

# Curriculum Vitae

## Payel Bhattacharjee, Ph.D.

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**Date of Birth:** 21-08-1984  
**Nationality:** Indian



## Education

Degree	Board/University	Year	Subjects	Marks obtained and Class/Division
Madhyamik (10 <sup>th</sup> Std)	WBBSE	2001	Beng, Eng, Maths, Phy. Sc., Life Sc., Geo, Hist, Addl. Biol.	First division with 85.6% marks
Higher Secondary (10+2)	WBCHSE	2003	Beng, Eng, Maths, Phys, Chem, Biol	First division with 76.5% marks
Bachelor of Science	University of Calcutta	2006	Zoology (Hons.), Botany, Chemistry	First class with 70.9% marks
Master of Science	University of Calcutta	2008	Zoology	First class with 78.5% marks
Ph.D	Jadavpur University, Kolkata, India. Affiliation: Council of Scientific and Industrial Research - Indian Institute of Chemical Biology (CSIR-IICB)	2014	Life Sciences and Biotechnology	

## Professional Experience

Work Period	Position	Organization	Job Description
23.12.2023-Present	Assistant Professor	Dep. Of Zoology, Rabindra Mahavidyalaya (University of Burdwan), Champadanga, Hooghly	Teaching undergraduate students along with involvement in research activities
07.09.2022-21.12.2023	Research Scientist-II (Scientist C)	Multidisciplinary Research Unit, Institute of Postgraduate Medical Education and Research, Kolkata, India	Monitoring of clinical research projects of various disciplines at Institute of Postgraduate Medical Education and Research, Kolkata
10.01.2022-09.07.2022	Research Scientist	Department of Neuropsychiatry, Institute of Neurosciences, Kolkata, India.	Designing and monitoring of Clinical Research Projects on Autism, Alzheimer's disease and other neuronal disorders.
03.01.2019-02.01.2022	CSIR-Senior Research	Department of Biophysics, Bose Institute, Kolkata, India (Mentor- Prof.	<b>Project (CSIR funded):</b> Detection of amyloid protein using

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	<b>Associate (Scientist's pool scheme)</b>	Siddhartha Roy)	microchip device with beta-sheet mimic peptide immobilized on the micro-fluidic channels.
<b>01.08.2015- 31.07.2017</b>	<b>Post-doctoral Fellow</b>	Department of Psychiatry and Neurochemistry, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden (Mentor- Prof. Henrik Zetterberg)	<b>Project (Funded by The Michael J. Fox Foundation for Parkinson's Research, USA):</b> Characterization and validation of disease specific alpha-synuclein species in Parkinson's disease.
<b>01.07.2009- 10.04.2015</b>	<b>Doctoral Fellow (CSIR- UGC NET/JRF) and Extended Senior Research Fellow (DST)</b>	Division of Structural Biology and Bioinformatics, CSIR-IICB, Kolkata, India (Supervisor- Dr. Debasish Bhattacharyya)	<b>Doctoral thesis:</b> Evaluation of bioactive components from natural products for prevention of toxicity and neurological disorders.  <b>Project (DST cognitive Science initiative program):</b> Evaluation of the efficacy of protein aggregation inhibitors from natural sources.
<b>17.09.2008- 19.06.2009</b>	<b>Junior Research Fellow (GATE, 2008)</b>	Division of Molecular Medicine, Bose Institute, Kolkata, India (Supervisor- Prof. Tanya Das)	<b>Project (DST sponsored):</b> Evaluation of anti-cancer properties of plant polyphenols using human breast cancer cell lines.

## Research Interests

- Molecular mechanism of neurodegeneration, neuroinflammation and synaptic transmission.
- Identification of novel clinical biomarker using mass spectrometry and immunoassay for prognosis and diagnosis of neurodegenerative and psychiatric diseases.
- Development of natural product derived or synthetic peptide-based therapeutics targeting molecular pathways involved in neurodegeneration and synaptic transmission.

