Open, London, England*. ISBN: 978-1-83881-115-0. DOI: 10.5772/intechopen.92856.
6. Biswajit Mukherjee, **Soumyabrata Banerjee**, Laboni Mondal, Shreyasi Chakraborty, Deepayan Chanda, Jayawardane Athukorallage Chamindika Perera (2020) Bioactive flavonoid apigenin and its nanoformulations: a promising hope for diabetes and cancer. In: **Nanomedicine for bioactives – Healthcare applications** (eds. Mahfoozur Rahman, Sarwar Beg, Vikas Kumar, Farhan Jalees Ahmed), *Springer Nature, Singapore*, pp 367-382. Print ISBN 978-981-15-1663-4, Online ISBN 978-981-15-1664-1, DOI: <https://doi.org/10.1007/978-981-15-1664-1>

### Review Articles

1. Raj Bose, **Soumyabrata Banerjee**, Gary L. Dunbar (2021) Modeling neurological disorders in 3D organoids using human-derived pluripotent stem cells. *Frontiers in Cell and Developmental Biology- Stem Cell Research*. 9: 640212.
2. Mrinal K. Poddar, **Soumyabrata Banerjee**, Apala Chakraborty, Debasmita Dutta (2021) Metabolic disorder in Alzheimer's disease. *Metabolic Brain Disease*. 36: 781-813.
3. **Soumyabrata Banerjee**, Mrinal K. Poddar (2020) Carnosine research in relation to aging brain and neurodegeneration: A blessing for geriatrics and their neuronal disorders. *Archives of Gerontology and Geriatrics*. 91: 104239.
4. **Soumyabrata Banerjee**, Mrinal K. Poddar (2019) Aging and mammalian platelet biomarker. *Thrombosis & Haemostasis: Research*. 3(4): id 1034: 1-5.
5. **Soumyabrata Banerjee**, Mrinal K. Poddar (2019) Carnosine in aging-induced neurodegeneration: a promising approach towards better tomorrow for geriatrics. *Annals of Pharmacology and Pharmaceutics*. 4: 1-5.

### Peer-Reviewed Original Articles

1. Apala Chakraborty, **Soumyabrata Banerjee**, Biswajit Mukherjee, Mrinal Kanti Poddar, and Nahid Ali (2021) Calorie restriction modulates neuroimmune system differently in young and aged rats. *International Immunopharmacology*. 100: 108141.
2. **Soumyabrata Banerjee**, Biswajit Mukherjee, Mrinal K. Poddar, Gary L. Dunbar (2021) Carnosine improves aging-induced cognitive impairment and brain regional neurodegeneration in relation to the neuropathological alterations in the secondary structure of amyloid beta (A $\beta$ ). *Journal of Neurochemistry*. 158: 710-723.
3. Apala Chakraborty, **Soumyabrata Banerjee**, Biswajit Mukherjee, Mrinal K. Poddar (2020) Calorie restriction improves aging-induced impairment of cognitive function in relation to deregulation of brain regional GABA system and corticosterone status. *Mechanisms of Ageing and Development*. 189: 111248.
4. **Soumyabrata Banerjee**, Biswajit Mukherjee, Mrinal K. Poddar (2019) Carnosine restores aging-induced elevation of corticosterone status and brain regional amyloid-beta in relation to down regulation of locomotor activity. *Journal of Systems and Integrative Neuroscience*. 5: 1-11.
5. Md. Fazlul Karim, **Soumyabrata Banerjee**, Mrinal K. Poddar (2018) Does patchouli oil change blood platelet monoamine oxidase-A activity of adult mammals? *Journal of Physiological Sciences*. 68:281-291.

