

# MAITRAYEE DASGUPTA

## JC BOSE NATIONAL FELLOW

Professor, Department of Biochemistry

University of Calcutta , WB India

Email address: [maitrayee\\_d@hotmail.com](mailto:maitrayee_d@hotmail.com), [mdgbiochem@caluniv.ac.in](mailto:mdgbiochem@caluniv.ac.in)

Phone no 9830776131



[Maitrayee DasGupta \(0000-0002-7260-3746\) \(orcid.org\)](https://orcid.org/0000-0002-7260-3746)

[DasGupta, Maitrayee - Author details - Scopus](#)

**SPECIALISATION:** Molecular Cell Biology

**RESEARCH QUESTION:** Probing the molecular innovations that drove the origin of intracellular symbiotic N<sub>2</sub>-fixation in a monophyletic clade within angiosperms

### EDUCATION AND TRAINING:

BSc in Chemistry, Bethune College, Calcutta University

MSc in Biochemistry, Calcutta University (Gold Medalist)

PhD in Biochemistry under Prof BB Biswas Bose Institute, Kolkata

Post-Doctoral Training under Prof DK Blumenthal in Univ of Texas Medical Center Tyler USA

### AWARDS/ RECOGNITIONS/YEAR

- IS Bhatia memorial award SBC 2020
- JC Bose National Fellow, DST 2019
- FNA, Fellow of Indian National Science Academy, Delhi, 2019
- FASc, Fellow of Indian Science Academy, Bangalore, 2018
- Women in Science, CEFIPRA 2018
- TWAS visiting expert award, 2018
- FWAST, Fellow of West Bengal Science Academy, 2016
- Prof. Archana Sharma Memorial Award, Indian Science Congress Association, 2015
- Fulbright-Nehru Award, USIEF 2010
- FNASc, Fellow of National Academy of Sciences, Allahabad, 2010
- GRC, Member of the Guha Research Conference, 2005
- Biotechnology Overseas Associateship Award, DBT, Govt. of India, 2002
- Gold Medal for ranking First in First Class, Biochemistry, Calcutta University, 1982

### TEACHING IN DEPARTMENT OF BIOCHEMISTRY, CALCUTTA UNIVERSITY

Cell biology 1994 onwards

Immunology 1994-2001

Self-NonSelf Recognition 2010-2017

Plant Biochemistry 1994 onwards

Epigenetics 2001-2017

Carbohydrate Structure 2017-

## **POSITIONS HELD/ HOLDING 1994- present**

### **Independent Scientist**

- DST, Young Scientist, Dept of Biophysics Delhi University, 1992-1994
- DST, Young Scientist, Indian Institute of Chemical Biology, Kolkata 1994

### **Within Calcutta University**

- Faculty member of Dept of Biochemistry, CU 1994 onwards and Professor 2010 onwards
- Convenor, PhD Committee , Department of Biochemistry, CU 2015 onwards
- HOD in Dept of Biochemistry, Calcutta University, 2010-2012, 2015-2017
- Coordinator, DBT Interdisciplinary Program on Life Sciences for CU 2010-2017

### **PhD Committees/ Research Advisory Committees**

- Convenor, Department of Biochemistry, CU 2015 onwards
- Member, WB State University 2018 onwards
- Member, Presidency University, 2020 onwards

### **National/State Program Advisory Committees (PAC)**

- Core Member, PAC for Organismal and Evolutionary Biology, DST, Govt of India 2018 onwards
- Core member, PAC for POWER program, DST Govt of India 2022 onwards
- Core Member, PAC for Plant Science, DST Govt of India, 2015-2018
- Member of Screening Committee for Power program, DST Govt of India 2021
- Member of Screening Committee for SUPRA program, DST Govt of India 2021
- Member of Brain Storming meeting in Life Science, DST SERB, GOI 2018
- Member in WDBBT (State) PAC 2015-2018
- Member in PAC for Agricultural Biotechnology, DBT, Govt of India for 2016, 2017
- Member of National DBT Builder Programs evaluation committee 2012

### **Science Academies**

- Convenor, Plant Science Sectional Committee, West Bengal Science Academy 2021 onwards
- Member of Indian Academy of Sciences Sectional Committee on Plant Science 2019 onwards
- Member of Indian National Science Academy Sectional Committee on Plant Science 2020
- Member of West Bengal Academy, Sectional Committee, Plant Science division, 2016-2020

### **Editor**

- Senior Editor in Molecular Plant Microbe Interactions 2021 Onwards  
*Published by The American Phytopathological Society in cooperation with the International Society for Molecular Plant-Microbe Interactions*
- Editor in Special issue on Molecular and Cellular Mechanisms of the Legume-Rhizobia Symbiosis, Volume II Frontiers in Plant Science 2022

### **Miscellaneous**

- Executive Committee member, Science City Kolkata 2020 onwards
- Member of Governing Body, Netaji Nagar College, Kolkata 2020 onwards
- Member of CSIR SRF/RA Selection Committee Meeting 2011 & 2012
- Member, DBT Nominee of Biosafety committee WBSU and CU 2012
- Member of screening committee for Fulbright fellowship USIEF Kolkata, 2011
- Expert in Faculty and Scholar Selection/Evaluation Committees for Universities/Institutes.
- Served as Member of Board of Studies, (i) Bose Institute Integrated PhD Course , (ii) St Xaviers College Dept of Biotechnology, and Microbiology (iii) Dept of Genetics , CU (iv) Dept of Biotechnology Heritage University

## EXTRA MURAL RESEARCH PROJECTS

### ONGOING

Title	Funding Agency/ Year	International/National
Mechanism of crack entry adapted root nodule symbiosis	CEFIPRA 2020-2023	INDO-FRENCH