## Scientific Collaborations

- Prof. David Klenerman, Professor, Dept. of Chemistry, University of Cambridge, UK
- Dr. Tammarny Lashley, Associate Professor, UCL Queen Square Institute of Neurology, UK
- Prof. Kaj Blennow, Professor, Dept. of Psychiatry and Neurochemistry, University of Gothenburg, Sweden
- Prof. Subrata Pal, Professor, Dept. of Life Science and Biotechnology, Jadavpur University, Kolkata, India
- Dr. Subhash Chandra Biswas, Principal Scientist, CSIR-Indian Institute of Chemical Biology, Kolkata, India

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## Expertise Developed

- **Mass spectrometry:** Hands-on expertise in MALDI-TOF and Q-Exactive Hybrid Quadrupole-Orbitrap mass spectrometers (coupled with nanoflow and microflow LC). In depth knowledge of Parallel Reaction Monitoring and proteomics data analysis using Proteome Discoverer, Xcalibur and Pinpoint softwares.
- **Handling human clinical samples:** Experimental analysis, documentation, stock maintenance of postmortem brain, cerebrospinal fluid and blood.
- **Protein analysis:** Extensive knowledge of protein purification, characterization and enzyme assays using various state of the art techniques particularly immunoprecipitation, chromatography, UV visible and fluorescence spectroscopy, surface plasmon resonance, atomic force microscopy, electron microscopy, confocal microscopy, 1- and 2-D polyacrylamide gel electrophoresis, isoelectric focusing, fluorescent labelling of cellular proteins, dot and western blotting, ELISA, FACS etc.
- **DNA, RNA analysis:** Identification of viral DNA/RNA in clinical samples, studying protein-DNA interaction and gene regulation using qRT-PCR.
- **Mammalian cell culture:** Hand-on experience on culturing human cell lines, particularly neuroblastoma, hepatic, kidney, lung cancer and leukemia cells.
- **Solid Phase Peptide Synthesis:** Synthesized peptides using Fmoc chemistry.
- **Independent research:** Received three year fund from CSIR as a project investigator (PI). A proposal submitted as PI to the SERB Start-Up-Research grant was approved, but couldn't be activated due to contractual position in a new host institute.
- **Team player:** Worked as a member of a global consortium for development of clinical biomarker for Parkinson's disease funded by The Michael J. Fox Foundation (MJFF) for Parkinson's Research, USA.
- **Key strengths:** Scientific concept, study designing and execution, time and resource management, flexibility, setting and meeting goals.

## Teaching Experience as Guest Faculty

<b>2022- Present</b>	Guest lecturer at S. N. Pradhan Centre for Neurosciences, University of Calcutta.
<b>2017-2018</b>	Guest lecturer at Dept. of Zoology, West Bengal State University.
<b>2011-2013</b>	Laboratory instructor of M.Pharm students of National Institute of Pharmaceutical Education and Research (NIPER, Kolkata).
<b>2011-2014</b>	Guest lecturer at Post Graduate classes, Microbiology Div., Vijaygarh Jyotish Ray College, University of Calcutta.
<b>2008-2015</b>	Supervised seven postgraduate students in biochemistry lab courses.