6. **Soumyabrata Banerjee**, Mrinal K. Poddar (2016) Can carnosine prevent the aging-induced changes of blood platelet and brain regional monoamine oxidase-A mRNA in relation to its activity? *International Journal of Peptide Research and Therapeutics*. 22: 471–480.
7. **Soumyabrata Banerjee**, Mrinal K. Poddar (2016) Aging-induced changes in brain regional serotonin receptor binding: effect of carnosine. *Neuroscience*. 319: 79–91.
8. **Soumyabrata Banerjee**, Tushar K. Ghosh, Mrinal K. Poddar (2015) Carnosine reverses the aging-induced down regulation of brain regional serotonergic system. *Mechanisms of Ageing and Development*. 152: 5-14.
9. **Soumyabrata Banerjee**, Mrinal K. Poddar (2015) Carnosine: effect on aging-induced increase in brain regional monoamine oxidase-A activity. *Neuroscience Research*. 92: 62-70.
10. **Soumyabrata Banerjee**, Mrinal K. Poddar (2013) Platelet monoamine oxidase-A activity and aging: effect of carnosine. *Journal of Physiological Sciences*. 63: 279-285.

#### Chapter in Proceedings

1. **Soumyabrata Banerjee**, Mrinal K. Poddar (2013) Brain regional and platelet monoamine oxidase-A activity: effect of carnosine. *Proceedings of Acharya Prafulla Chandra Ray National Young Scientists' Conference*. Pp 23-29.

## GRANTS AND FELLOWSHIPS

Year - Year	Name of the Fellowship	Funding organization	Monetary amount
01.03.2020 – 28.02.2022	Postdoctoral Research Fellowship	Central Michigan University, Michigan, USA	Fellowship: \$43,000 p.a. Health Benefit: \$3,460 p.a.
12.04.2017 – 11.04.2019	National Post Doctoral Fellowship (N-PDF)	DST-Science and Engineering Research Board (SERB), Govt. of India, New Delhi	Fellowship: Rs. 55,000 p.m.; Contingency: Rs. 2,00,000 p.a.; Overhead: Rs. 1,00,000 p.a.
26.06.2013 – 25.12.2016	ICMR-Senior Research Fellowship	Indian Council of Medical Research (ICMR), New Delhi	Fellowship: Rs. 28,000 p.m.; Home Rent Allowance: 30% p.m.; Med. Allowance: Rs. 300 p.m.; Contingency: Rs. 20,000 p.a.
16.08.2010 – 15.08.2012	Man-Power Fellowship	UGC-UPE, University of Calcutta, Kolkata	Fellowship: Rs. 12,000 p.m.; Contingency: Rs. 20,000 p.a.

p.a.: per annum; p.m.: per month

## INVITED TALKS

### Year

2021- **Delivered a lecture** on “Progesterone attenuates aging related cognitive impairment and neural plasticity in C57BL/6 aged male mice” in a webinar on “**Neural Signal to Cognition**” organized by the Indian Academy of Neurosciences, Kolkata Chapter on Nov. 05, 2021.

- 2018 - **Delivered a lecture** on “*Recent trends in modern surgical technologies and study of behavioral changes in correlation to drug discovery and drug targeting research*” of **Quality Improvement Programme (QIP)**, an initiative for faculty members) under the auspices of AICTE in the Department of Pharmaceutical Technology, Jadavpur University, Kolkata- 700032 from February 23-March 09, 2018.
- 2018 - **Delivered two (02) lectures** in the two-week long short-term refresher course on “*Bio-technology and Pharmaceutical Technology and their Correlation to Drug Delivery and Drug Targeting*” of **Quality Improvement Programme (QIP)**, an initiative for faculty members) under the auspices of AICTE in the Department of Pharmaceutical Technology, Jadavpur University, Kolkata-700032 from February 23-March 09, 2018.
- 2017 - **Delivered a lecture** in the two-week long short-term refresher course on “*Exploring New Aspects of Molecular Biology for the Development of Smarter Therapeutics*” of **Quality Improvement Programme (QIP)**, an initiative for faculty members) under the auspices of AICTE in the Department of Pharmaceutical Technology, Jadavpur University, Kolkata-700032 from November 07-20, 2017.