### COMPLETED

Title	Funding Agency/ Year	International/National
Investigating the signaling pathway that triggers nodule organogenesis in crack invasion legume <i>Arachis hypogaea</i> and developing a minimal trigger for the same	DST-SERB 2017-2020	National
Coordinator : DBT Builder Program for Interdisciplinary life science research Calcutta University	DBT 2010 -2017	National
India-UK Nitrogen fixation centre (IUNFC), A multi-institutional project with OXFORD University, UK	Newton-Bhaba 2016-2019	INDO-UK
Decipher the symbiotic program in tropical legumes	CEFIPRA 2014-2017	INDO-FRENCH
Symbiotic interaction between a basal legume <i>Arachis hypogaea</i> and its cognate Bradyrhizobia	DBT-CEIB 2010-2016	Centre of Excellence DBT GOI
Investigating Molecular Principles of Species interaction in Rhizosphere: Biochemical and Meta genomic Approaches	UGC-UPE 2007-2012	National
Investigating the role of CCaMK (Ca <sup>2+</sup> /calmodulin-dependent protein kinase) in nodule formation of <i>Arachis</i>	DST-SERB 2009-2012	National
Investigating The Role Of Light Harvesting Complex II (LHCII) Phosphorylation In Photosynthetic Light Harvest	DAE :2009-2012	National
Identification of the substrate for a calmodulin like domain protein kinase (AHCCK2, GI 67479988) of <i>Arachis hypogaea</i>	CSIR : 2007-2010	National
Identification of the substrate for a stress responsive calcium dependent protein kinase in <i>Arachis hypogaea</i>	CSIR : 2006-2009	National
Investigating the early signaling events mediating auxin dependent Abiotic stress tolerance in groundnut plant	DBT: 2005-2008	National
Molecular mechanism of auxin dependent stress tolerance in plants using an <i>Arachis hypogaea</i> cell suspension culture	DST-SERB: 2004-2007	National
Investigating the role of LHCII kinases in regulating photosynthetic light harvest	DAE: 2004-2007	National
Characterising a nuclear localising sequence (NLS), present in a CDPK of <i>Arachis hypogaea</i>	CSIR: 2003-2007	National
Identification of protein kinases and phosphoproteins as molecular markers and /or Determinants of embryogenicity in a plant somatic cell	DBT : 2000-2003	National
Investigating the organisation of a CDPK (calcium dependent protein kinase) gene in groundnut ( <i>Arachis hypogaea</i> ) plant	CSIR: 1999-2002	National
Protein phosphorylation in regulating photosynthetic energy transfer	DAE: 1998-2001	National
Molecular cloning of the cDNA for a novel Ca <sup>2+</sup> dependent protein kinase from groundnut ( <i>Arachis hypogaea</i> )	CSIR: 1995-1999	National
Molecular mechanisms underlying Ca <sup>2+</sup> calmodulin dependence of a plant protein kinase	DST: 1992-1994	National

## LIST OF PUBLICATIONS

1. "Nod Factor- independent 'crack-entry' symbiosis in *Arachis hypogaea*". Sohini Guha, Firoz Molla, Monolina Sarkar Fernando, Ibañez, Adriana Fabra, and Maitrayee DasGupta. **Environmental Microbiology** (2022). <https://doi.org/10.1111/1462-2920.15888>
2. The Natural Antisense Transcript DONE40 Derived from the lncRNA ENOD40 Locus Interacts with SET Domain Protein ASHR3 During Inception of Symbiosis in *Arachis hypogaea*" Pritha Ganguly, Dipan Roy, Troyee Das, Anindya Kundu, Fabienne Cartieaux, Zhumur Ghosh, and Maitrayee DasGupta. **Molecular Plant Microbe Interaction** <https://doi.org/10.1094/MPMI-12-20-0357-R> Editors Pick Sept 2021
3. Turanose induced WOX5 restores symbiosis in the *Medicago truncatula* cytokinin perception mutant *cre1*. **Maitrayee DasGupta**, Anindya Kundu, Firoz Molla. bioRxiv 830661 2020  
doi: <https://doi.org/10.1101/830661>
4. Molecular Basis of Root Nodule Symbiosis between Bradyrhizobium and 'Crack-Entry' Legume Groundnut (*Arachis hypogaea* L.) Sharma, V and Bhattacharyya, S and Kumar, R and Kumar, A and Ibañez, F and Wang, J and Guo, B and Sudini, H K and Gopalakrishnan, S and **DasGupta, M** and Varshney, R K and Pandey **Plants** 2020, 9, 276; <https://doi:10.3390/plants9020276>
5. Gatekeeper–Activation Loop Cross-Talk Determines Distinct Autoactivation States of Symbiosis Receptor Kinase Bhattacharya A, Paul A, Chakrabarti D, **DasGupta M** **Biochemistry** 2019, 58, 19, 2419–2431  
<https://doi.org/10.1021/acs.biochem.9b00071>
6. Functional conservation of CYCLOPS in crack entry legume *Arachis hypogaea* Das D R, Horváth B, Kundu A, Kaló P, **DasGupta M** **Plant Science Journal** (2018), <https://doi.org/10.1016/j.plantsci.2018.12.003>
7. \*Transcriptomic analysis with the progress of symbiosis in 'crack-entry' legume *Arachis hypogaea* highlights its contrast with 'infection thread' adapted legumes Karmakar K, Kundu A, Rizvi A Z, Dubois E, Severac D, Czernic P, Cartieaux F, DasGupta M **Molecular Plant Microbe Interaction** (2018),  
<https://doi:10.1094/MPMI-06-18-0174-R>  
Cover page article \*\* has been selected to appear in the new cover design for the MPMI journal. to be launched in January 2021 and will remain on the cover for the entire year.
8. Transcriptome Profiles of Nod Factor-independent Symbiosis in the Tropical Legume *Aeschynomene evenia* Gully D, Czernic P, Cruveiller S, Mahé F, Longin C, Vallenet D, François P, Nidelet S, Rialle S, Giraud E, Arrighi J F, **DasGupta M**, Cartieaux F **Scientific Reports** (2018), Volume 8, Article number: 10934 <https://doi.org/10.1038/s41598-018-29301-0>
9. A phylogenetic framework of the legume genus *Aeschynomene* for comparative genetic analysis of the Nod-dependent and Nod-independent symbioses Brottier L, Chaintreuil C, Simion P, Scornavacca C, Rivallan R, Mournet P, Moulin L, Lewis G P, Fardoux J, Brown S C, Gomez-Pacheco M, Bourges M, Hervouet C, Gueye M, Duponnois R, Ramanankierana H, Randriambanona H, Vandrot H, Zabaleta M, **DasGupta M**, D'Hont A, Giraud E Arrighi J F **BMC Plant Biology** (2018), 18:333 <https://doi.org/10.1186/s12870-018-1567-z>
10. p53 gain-of-function mutations increase Cdc7-dependent replication initiation. Datta A, Ghatak D, Das S, Banerjee T, Paul A, Butti R, Gorain M, Ghuwalewala S, Roychowdhury A, Alam SK, Das P, Chatterjee R, **Dasgupta M**, Panda CK, Kundu GC, Roychowdhury S. **EMBO Reports** (2017), Volume 18, Issue 11: 2030-2050 <https://doi.org/10.15252/embr.201643347>
11. Silencing of putative cytokinin receptor Histidine Kinase1 inhibits both inception and differentiation of root nodules in *Arachis*. Kundu A and **DasGupta M** **Molecular Plant Microbe Interaction** (2017) 31(2): 187-199 <https:// DOI: 10.1094/MPMI-06-17-0144-R>