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## Awards/Recognitions

- i. Selected as group leader to present a project on 'Emerging health threats' at Sciathon 2021 global competition conducted by Lindau Nobel Laureate Council.
- ii. Awarded CSIR-Senior Research Associate (Scientists' pool scheme) fellowship (from 2019).
- iii. Invited as an alumni of Lindau Nobel Laureate meeting, 2017 in an alumni meeting conducted by German Research Foundation (DFG) at New Delhi, India.
- iv. Awarded post-doctoral fellowship (2015-2017) by The Michael J. Fox Foundation (MJFF) for Parkinson's Research, USA for working in a joint consortium in Sweden.
- v. Recipient of scholarship from Department of Science and Technology, India (DST) and German Research Foundation (DFG) as young scientist to participate in the 64<sup>th</sup> Nobel Laureate meeting in the field of Medicine and Physiology in 2014 at Lindau and visit to different laboratories in Germany.
- vi. Received Dr. S. Gunasekharan award by Indian Spectro-Physics Association (ISPA) in 2014.
- vii. Awarded travel grant by The International Society for Neurochemistry (ISN) and the American Society for Neurochemistry (ASN) to present a poster at 24<sup>th</sup> ISN-ASN biennial meeting in 2013 at Cancun, Mexico.
- viii. Awarded travel fund by The Society for BioChromatography and Nanoseparations (SBCN) for delivering a lecture at 13<sup>th</sup> International meeting in 2012 at Bordeaux, France.
- ix. Awarded second prize for oral presentation in 1st National Conference on Animal, Microbial, Plant Toxins and Snakebite Management (AMPTOX) in Kolkata, India.
- x. Qualified Council of Scientific and Industrial Research-University Grants Commission (CSIR-UGC) National Eligibility Test (2008) and awarded Junior Research Fellowship in 2009.
- xi. Qualified Graduate Aptitude Test in Engineering (GATE) conducted by Indian Institute of Technology (IIT) in 2008 with rank- 250, percentile score - 98.11.
- xii. Often sought as reviewer for examining research papers for Toxicon, Elsevier; Toxicology Reports, Elsevier; Journal of Medicinal Plant Research, Academic Journals; African Journal of Microbiology Research, Academic Journals.

## Memberships

Indian Lindau Nobel Laureate Meeting Alumni, Indo German Convention of Lindau Alumni,  
Life member of Indian Academy of Neurosciences and Toxinological Society of India,  
Member of Swedish Medical Society, American Society for Mass Spectrometry and International Society for Neurochemistry

## Scientific Publications:

(<https://scholar.google.com/citations?user=Ranzb3MAAAAJ&hl=en>)

### Research articles:

1. Margarida Rodrigues, **Payel Bhattacharjee**, Ann Brinkmalm, Dung Do, Colin Pearson, Suman De, Aleks Ponjavic, Juan Varela, Francesco Ruggeri, Isabelle Baudrexel, Ji Lee, Alexander Carr, Klara Kulenkampff, Tuomas Knowles, Henrik Zetterberg, Thomas Snaddon, Sonia Gandhi, Steven Lee, and David Klenerman<sup>#</sup>. Structure specific amyloid precipitation in biofluids. **Nature Chemistry**, 2022, 14, 1045–1053. (<https://doi.org/10.1038/s41557-022-00976-3>)
2. Debashree De\*, **Payel Bhattacharjee**\*, Hrishita Das, Karri Suresh Kumar, Subhas Chandra Biswas, Debasish Bhattacharyya<sup>#</sup>. Destabilization of  $\beta$ -amyloid aggregates by thrombin derived peptide: plausible role of thrombin in neuroprotection. **The FEBS Journal**, 2020, 287, 2386-2413. (doi: 10.1111/FEBS.15149) (\* denotes equal contribution; Impact factor: 4.73)
3. **Payel Bhattacharjee**, Annika Öhrfelt, Tammarny Lashley, Kaj Blennow, Ann Brinkmalm, Henrik Zetterberg<sup>#</sup>. Mass spectrometric analysis of Lewy body-enriched  $\alpha$ -synuclein in Parkinson's disease. **Journal of Proteome Research**, 2019, 18, 2109-2120. doi: 10.1021/acs.jproteome.8b00982. (Impact Factor: 4.26)
4. Ann Brinkmalm, Annika Öhrfelt, **Payel Bhattacharjee**, Henrik Zetterberg<sup>#</sup>. Detection of  $\alpha$ -synuclein in biological samples using mass spectrometry. **Methods in Molecular Biology**, 2019, 1948, 209-220. doi: 10.1007/978-1-4939-9124-2\_16. (Impact Factor: 10.2)
5. **Payel Bhattacharjee**, Debashree De, Debasish Bhattacharyya<sup>#</sup>. Degradation of fibrin- $\beta$  amyloid co-aggregate: A novel function attributed to ubiquitin. **BBA - Molecular Cell Research**, 2018, 1865, 1465-1478. doi.org/10.1016/j.bbamcr.2018.07.012 (Impact Factor: 5.2)
6. Debratna Mukherjee, **Payel Bhattacharjee**, Reema Bhattacharya, Alok K. Datta, Debasish Bhattacharyya<sup>#</sup>. Degraded products of stem bromelain destabilize aggregates of  $\beta$ - amyloid peptides responsible for Alzheimer's disease. **Current Science**, 2018, 115, 2133- 2141. doi: 10.18520/cs/v115/i11/2130-2133 (Impact Factor: 0.88)
7. **Payel Bhattacharjee**<sup>#</sup>, Indrani Bera, Subhamoy Chakraborty, Nanda Ghoshal, Debasish Bhattacharyya. Aristolochic acid and its derivatives as inhibitors of snake venom L- amino acid oxidase. **Toxicon**, 2017, 138, 1-17. doi: 10.1016/j.toxicon.2017.08.003 (Impact Factor: 2.61)
8. **Payel Bhattacharjee**, Debasish Bhattacharyya<sup>#</sup>. An enzyme from *Aristolochia indica* destabilizes fibrin- $\beta$  amyloid co-aggregate: implication in cerebrovascular diseases. **PLoS One**, 2015, 10, e0141986. doi: 10.1371/journal.pone.0141986. (Impact Factor: 4.41).