## ABSTRACT in National or International Conferences/ Symposia/ Seminars

### Podium Presentations

#### *International:*

#### Year

- 2019 - **Soumyabrata Banerjee**, Biswajit Mukherjee, Mrinal K. Poddar. “Treatment with carnosine: a novel approach to attenuate the aging-induced changes in Brain and blood platelet MAO-A activity”. The **3<sup>rd</sup> Pharm. Tech. IAPST International Conference on Molecular mechanism of diseases and novel therapeutic approaches** organized jointly by School of Pharmacy and Life Sciences, Centurion University of Technology and Management, Bhubaneswar, India and the Indian Association of Pharmaceutical Scientists and Technologists (IAPST), Kolkata, India at the **Centurion University of Technology and Management, Bhubaneswar, Odisha, India** on January 19-20, 2019. [Awarded for the **2<sup>nd</sup> best oral presentation**]
- 2017 - **Soumyabrata Banerjee**, Rahul Mazumder, Sreejit Ghosh, Samir K. Ghosh, Mrinal K. Poddar. “Role of carnosine on aging-induced changes in brain regional neuronal cell count and amyloid beta deposition”. The **Neurocon 2017** on “*Growth, senescence and mortality of neurons: from traditional medicine to cutting edge technology*” organized by the iCARE Institute of Medical Sciences and Research, Haldia at **Hotel Golden Retreat, Haldia, West Bengal, India** on January 19-22, 2017.
- 2015 - **Soumyabrata Banerjee**, Mrinal K. Poddar. “Effect of carnosine on aging-induced brain and blood platelet MAO-A”. The **Neurocon 2015** on *Development, Degeneration and Regeneration of Neurons: Neurochemistry to Clinical Neurology* at the **CSIR-Indian Institute of Chemical Biology, Kolkata, India** on January 7-10, Pp 32.
- 2013 - **Soumyabrata Banerjee**, Mrinal K. Poddar. “Effect of carnosine on brain regional serotonergic activity during aging”. The **Neurocon 2013** on Neurodegenerative and Neurodevelopmental Disorders: Translational Aspects at the **CSIR-Indian Institute of Chemical Biology, Kolkata, India** on January 17-20, Pp 26.

#### *National:*

#### Year

- 2018 - **Soumyabrata Banerjee**, Biswajit Mukherjee, Mrinal K. Poddar. “Brain regional amyloid beta in relation to plasma and adrenal corticosterone: role of aging and carnosine”. The

*NeuroUpdate 2018* held at the **CSIR-Indian Institute of Chemical Biology, Kolkata, India** on November 24, 2018.

- 2016 - **Soumyabrata Banerjee**, Mrinal K. Poddar. “Role of carnosine on brain and blood platelet mitochondrial enzyme during aging”. *A Colloquium of Research Scholars and Students* organized by the Indian Academy of Neurosciences, Kolkata Chapter at the **University of Calcutta, Kolkata, India** on August 31, 2016.
- 2015 - **Soumyabrata Banerjee**, Mrinal K. Poddar. “Carnosine: role on aging-induced changes in brain regional serotonergic activity”. The *NeuroUpdate 2015* held at the **CSIR-Indian Institute of Chemical Biology, Kolkata, India** on November 28, 2015.
- 2012 - **Soumyabrata Banerjee**, Mrinal K. Poddar. “Brain regional monoamine oxidase-A activity and role of carnosine”. The *NeuroUpdate Kolkata- 2012* at the **CSIR-Indian Institute of Chemical Biology, Kolkata, India** on September 22-23, Pp 34.
- 2012 - **Soumyabrata Banerjee**, Mrinal K. Poddar. “Brain regional and platelet monoamine oxidase-A activity: effect of carnosine”. The *Acharya P. C. Ray National Young Scientists’ Conference* organised by the Presidency University, Vivekananda Vijnan Mission (Vijnana Bharati, WB unit), and the University of Calcutta at the **Presidency University, Kolkata, India** on February 17-18, Pp 62.
- 2011 - **Soumyabrata Banerjee**, Mrinal K. Poddar. “Platelet monoamine oxidase-A and aging: effect of carnosine”. The *NeuroUpdate Kolkata- 2011* organised by the Calcutta National Medical College and the Indian Institute of Chemical Biology (IICB), Kolkata at **CSIR-Indian Institute of Chemical Biology, Kolkata, India** on August 13-14, Pp 22. [“**Young Talent Award for the best oral presentation**”]