12. Segregation of nod-containing and nod-deficient bradyrhizobia as endosymbionts of *Arachis hypogaea* and as endophytes of *Oryza sativa* in intercropped fields of Bengal Basin, India. Guha S, Sarkar M, Ganguly P, Uddin MR, Mandal S, **DasGupta M**. *Environmental Microbiology* (2016) 18(8):2575-90. <https://doi.org/10.1111/1462-2920.13348>
13. Gatekeeper Tyrosine Phosphorylation of SYMRK Is Essential for Synchronizing the Epidermal and Cortical Responses in Root Nodule Symbiosis. Saha S, Paul A, Herring L, Dutta A, Bhattacharya A, Samaddar S, Goshe MB, **DasGupta M**. *Plant Physiology* (2016) 171(1):71-81 <https://DOI:10.1104/pp.15.01962>
14. Does SUNN-SYMRK Crosstalk occur in *Medicago truncatula* for regulating nodule organogenesis? Saha S, **DasGupta M**. *Plant Signal Behaviour*. (2015) 10(9):e1028703. doi: [10.1080/15592324.2015.1028703](https://doi.org/10.1080/15592324.2015.1028703)
15. Static magnetic field (SMF) sensing of the P(723)/P(689) photosynthetic complex. Bhattacharya A, Chakraborty M, Raja SO, Ghosh A, **Dasgupta M**, Dasgupta AK. *Photochem Photobiol Science* (2014) 13(12):1719-29. <https://doi.org/10.1039/C4PP00295D>
16. Intracellular catalytic domain of symbiosis receptor kinase hyperactivates spontaneous nodulation in absence of rhizobia. Saha S, Dutta A, Bhattacharya A, **DasGupta M**. *Plant Physiology*. (2014) 166(4):1699-708. <https://doi.org/10.1104/pp.114.250084>
17. Trans-thylakoid  $\Delta$ pH dependent oscillation of F(PSI)/F(PSII) under continuous irradiance in isolated thylakoids. Sen K, Ghosh A, Chakraborty M, Maity S, Ghosh S, **DasGupta M**. *Journal of Bioenergetics & Biomembranes*. (2014) 46(1): 71-82 <https://doi.org/10.1007/s10863-013-9533-9>
18. Gatekeeper tyrosine phosphorylation is autoinhibitory for Symbiosis Receptor Kinase. Paul A, Samaddar S, Bhattacharya A, Banerjee A, Das A, Chakrabarti S, **DasGupta M**. *FEBS Letter*. (2014) 25;588(17):2881-9. [10.1016/j.febslet.2014.06.056](https://doi.org/10.1016/j.febslet.2014.06.056)
19. Autophosphorylation of gatekeeper tyrosine by symbiosis receptor kinase. Samaddar S, Dutta A, Sinharoy S, Paul A, Bhattacharya A, Saha S, Chien KY, Goshe MB, **DasGupta M**. *FEBS Letter*. (2013) 17;587(18):2972-9. <https://doi.org/10.1016/j.febslet.2013.07.050>
20. RNA interference highlights the role of CCaMK in dissemination of endosymbionts III the Aeschynomeneae legume *Arachis* Sinharoy Sand **DasGupta M** *Molecular Plant Microbe Interaction* (2009) 22( 11): 1466-75 DOI: [10.1094/MPMI-22-11-1466](https://doi.org/10.1094/MPMI-22-11-1466)
21. Transformed hairy roots of *Arachis* a tool for studying root nodule symbiosis in a non-infection thread legume of the Aeschynomeneae tribe Sinharoy S, Saha S, Chaudhury SR, and **DasGupta M** *Molecular Plant Microbe Interaction* (2009) 22(2) : 132-42 <http://dx.doi.org/10.1094/MPMI-22-2-0132>
22. Domain analysis of a groundnut CDPK: nuclear localization sequence in the junction domain is coupled with non-consensus calcium binding domains Raichaudhuri A, Bhattacharyya R, Chaudhuri S, Chakrabarti P, and **DasGupta M** *Journal of Biological Chemistry* (2006) 281(15) : 10399-409 <https://www.jbc.org/content/281/15/10399.full>
23. Protein Turnover in Response to Transient Exposure to Exogenous Auxin is Necessary for Restoring Auxin Autotrophy in a Stressed *Arachis hypogaea* Cell Culture Nag R, Maity M, Seal A, Hazra A and **DasGupta M** *Plant Cell Tissue and Organ Culture* (2006) 84: 17-26 <https://doi.org/10.1007/s11240-005-6902-z>