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9. **Payel Bhattacharjee**, Debasish Bhattacharyya#. Factor V activator from *Daboia russelli russelli* venom destabilize  $\beta$ -amyloid aggregate, the hallmark of Alzheimer disease. **Journal of Biological Chemistry**, 2013, 288, 30559- 30570. doi: 10.1074/jbc.M113.511410 (With citation of cover image, cited in Science and Business Exchange, Nature Publishing Group, SciBX 6(38); doi:10.1038/scibx.2013.1066, Published online Oct. 3 2013). (Impact Factor: 4.0)
10. **Payel Bhattacharjee**, Debasish Bhattacharyya#. Characterization of the aqueous extract of the root of *Aristolochia indica*: Evaluation of its traditional use as an antidote for snake bites. **Journal of Ethnopharmacology**, 2013, 145, 220–226. doi: 10.1016/j.jep.2012.10.056. (Impact Factor: 3.9)
11. Gargi Maity, Somnath Mandal, **Payel Bhattacharjee**, Debasish Bhattacharyya#. Thermal detoxification of the venom from *Daboia russelli russelli* of Eastern India with restoration of fibrinolytic activity. **Toxicon**, 2011, 57, 747-754. doi:10.1016/j.toxicon.2011.02.008. (Impact Factor: 2.61)

## Book Chapters:

1. **Payel Bhattacharjee**, Jyotirmoy Mitra, Debasish Bhattacharyya#. L-Amino Acid Oxidase from venoms. In: Toxins and Drug Discovery. Gopalakrishnakone P., Cruz L., Luo S. (Eds). Toxinology. Springer, Dordrecht, 2017, pp 295-320. ISBN 978-94-007-6451-4.
2. **Payel Bhattacharjee**, Debasish Bhattacharyya#. An insight into the abnormal fibrin clots: its pathophysiological roles. In: Fibrinolysis and Thrombolysis. Kolev K. (Ed.) InTech, Croatia University Press, Croatia, 2014, Chapter 1, pp 3-29. ISBN 978-953-51-1265-5.