#### Poster Presentations

##### *International:*

##### Year

- 2021- **Soumyabrata Banerjee**, Kenneth Jenrow, Julien Rossignol, Raj Bose, Gary L. Dunbar. “Progesterone-induced reductions of age-related deficits in cognition and long-term potentiation in C57BL/6 male mice”. *Neuroscience 2021, 50<sup>th</sup> Annual Meeting* organised by the Society for Neuroscience (SfN), **Chicago, Illinois, USA** on November 8-11 & 13-16, 2021.
- 2021- **Soumyabrata Banerjee**, Kenneth Jenrow, Julien Rossignol, Raj Bose, Gary L. Dunbar. “Progesterone improves cognition and neuronal plasticity in aged C57BL/6 male mice”. The *ASN Virtual Meeting 2021* organised by the American Society for Neurochemistry (ASN), **Florida, USA** on June 28- July 01, 2021. [Young Investigator’s Educational Enhancement (YIEE) trainee award]
- 2021 - Raj Bose, Ohanes Khacherian, **Soumyabrata Banerjee**, Julien Rossignol, Gary L. Dunbar. “Effects of ovine- and bovine-sourced GM1 ganglioside treatments on proliferation and differentiation of neuronal progenitor cells from the YAC 128 mouse model of Huntington’s disease”. The *SfN Global Connectome: A Virtual Event* organised by the Society for Neuroscience (SfN), **Washington DC, USA** on January 11-13, 2021.
- 2021 - Joseph B. Wassell, Sindhuja Koneru, Paulina O. Sequeiros, Ohanes Khacherian, Noelle Wedster, Leela Paladugu, Emily Lauzon, Nora Beth Fettinger, Arjun Poudel, **Soumyabrata Banerjee**, Dellane Jae Dolland, Julien Rossignol, Gary L. Dunbar. “Utilizing Liraglutide and HM15211 as a treatment for HD to reduce behavioral deficits in YAC128 Huntington’s mouse model”. The *SfN Global Connectome: A Virtual Event* organised by the Society for Neuroscience (SfN), **Washington DC, USA** on January 11-13, 2021.

- 2021- **Soumyabrata Banerjee**, Biswajit Mukherjee, Mrinal K. Poddar, Sreyan Raha, Achintya K. Singha, Gary L. Dunbar. “Carnosine counteracts age-related hypoactivity and cognitive dysfunction by reducing dysregulation of plasma corticosterone and secondary structure of amyloid-beta in the brains of aged rats”. The *SfN Global Connectome: A Virtual Event* organised by the Society for Neuroscience (SfN), **Washington DC, USA** on January 11-13, 2021. [Trainee Professional Development Award (TPDA)]
- 2019 - **Soumyabrata Banerjee**, Biswajit Mukherjee, Mrinal K. Poddar. “Aging-induced neurodegeneration in relation to brain regional A $\beta$  deposition, locomotor and cognitive function: role of carnosine”. *2019 ISN-ASN Meeting* organized by the International Society for Neurochemistry (ISN) jointly with the American Society for Neurochemistry (ASN) held at the **Palais des Congrès de Montréal, Montréal, Quebec, Canada** on August 04-08, 2019. [ISN International Travel Award; DST-SERB International Travel Award; RUSA 2.0 Travel Award of Jadavpur University]

*National:*

Year

- 2016 - Md. Fazlul Karim, **Soumyabrata Banerjee**, Mrinal K. Poddar. “Does essential aroma oil (patchouli oil) elevate mood by modulating central serotonin in adult mammals?” In the symposium “*Interface between Chemistry and Biology*” of the Royal Society of Chemistry (Eastern India Section) at the **CSIR-Indian Institute of Chemical Biology, Kolkata** on December 21, 2016.
- 2013 - Md. Fazlul Karim, **Soumyabrata Banerjee**, Mrinal K. Poddar. “Does aroma oil change the blood platelet monoamine oxidase-A activity?”. The 100<sup>th</sup> Indian Science Congress organised by the Indian Science Congress Association at the **University of Calcutta, Kolkata, India** on January 3-7, Pp 104.