24. Dual DNA binding property of ABA insensitive 3 like factors targeted to promoters responsive to ABA and auxin. Nag R, Maity MK, and **DasGupta M** *Plant Molecular Biology* (2005) 59(5):821-38 DOI: [10.1007/s11103-005-1387-z](https://doi.org/10.1007/s11103-005-1387-z)
25. Phosphorylation-dephosphorylation of light-harvesting complex II as a response to variation in irradiance is thiol sensitive and thylakoid sufficient: modulation of the sensitivity of the phenomenon by a peripheral component. Hazra A, and **DasGupta M** *Biochemistry* (2003) 42(50): 14868-76 DOI: [10.1021/bi0351458](https://doi.org/10.1021/bi0351458)
26. Exogenous auxin depletion renders an *Arachis hypogea* suspension culture sensitive to water loss without affecting cell growth Seal A, Hazra A, Nag R, Chaudhuri S, and **DasGupta M** *Plant Cell reports* (2001) 20, 567-573 <https://doi.org/10.1007/s002990100359>
27. Autophosphorylation-Dependent Activation of a Calcium-Dependent Protein Kinase from Groundnut Chaudhuri S, Seal A, and **DasGupta M** *Plant Physiology* (1999) 120:859-866 doi: [10.1104/pp.120.3.859](https://doi.org/10.1104/pp.120.3.859)
28. Antipeptide antibodies as probes of subunits-dependent structural changes in the regulatory domain of the  $\gamma$ -subunit of phosphorylase kinase Wangsgard W, **DasGupta M** and Bluementhal DK *Biochem Biophys Res Com*(1997) 230(1) ,179-183 doi: [10.1006/bbrc.1996.5927](https://doi.org/10.1006/bbrc.1996.5927).
29. Activation and inhibition of phosphorylase kinase by monospecific antibodies raised against peptides from the regulatory domain of the  $\gamma$ -subunit. Wangsgard W, Meixell GE, **DasGupta M** and Bluementhal DK *Journal of Biological Chemistry*(1996) 271,35,21126-21133 DOI: [10.1074/jbc.271.35.21126](https://doi.org/10.1074/jbc.271.35.21126)
30. Characterisation of the regulatory domain of the  $\gamma$ -subunit of phosphorylase kinase. The two noncontiguous calmodulin binding subdomains are also autoinhibitory. **DasGupta M** and Bluementhal DK *Journal of Biological Chemistry*(1995) 270,38,22283-22289. doi: [10.1074/jbc.270.38.22283](https://doi.org/10.1074/jbc.270.38.22283).
31. Characterization of a calcium dependent protein kinase from groundnut (*Arachis hypogaea*) seeds **DasGupta M** *Plant Physiology*(1994)104:961-969 DOI: <https://doi.org/10.1104/pp.104.3.961>
32. The  $\gamma$ -subunit of skeletal muscle phosphorylase kinase contains two non- contiguous domains that act in concert to bind calmodulin **DasGupta M**, Honeycutt T, Bluementhal DK *Journal of Biological Chemistry*(1989)270,38,22283-22289. <https://www.jbc.org/content/264/29/17156.full.pdf>
33. Regulation of synthesis of myo inositol-1-phosphate dehydrogenase during germination of mung bean seeds. **DasGupta M** and B.B.Biswas *Biochemistry International*(1998) 17,3,441-449

#### PATENTS :

- Artificial Photosynthesis-Thylakoid based cooling system Koel Sen, **Maitrayee DasGupta**, Santiswarup Sinha and Anjan Kumar Dasgupta IN 821243, **2012** Intellectual Venture. 3150 139th Ave SE Bellevue, WA 98005, USA
  - Photosystem mimicking cooler Koel Sen, **Maitrayee DasGupta**, Santiswarup Sinha and Anjan Kumar Dasgupta IN 814001, **2011** Intellectual Venture 3150 139th Ave SE Bellevue, WA 98005, USA
  - Process for induction of root nodules in plant independent of symbiotic bacterial influence Sudip Saha, Ayan Dutta, Anindita Paul, Avisek Bhattacharya and **Maitrayee DasGupta** Filed by DBT, GOI, **2016**
-