## Review Articles:

1. Debabrata Ghosh Dastidar\*, Payel Bhattacharjee, Pratyush Das, Bachaspati Jana and Anirban Bhunia. Yoga and Meditation in the Treatment of Neurological and Psychiatric Disorders, Current Traditional Medicine 2024; 10: e101023221983. <https://dx.doi.org/10.2174/0122150838246321231003015837> (Ahead of print)
2. **Payel Bhattacharjee**, Debasish Bhattacharyya#. Therapeutic use of snake venom components: a voyage from ancient to modern India. **Mini-Reviews in Organic Chemistry**, 2014, 11, 45-54. doi: 10.2174/1570193X1101140402101043. (Impact Factor: 1.07)
3. **Payel Bhattacharjee**, Debasish Bhattacharyya#. Medicinal plants as snake venom antidotes. **Journal of Experimental and Applied Animal Sciences**, 2013, 1, 156-181.

## Papers in conference proceedings:

1. **Payel Bhattacharjee**, Debasish Bhattacharyya#. 2013. Enzymes from *Aristolochia indica* inhibit co-aggregation of fibrinogen-Abeta40: an implication in neurovascular diseases: PTW08-07. **Journal of Neurochemistry**. 125 SUPP.1:242.

## Participation/ Presentations in International / National Symposia / Conferences / Workshops:

- 2022** Attended training program on the 'application of ultramicrotomy and electron microscopy in clinical diagnosis' from 26<sup>th</sup>-29<sup>th</sup> September 2022 held at MRU, IPGME&R, Kolkata.
- Oral presentation: "Development of a synthetic peptide-based immunoassay for quantification of amyloid-beta 42 oligomers in plasma from Alzheimer's disease patients." at 18<sup>th</sup> Asian Oceanian Congress of Neurology (AOCN) and 29<sup>th</sup> Annual conference of the Indian Academy of Neurology (IANCON) from 3<sup>rd</sup> – 6<sup>th</sup> November 2022 in New Delhi, India.
- 2021** Invited presentation: "Insight into the brain: The role of protein biomarkers in understanding neurodegenerative and psychiatric disorders." at 7<sup>th</sup> Indo-German Convention of Lindau Alumni (IGCLA) held annually at KMC, Manipal.
- 2017** Poster presentation: "Identification of truncated forms of  $\alpha$ -synuclein using mass spectrometry: a strategy towards development of biomarker for Parkinson's disease." at 13<sup>th</sup> International Conference on Alzheimer's and Parkinson's Diseases and Related Neurological Disorders (ADPD 2017) in Vienna, Austria.
- 2017** Neuropathology workshop at 13<sup>th</sup> International Conference on Alzheimer's and Parkinson's Diseases and Related Neurological Disorders (ADPD 2017) in Vienna, Austria.
- 2016** Workshop on Proteomics at 15<sup>th</sup> annual Swedish Proteomics Society meeting in Sweden.
- 2016** Workshop on Peptides and Proteins in Mass Spectrometry at 64<sup>th</sup> Annual conference of American Society for Mass Spectrometry at San Antonio, TX, USA.
- 2016** Poster presentation: "Identification of pathological  $\alpha$ -synuclein forms in brain extracts from patients with Parkinson's disease by selected reaction monitoring." at 64<sup>th</sup> Annual conference of American Society for Mass Spectrometry in San Antonio, TX, USA.
- 2016** Workshop on CSF biomarker and neuropathology at 1st meeting of the Society for CSF analysis and clinical neurochemistry at Gothenburg, Sweden.
- 2014** Young scientist participant at 64<sup>th</sup> Nobel Laureate meeting in the field of medicine and physiology at Lindau, Germany.
- 2014** Poster presentation: "Non-toxic derivatives of aristolochic acid as inhibitors of snake venom L-amino acid oxidase" at 4<sup>th</sup> Annual Conference of Toxinological Society of India in Kolkata, India.
- 2013** Poster presentation: "Enzymes from *Aristolochia indica* inhibit co-aggregation of fibrinogen-A $\beta$ 42: an implication in neurovascular diseases." at 24<sup>th</sup> Biennial Meeting of ISN-ASN at Cancun, Mexico.
- 2013** Oral presentation: "Enzymes from *Aristolochia indica* inhibit co-aggregation of fibrinogen-

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Aß42". International Conference on Neurodegenerative and Neurodevelopmental Disorders: Translational Aspect organized by Institute of Post Graduate Medical Education and Research in Kolkata, India.