## TEACHING EXPERIENCE

Types of Teaching	Institution	Year
<b>Guest Faculty</b> (UG & PG courses)	Department of Physiology, Raja N. L. Khan Womens' College (Autonomous), Paschim Midnapore, WB, India.	Sept. 2021- Feb. 2022
<b>Guest Lecturer</b> (UG courses)	Department of Food and Nutrition, Budge Budge College, University of Calcutta, South 24-Parganas, WB, India.	Dec. 2016- Mar. 2017
<b>Student Teacher</b> (Class V to XII)	Sarada Kalyan Bhandar (H.S. School), a non-profitable charitable trust, Paschim Midnapore, WB, India.	2007-2010

## RESEARCH EXPERIENCE

Masters Research (2008-2009):

**Title of the Dissertation:** Immunomodulatory effects of medial septum after microinfusion of L-glutamate and glutamate receptor blocker into medial septum in male rats.

**Experimental work done:**

- a. Intracerebral surgery to implant the canula using stereotaxic apparatus.
- b. Intracerebral microinfusion of L-glutamate and glutamate receptor blocker manually.

- c. Brain dissection and histological staining.
- d. Study of blood total count and differential count.
- e. WBC Phagocytic activity.
- f. EEG analysis.
- g. HPLC analysis.

#### Doctoral Research (2010-2017):

**Title of the Thesis:** Studies on the effect of carnosine in aging-induced neurodegeneration in relation to brain regional serotonergic activity.

#### **Experimental work done:**

- a. The neuronal cell count and amyloid beta ( $A\beta$ ) deposition using the histochemical study (Bielchowsky's staining and Golgi-Cox staining) and immunohistochemical study (with the  $A\beta$  positive antibody).
- b. Brain regional steady state level of serotonin (5-HT), its precursor tryptophan (Trp) and metabolite 5-hydroxyindoleacetic acid (5-HIAA).
- c. The 5-HT catabolizing enzyme, monoamine oxidase-A (MAO-A) activity with its kinetic study ( $V_{max}$  and  $K_m$ ) in different brain regions.
- d. The brain regional quantitative expression of MAO-A mRNA.
- e. Brain regional serotonin turnover using the MAO-A inhibitor, pargyline and 5-HIAA translocator blocker, probenecid.
- f. The [ $^3H$ ]-5-HT binding to the 5-HT specific receptor and its kinetics ( $B_{max}$  and  $K_D$ ) study.
- g. In accordance with the brain regional study, the blood platelet count, blood platelet mitochondrial MAO-A enzyme activity and blood platelet MAO-A mRNA expression were also studied.

#### Postdoctoral Research (2017-2022):

The experimental evidence of my doctoral research pushed me for further investigation on aging brain with carnosine with more intense flash of evidence. The existence of amyloid-beta and its plaques in relation to aging-induced changes of brain regional carnosine was my latest research theme in my home country, India. In association with this aging-induced study, we were trying to find out the therapeutic aspects of carnosine to promote the healthy aging to the elderly individuals of our society Nationally and Internationally.

Carrying forward my aging brain research, my aim was, in USA to focus on the hormonal and metabolic regulation as well as the neurotransmitter system in relation to the behavior.