## INVITED LECTURES DELIVERED : 2010 ONWARDS

1. 'Nitrogen Fixing Symbiosis through an evolutionary lens' Colloquium SINP Kolkata July 2022
2. ENOD40-DONE40, a sense-antisense lncRNA pair is at the root of nodule organogenesis during rhizobia-legume symbiosis in APBNS-March 2022 at ICAR NIPB New Delhi
3. Evolution of Intracellular Symbiosis between Plants and Diazotrophs. NIPGR 8<sup>th</sup> March 2022
4. 'LandMark Discoveries in Biochemistry' Colloquium in Lady Brabourne College Sept 2021
5. 'Pearls of Wisdom' in a PhD Course Work address in Dept of Biochemistry CU Aug 2021
6. In search of tranquility within the corridors of Department of Biochemistry, Calcutta University' a reminiscing talk delivered in Alumni meet July 2021
7. 'Asking the right questions take as much skill as giving the right answers' in a grant application workshop for STARS program of DST Govt of India Dec 2020
8. Evolution of Nitrogen fixing root nodule symbiosis' for IS Bhatia Memorial Lecture Award SBC Dec 2020
9. "Women hold up half the sky" in "Contribution of women in science in India" in Prabhat Kumar College, Contai and Indian Science Congress Association, Kolkata Chapter, August 2020
10. 'A Roadmap toward Engineered Nitrogen-Fixing Root Nodule Symbiosis' in "Teaching, Research and Innovation In India: A Biologist's view" AMITY UNIVERSITY July 2020
11. The Chaos between the intention of becoming a scientist and being one' in Young Investigators Meeting organised by India Bioscience in Annual YIM meeting, Mahabalipuram Feb 2020
12. 'Challenges in extending N-fix Symbiosis beyond current host range' IACS Colloquium Jan 2020
13. 'Women in Science' in Lady Brabourne College, Kolkata Jan 2020
14. 'Finding the right question' in 'Crafting your career' by IndiaBioscience in Presidency College Sep 2019
15. 'Zooming into N fix symbiosis through gatekeeper lens of SYMRK' in IISER Kolkata July 2019
16. 'The Chaos between the intention of becoming a scientist and being one' in Young Investigators Meeting organised by IndiaBioscience in Presidency College Feb 2019
17. 'Biotechnological Solutions to the Nitrogen Problem' RC Surendranath College, Kolkata January 2019
18. 'Biotechnological Solutions to the Nitrogen Problem' RC Dept of Physiology CU January 2019
19. How a "double-lock" in Symbiosis Receptor Kinase regulates the inception of root nodule symbiosis Amity University, Gurgaon December 2018
20. *Bradyrhizobial invasion in legumes and nonlegumes*, ICAR-National Bureau of Agriculturally Important Microorganisms, Kushmaur, Mau, Uttar Pradesh, 13-14 November, 2018
21. 'Women in Science' 30<sup>th</sup> year celebration of CEFIPRA, Indo-French Seminar in CNRS Headquarters, Paris, France, 24 and 25 September, 2018

22. *Bradyrhizobial invasion in legumes and nonlegumes* 'Long-Look and review meeting of all four Indo-UK Virtual Joint Centers(VJCs) on Agricultural Nitrogen' ICRISAT, India, on August 30th & 31st, 2018
23. *Challenges in extending symbiotic nitrogen fixation beyond current host range* 29<sup>th</sup> Mid Year Meeting, Indian Academy of Sciences, Bengaluru in Infosys, Mysore Development Centre, Mysuru, June 2018
24. *SYMRK synchronises epidermal and cortical responses in root nodule symbiosis* INGEBI - CONICET Instituto de Investigaciones en Ingeniería Genética y Biología Molecular "Dr. Héctor N. Torres" Vuelta de Obligado 2490 - C1428ADN Buenos Aires – Argentina, February 2018
25. *An insight into peanut- bradyrhizobia interaction* Universidad Nacional de Rio Cuarto, Facultad de ciencias Exactas, Fisico-quimicas y naturales, Departamento de ciencias Naturales, Rio Cuarto Cordoba ARGENTINA February 2018
26. *Looks like 'Gatekeepers' are 'Decision markers' for Plant Receptor Kinases.* NIPGR February 2018
27. *Biotechnological solutions to the Nitrogen Problem* RC in Dept of Biotechnology, CU November 2017
28. *Bradyrhizobial invasion in legumes vs nonlegumes.* Univ of Oxford, Dept of Plant Science, Sept 2017
29. *SYMRK Synchronises Epidermal And Cortical Responses in Root Nodule Symbiosis* International Symposium on INSIGHT TO PLANT BIOLOGY IN THE MODERN ERA Bose Institute, February 2017
30. *Significance of gatekeeper residues in protein kinase* Guha Research Conference, December 2016
31. *Role of (SYMRK) synchronizing Epidermal Cortical Responses in Root Nodule Symbiosis* Laboratoire des Symbioses Tropicales & Méditerranéennes (IRD), Montpellier, France November 2016
32. *Role of Symbiosis Receptor Kinase (SYMRK) synchronizing Epidermal Cortical Responses in Root Nodule Symbiosis* 12<sup>th</sup> European Nitrogen Fixation Conference, Budapest, Hungary August 2016
33. *Spontaneous nodule organogenesis, an important module for engineering artificial root nodule symbiosis* International Conference on Translational Research Bose Institute Kolkata April 2016
34. *Spontaneous nodule organogenesis, an important module for engineering artificial root nodule symbiosis* "MOLECULAR APPROACHES IN APPLIED BIOCHEMISTRY: RECENT ADVANCEMENTS" in WBSU Feb 2016
35. *Spontaneous nodule organogenesis, an important module for engineering artificial root nodule symbiosis* 103<sup>rd</sup> Indian Science Congress, Mysore January 2016
36. *Spontaneous nodule organogenesis, an important module for engineering artificial root nodule symbiosis* International Plant Physiology Conference , JNU Delhi, Dec 2015
37. *Spontaneous nodule organogenesis, an important module for engineering artificial root nodule symbiosis* IISER KOLKATA, Sept 2015
38. *Deregulated SYMRK Hyperactivates Spontaneous Nodulation.* Sudip Saha and Maitrayee DasGupta. Keystone Symposia on Plant Receptor Kinases Taos, New Mexico, USA Feb 2015
39. *Deregulated SymRK hyperactivates spontaneous nodulation* LSTM (IRD), Montpellier, France, Sept 2014.
40. *How close are we to nitrogen-fixing cereals?* North Bengal University October 2013
41. *Experimental evolution of a plant pathogen to a legume symbiont.* North Bengal University October 2013