- 2012 Invited oral presentation: "Chromatographic and proteomic-based approach to isolate a group of novel fibrinolytic enzymes from *Aristolochia indica*." at 13<sup>th</sup> International meeting of SBCN at Bordeaux, France.
- 2012 Poster presentation: "Partial characterization of the aqueous extract of the root of *Aristolochia indica* used as snake venom antidote." at 12<sup>th</sup> International Congress of Ethnopharmacology in Kolkata, India.
- 2012 Oral presentation: "Destabilization of  $\beta$ -amyloid aggregates by Factor V activator from *Daboia russelli russelli* (Russell's viper) venom". Neuro Update organized jointly by University of Calcutta, Calcutta Medical College and CSIR-IICB in Kolkata, India.
- 2012 Oral presentation: "Studies on amyloid aggregation and its destabilization by natural product or their derivatives using biophysical techniques". National conference on recent advances in applied sciences and Annual meeting of Indian Spectrophysics Association (ISPA) in Chennai, India.
- 2010 Oral presentation: "Isolation of protein component from Russell's viper venom that destabilizes  $\beta$ -amyloid aggregate *in vitro*." 12<sup>th</sup> International meeting of SBCN at Lyon, France.
- 2010 Oral presentation: "Partial characterization of a protease from the medicinal plant *Aristolochia indica*." National seminar on Scope and Recent Development of Natural Products in Tripura, India.
- 2010 Oral presentation: "Isolation and purification of Factor V activator from Russell's viper venom that destabilize  $\beta$ -amyloid aggregate *in vitro*." 1st National Conference on Animal, Microbial, Plant Toxins and Snakebite Management (AMPTOX) in Kolkata, India.
- 2010 Workshop on proteomics at PSI Seminar Series at Saha Institute of Nuclear Physics (SINP), Kolkata, India.

## HANDS-ON WORKSHOPS ORGANIZED

1. Molecular techniques in Oncopathology on February 15-16, 2023 at IPGME&R, Kolkata.
2. Flow Cytometer: an important tool in Research and Clinical Practice on August 18-19, 2023 at MRU, IPGME&R, Kolkata.

## LANGUAGE SKILLS

Bengali, English (writing, reading, speaking); Hindi (reading, speaking), Basic Swedish



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## REFERENCES

**Dr. Debasish Bhattacharyya (Ph.D. Supervisor)**

Former Chief Scientist,  
Division of Structural Biology and Bioinformatics,  
CSIR-Indian Institute of Chemical Biology, Kolkata, India  
Former DBT Visiting Research Professor,  
Tripura University, Agartala, Tripura, India  
Email: [dbhattacharyya1957@gmail.com](mailto:dbhattacharyya1957@gmail.com)

**Prof. Siddhartha Roy (Mentor for CSIR-SRA fellowship)**

J.C. Bose Fellow, Former Distinguished Centenary Professor and S.N. De Chair,  
Former Director, Bose Institute, Kolkata, India Former Director,  
CSIR-Indian Institute of Chemical Biology, Kolkata, India  
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**Dr. Ann Brinkmalm Westman**

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Department of Psychiatry and Neurochemistry,  
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**Prof. Henrik Zetterberg (Mentor for post-doctoral research)**

Head of the Department of Psychiatry and Neurochemistry,  
Senior Consultant in Clinical Chemistry, Sahlgrenska Academy,  
University of Gothenburg, Sweden  
Professor of Neurochemistry Department of Molecular Neuroscience UCL  
Institute of Neurology, UK  
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**Prof. Gautam Basu**

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**Dr. Syamal Roy**

J.C. Bose Fellow, Department of Science and Technology, Govt. of India,  
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