During the entire Postdoc tenure, I have used different cutting-edge technologies in my research work. Those are:

- |                        |  |
|------------------------|--|
| a. Raman spectroscopy, | g. Western blot,                             |
| b. IHC and ICC         | h. Primary cell culture,                     |
| c. Luminex,            | i. Advanced tools for rodent behavior tests, |
| d. ELISA,              | j. Stereotaxic apparatus,                    |
| e. HPLC,               | k. Rodent brain surgery,                     |
| f. qPCR,               | l. Long-term potentiation (LTP), etc.        |

In addition, I am well trained with laboratory rat and mouse (both wild and transgenic) handling, breeding, weaning, surgery, euthanasia, perfusion, post-mortem, cryogenic storage of tissues etc.



## EXPERIMENTAL EXPERTISE

General Physiology	Histology	Animal Study	General Biochemistry	Molecular Biology
<ol style="list-style-type: none"> <li>1. Stereotaxic surgery,</li> <li>2. Brain cannula implantation,</li> <li>3. Injection (i.t.,i.p.,s.c.,p.o ,i.v.,i.m.)</li> <li>4. Intracerebral microinfusion,</li> <li>5. Perfusion of brain, heart, liver, lungs,</li> <li>6. Cannulation in hepatic artery, femoral vein, trachea,</li> <li>7. EEG and EMG,</li> <li>8. Blood cells isolation and their count,</li> <li>9. Retro-orbital injection and blood collection.</li> </ol>	<ol style="list-style-type: none"> <li>1. Cryostat microtome,</li> <li>2. Rotary microtome,</li> <li>3. Tissue section staining: <ul style="list-style-type: none"> <li>• H-E,</li> <li>• Crystal violet,</li> <li>• Methylene blue,</li> <li>• Golgi-Cox,</li> <li>• Eager,</li> <li>• Beilchowsky,</li> <li>• Immunohistochemistry,</li> <li>• Immunocytochemistry,</li> </ul> </li> <li>4. Bright field compound microscopy,</li> <li>5. Fluorescence microscopy,</li> <li>6. Dissection of brain regions.</li> </ol>	<ol style="list-style-type: none"> <li>1. Animal husbandry (rat, mice),</li> <li>2. Behavioral study: <ul style="list-style-type: none"> <li>• Open field locomotor activity,</li> <li>• 8-arm radial maze,</li> <li>• Rearing motor activity,</li> <li>• Rotarod,</li> <li>• WaterT-maze,</li> <li>• Novel object recognition (NOR).</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. UV-visible Spectrophotometry,</li> <li>2. UV-visible Spectrofluorimetry,</li> <li>3. HPLC (high performance liquid chromatography) with electrochemical detector and fluorescence detector,</li> <li>4. Beta-scintillation counter,</li> <li>5. Ultracentrifuge.</li> </ol>	<ol style="list-style-type: none"> <li>1. Agarose gel electrophoresis,</li> <li>2. RT-PCR,</li> <li>3. Nanodrop,</li> <li>4. ELISA,</li> <li>5. Flow cytometry,</li> <li>6. Raman Spectroscopy,</li> <li>7. Primary cell culture.</li> <li>8. Western Blot,</li> <li>9. Luminex.</li> </ol>

## MEMBERSHIP

- Post Doc Member:
  - International Society for Neurochemistry (ISN) (from 2018- up to date)
  - Society for Neuroscience (SfN) (from 2020- up to date)
  - American Society for Neurochemistry (ASN) (from 2020- up to date)

## ACADEMIC COLLABORATIONS

- Amity Institute of Physiology and Allied Sciences (AIPAS), Amity University, Noida,UP, India.
- Department of Psychology/Neuroscience Program, Central Michigan University, Mt. Pleasant, Michigan, USA.
- Field Neurosciences Institute for Restorative Neurology, Saginaw, Michigan, USA.
- Department of Pharmaceutical Technology, Jadavpur University, Kolkata, India.
- Department of Biochemistry, University of Calcutta, Kolkata, India.
- Department of Physiology, University of Calcutta, Kolkata, India.
- Indian Institute of Chemical Biology, Kolkata, India.
- Bose Institute, Kolkata, India.
- Indian Association for the Cultivation of Science, Kolkata, India.