42. *Signaling pathways that establish rhizobia-legume symbiosis*. Delhi University, Sept, 2013
43. *Gatekeeper as Guardian in a plant receptor like kinase (RLK)*. 81st Annual Meeting Society of Biological Chemists India, 2012, Science City Auditorium Complex, Kolkata.
44. *Structure function relationship between a plant receptor kinase and human IRAK4*. Indian Institute of Science Bangalore India. June 2012
45. *Structure function relationship between a plant receptor kinase and human IRAK4*. Fulbright Fellow lecture Sandiego State University (SDSU) USA June 2011
46. *Structure function relationship between a plant receptor kinase and human IRAK4*. Fulbright Fellow lecture University of California, Sandiego (UCSD) USA June 2011
47. *Deciphering the molecular code that predisposed plants to root nodule symbiosis*. Fulbright Fellow lecture Noble Foundation, Oklahoma USA May 2011
48. *Deciphering the molecular code that predisposed plants to root nodule symbiosis*. Fulbright Fellow Lecture University of North Texas Denton, USA May 2011
49. *Deciphering the molecular code that predisposed plants to root nodule symbiosis*. Fulbright Fellow lecture in University of Vermont, Burlington USA April 2011
50. *Deciphering the molecular code that predisposed plants to root nodule symbiosis*. Refresher course in life science Academic staff college and Dept of Botany CU 2011
51. *Deciphering the molecular code that predisposed plants to root nodule symbiosis*. National symposium on plant cell tissue and organ culture , CAS Dept of Botany, CU 2010
52. *Deciphering the molecular code that predisposed plants to root nodule symbiosis*. 47th Guha Research Conference In Ajanta, Ellora 2010

#### Visits Abroad :

<b>YEAR</b>	<b>DESTINATION</b>	<b>PURPOSE</b>	<b>Sponsor</b>
1987-1990	University of Texas, Tyler USA	Post Doctoral Research	UT, USA
2002	University of Utah, Salt Lake City USA	Biotech Overseas award	DBT, GOI
2007	Queen Mary University of London, UK	Invited Speaker	CSIR, DST
2011	University of Vermont, Burlington, USA	FulBright Fellowship	USEIF
2011	University of North Texas Denton, USA	Invited speaker	CIES, USA
2011	Noble Foundation, Oklahoma, USA	Invited speaker	CIES, USA
2011	University of California, Sandiego , USA	Invited speaker	CIES USA
2011	Sandiego State University , USA	Invited speaker	CIES, USA
2014	LSTM (IRD), Montpellier, France	Indo French collaboration	CEFIPRA
2016	12 <sup>th</sup> ENFC, Budapest, Hungary	Invited speaker	DST, CU
2016	LSTM (IRD), Montpellier, France	Indo French collaboration	CEFIPRA
2017	Dept of Plant Science, University of Oxford, UK	Indo UK collaboration	BBSRC-DBT
2017	John Innes Centre , Norwich UK	Indo UK Collaboration	BBSRC-DBT
2018	Universidad Nacional de Rio Cuarto, , Argentina.	TWAS visiting Award	TWAS
2018	INGEBI - CONICET Buenos Aires – Argentina	TWAS visiting Award	TWAS
2018	LSTM (IRD), Montpellier, France	Excellent Progress Award	CEFIPRA
2018	CNRS Headquarters, Paris, France	Women in Science Award	CEFIPRA
2019	Dept of Plant Science Univ of Oxford	INDO UK Collaboration	BBSRC-DBT
2019	James Hutton Institute Dundee	INDO-UK Collaboration	BBSRC -DBT

## MANPOWER TRAINED

### Number of researchers awarded Ph.D degrees : 23

Name	Awarded	At Present
1. Dr Shubho Chaudhuri NET CSIR	2002	Professor, Plant biology Bose Institute India
2. Dr Anindita Seal NET CSIR	2003	Associate Professor, Dept of Biotechnology, CU India
3. Dr Amit Hazra NET CSIR	2005	Scientist, East India Pharmaceuticals Kolkata India
4. Dr Ronita NChaudhuri NET CSIR	2006	Assistant Professor, St Xaviers College, Kolkata India
5. Dr Ayan Raichaudhuri NET UGC	2007	Assistant Professor, Amity University, Kolkata India
6. Dr Manas Kanti Maity CSIR SRF	2008	Research Scientist, Canada
7. Dr Senjuti Sinharoy NET CSIR	2009	Staff Scientist III, NIPGR, India
8. Dr Avijit Ghosh CSIR SRF	2011	Scientist, GCC Biotech, Kolkata India
9. Dr Sandip Samaddar NET CSIR	2012	Research Associate, University of Florida, USA
10. Dr Koel Sen GATE	2013	RA Baylor College of Medicine, USA
11. Dr Sudip Saha GATE /CSIR SRF	2016	Asst Professor, Techno India University, Kolkata India
12. Dr Ayan Dutta	2016	Application Specialist, QIAGEN India
13. Dr Mihir Halder CSIR SRF	2017	Assistant Professor Barasat Govt College India
14. Dr Madhurima Chakraborty	2017	Assistant Professor, WBSU, Barasat, WB India
15. Dr Bikramaditya Ghosh GATE /NETLS	2017	Officer, Excise Dept, Govt. of West Bengal India
16. Dr Sohini Guha NET UGC	2018	Post-Doctoral Fellow Penn State University USA
17. Dr Anindita Paul NET UGC	2018	Eli Lilly Scientist Bangalore India
18. Dr Anindya Kundu NET CSIR	2019	Post Doctoral Fellow, Cambridge University UK
19. Dr Debapriya Das NET CSIR	2019	Assistant Professor, Taki Govt. College , WB India
20. Dr Avisek Bhattacharya NET UGC	2019	Officer, West Bengal Health Department India
21. Dr Monolina Sarkar NET CSIR	2019	Lecturer Sanmilani College Kolkata India
22. Dr Kanchan Karmakar NET UGC	2020	Assistant Professor , Ashutosh College, Kolkata India
23. Dr Pritha Ganguly GATE	2022	Post Doc St. Jude Children's Research Hospital USA

### Number of researchers pursuing Ph.D : 4

Name	Registration	
1. Samrat Bhattacharya NET CSIR	2018	Assistant Professor, Hastings college , Kolkata
2. Dipanjan Chakrabarti GATE/NET LS	2020	SRF
3. Firoz Molla NET CSIR	2020	SRF
4. Alokmoy Biswas NET CSIR	(Not Registered)	JRF
5. Souparno Adhikari NET CSIR	(Not Registered)	JRF

### Number of Post Doctoral/Senior Fellows : 3

1. Saswati Sen	DST Women Scientist 2016-2019
2. Dipan Roy NET CSIR	NPDF 2016-2019
3. Sohini Guha NET CSIR	INDO UK (DBT-BBSRC), 2016-2019, DBT Project RA 2019-2022

### Technical Person trained : 7

Name	Year	Sponsored by Program
1. Puja Biswas	2010-2014	DBT-IPLS
2. Boni halder	2010-2015	DBT-IPLS
3. Amaresh Panigrahy	2010 -2013	DBT-IPLS
4. Arijit Pal	2010 -2017	DBT-IPLS
5. Souvik Roy	2012-2017	DBT-IPLS
6. Suman Banik	2010-2012	DBT Centre for excellence and Innovation
7. Suman Ghosh	2012- present	DBT centre for excellence and Innovation, Newton Bhaba, JC Bose

### Internships/summer trainees

Name	YEAR	FROM	Trained Under
1. Anindya DasGupta	1994	Dept of Biochemistry, CU	ME
2. Manidipa Banerjee	1998	Dept of Biochemistry, CU	Subho Chaudhuri
3. Daliya Banerjee	1998	Dept of Biochemistry, CU	Subho Chaudhuri
4. Mahasweta Mitra	1998	Dept of Biochemistry, CU	Subho Chaudhuri
5. Sangeeta Nath	2001	Dept of Biochemistry, CU	Subho Chaudhuri/Amit Hazra
6. Shamik DasGupta	2002	Dept of Biochemistry, CU	Amit Hazra
7. Urmi Bandopadhyay	2002	Dept of Biochemistry, CU	Ronita Nag
8. Samridhha Roy	2003	Dept of Biochemistry, CU	Amit Hazra
9. Arunima Purokayastha	2003	Dept of Biochemistry, CU	Ronita Nag
10. Avijit Ghosh	2003	Dept of Biochemistry, CU	Ronita Nag/Amit Hazra
11. Subhendu Sen Roy	2003	Dept of Biochemistry CU	Ronita Nag/Amit Hazra
12. Manisha Hazra	2003	Dept of Biochemistry, CU	Manas Maity
13. Kaustuv Bandyopadhyay	2004	Dept of Biochemistry, CU	Amit Hazra/Ronita Nag
14. Senjuti Sinharoy	2004	Dept of Biochemistry, CU	Ayan Raichaudhuri/Ronita Nag
15. Subhasree Maitra	2004	Dept of Biochemistry, CU	Ayan Raichaudhuri
16. Sampa Das	2004	Vidyasagar University	Senjuti Sinharoy
17. Sudeshna Das	2005	Dept of Biochemistry, CU	Manas Maity
18. Maushita Karmakar	2005	Dept of Biochemistry, CU	Manas Maity
19. Koel Sen	2005	Dept of Biochemistry, CU	Avijit Ghosh
20. Saikat Chakraborty	2005	Dept of Biochemistry, CU	Avijit Ghosh
21. Kanya kumarika Sarkar	2005	Dept of Biochemistry, CU	Ayan raichaudhuri
22. Ishani Banik	2005	Bangalore University	Sandip Samaddar
23. Debadrita Mukherjee	2005	Dept of Biochemistry, CU	Senjuti Sinharoy
24. Ayan Dutta	2006	RashtrguruSurenranath College	Ayan Raichaudhuri
25. Sumana Das	2005	Dept of Biochemistry CU	Senjuti Sinharoy
26. Dhiman Maitra	2006	Dept of Biochemistry, CU	Senjuti Sinharoy
27. Samyabrata Bhaduri	2006	Dept of Biochemistry, CU	Avijit Ghosh/Koel Sen
28. Arupratan Das	2006	Dept of Biochemistry, CU	Avijit Ghosh/Koel Sen
29. Paramita Palit	2006	Dept of Biochemistry, CU	Senjuti Sinharoy
30. Soumya Bannerjee	2006	Dept of Biochemistry, CU	Senjuti Sinharoy
31. Monali Sen	2006	Dept of Biochemistry, CU	Senjuti Sinharoy
32. Anubhab Nandy	2008	Dept of Biochemistry CU	Avijit Ghosh
33. Soma China	2008	Dinabandhu Andrews College	Manas Maity
34. Sreedip Mukherjee	2009	Dept of Biochemistry, CU	Bikramaditya Ghosh
35. Anindita Paul	2011	Dept of Biotech St. Xavier's College,	Sandip Samaddar
36. Subhrajit Banerjee	2012	Dept of Biochemistry, CU	Avijit Ghosh
37. Sneha Sinha	2012	TERI University New Delhi	Anindita Paul
38. Sudipta Giri	2012	Haldia Institute of Technology, Haldia	Anindita Paul
39. Nitin Gourav	2013	College of Pharmacy KLE Univ, Belgaum	Sohini Guha
40. Rishov Goswami	2013	Dept of Biochemistry, CU	Avishek BhattayaAnindita Paul
41. Missidona Biswas	2013	Dept of Biochemistry, CU	Avijit Ghosh
42. Sabina Ashraf	2014	Amity University Kolkata	Avijit Ghosh
43. Ayan Chakraborty	2014	Dept of Biotech St. Xavier's College,	Anindita Paul
44. Satyaki Ghosh	2014	Dept of Biotech, St. Xavier's College	Debapriya Rajlakhsmi Das
45. Mayurakshi Nag	2014	Department of Biochemistry, CU	Anindita Paul
46. Tilak Nayak	2014	Dept of Biotechnology ,Goa University	Sohini Guha
47. PrithaGanguly	2014	Dept of Mol Biol & Biotech, KU	Sohini Guha
48. Ishika Basu	2014	Dept of Biochemistry, CU	Sohini Guha
49. Arghya Bhowmick	2015	Dept of Biotech St. Xavier's College,	Sohini Guha/Anindita Paul
50. Prodipta Pal	2015	Dept of Biotech St. Xavier's College,	Sohini Guha

51. Avik Bhattacharya	2015	Dept of Mol Biol & Biotech, KU	Avishek Bhattacharya
52. Anjali Williams	2016	Dept of Biotech St. Xavier's College,	Anindita Paul
53. Manas PChakraborty	2016	Dept of Mol Biol & Biotech, KU	Sohini Guha/Pritha Ganguly
54. Mayur Ingale	2016	Jankidevi Bajaj Science College, Warda	Sohini Guha
55. Dipanjan Chakrabarti	2016	Dept of Biochemistry, CU	Avishek Bhatt/Anindita paul
56. Somraj Ganguly	2016	Dept of Biochemistry, CU	Sohini Guha
57. Aritra Sarkar	2016	Dept of Biochemistry, CU	Monolina sarkar
58. Ankita Ckkraborty	2017	Dept of Botany, Ravenshaw University	Anindita Paul
59. Poulami Dey	2017	Dept of Biotech, St. Xavier's College,	Kanchan Karmakar
60. Wasim Shaikh	2017	Dept of Biotech, St. Xavier's College,	Anindya Kundu
61. Dyotima Biswas	2017	Dept of Chemistry, Amity Univ, Haryana	Dipanjan Chakrabarti
62. Sudeshna Saha	2017	Dept of Biochemistry, CU	Pritha Ganguly
63. Joydeep Baral	2017	Dept of Biochemistry, CU	Dipanjan Chakrabarti
64. Sreya Das	2018	Dept of Microbiology, CU	Sohini Guha
65. Mohor Ghosh	2018	Dept of Biochem and Biophys, KU	Dipanjan Chakrabarti
66. Soumita Chakraborty	2018	Dept of Biochem and Biophys, KU	Pritha Ganguly
67. Pankaj Pandey	2018	NIT, Ravangla, Sikkim	Sohini Guha
68. Shalini Das	2019	Dept of Biotech, Amity Univ, Kolkata	Kanchan Karmakar
69. Dayita Kundu	2019	Dept of Biotech, St. Xavier's College,	Kanchan Karmakar
70. Subashini Govindraj	2019	Dept of Microbio, St. Xavier's College	Sohini Guha
71. Aritra Biswas	2020	Dept of Biotech, St. Xavier's College,	Sohini Guha
72. Akiriti Singh	2020	Dept of Biochemistry, CU	Dipanjan Chakbarti/Firoz Molla
73. Madhumanti Halder	2020	Dept of Biochemistry, CU	Dipanjan Chakbarti/Firoz Molla
74. Sayan Sengupta	2021	Dept of Biochemistry, CU	Dipanjan Chakrabarti
75. Sisriksha Das	2021	Dept of Biochemistry, CU	Firoz Molla
76. Palash Kumar Seal	2021	Dept of Biochemistry, CU	Sohini Guha
77. Sreyoshi Chowdhury	2021	Dept of Biochemistry, CU	Dipanjan Chakrabarti
78. Haimantika Dey	2021	Dept of Microbio, St. Xavier's College	Pritha Ganguly
79. Ankana Saha	2021	Dept of Botany, Jogomaya Devi College	Firoz Molla
80. Abhishek Chowdhury	2021	Dept of Botany, Serampore College	Dipanjan Chakbarti/Firoz Molla
81. Bipro Prasad Dey	2021	Dept of Biochemistry, CU	Dipanjan Chakrabarti
82. Suvankar Das	2021	Dept of Genetics, CU	Firoz Molla
83. Anirban Shao Dey	2021	Dept of Biochemistry, CU	Dipanjan Chakrabarti
84. Shubhashri Parua	2021	Dept of Biochemistry, CU	Me
85. Souvik Maiti	2022	Dept of Biotech, MAKAUT	Sohini Guha/Firoz Molla
86. Kaushani Mishra	2022	Dept of Biochemistry, CU	Firoz Molla
87. Shrabana Ghosh	2022	Dept of Biotech, JU	Dipanjan Chakrabarti
88. Susmita Sur	2022	Dept of Mol Biol & Biotech, KU	Dipanjan Chakrabarti
89. Shristi Das	2022	Dept of Biotech, Amity Univ, Kolkata	Firoz Molla

#### MEMBERSHIP OF LEARNED SOCIETIES:

- Fellow of Indian National Science Academy, 2019-
- Fellow of Indian Science Academy, Bangalore, 2018 -
- Fellow of West Bengal Science Academy, 2016 –
- Fellow of National Science Academy, NASI Allahabad 2010-
- Member of Fulbright Alumni Society USEIF 2010-
- Member of 'Guha Research Conference' GRC 2005-
- Member of Society of Biological Chemists (SBC India), 1994 -