

Souradeep Dey

Ph.D. Scholar (Prime Minister's Research Fellow)

Biomaterials and Tissue Engineering Laboratory

Centre for Nanotechnology (CNT)

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Ph.D. Supervisor: Prof. Biman B. Mandal (Professor, IITG)

Research Interests

- Tissue Engineering and Regenerative Medicine
 - *3D bioprinting, In vitro models, On-chip devices, Immunomodulatory implants and Drug delivery systems.*
- Stem cell biology and Molecular biology

Educational Qualifications

Examination/ Degree	Board/University/ Institute	Year of Passing	Percentage/CGPA	Award/Rank/Class
Ph.D.	Indian Institute of Technology Guwahati (IITG)	Ongoing	10/10 (Course work)	Prime Minister's Research Fellowship
M.Sc. Biotechnology	Vellore Institute of Technology, Vellore (VIT)	2018	9.68/10	Departmental Rank – 2 nd
B.Sc. Zoology (Honours)	University of Calcutta	2016	70.4%	First Class
ISC (Class XII)	CISCE	2013	89.5%	-
ICSE (Class X)	CISCE	2011	91.2%	-

Professional Experiences

Scientist, Kairon Bioengineering Pvt. Ltd., Incubated at IITG-BioNEST Bio-Incubation Centre, Assam, India.

Period	August '24 – Ongoing
Role	Development of clinically relevant vascularised tissues

Senior Research Fellow, Indian Institute of Technology Guwahati, Assam, India

Period	July '24 – Ongoing
Guide	Prof. Biman B. Mandal, Prof. Roy P. Paily and Dr. Mahima Arrawatia (in collaboration with Vivocon Technologies Pvt. Ltd.)
Project Title	Affordable wearable anti-microbial electro-stimulation bandage for treatment of chronic wounds

Guest Lecturer, North Gauhati College, Gauhati University, Assam, India (TA Duty)

Period	Jan '21 – July '24
Class	B.Sc. Zoology (2 nd year and 3 rd year)
Subjects	Human Physiology, Molecular Biology and Evolutionary Biology

Junior Research Fellow, Indian Institute of Technology Guwahati, Assam, India

Period	May '19 – July '19
Guide	Prof. Biman B. Mandal
Project Title	Silk based bioengineered small diameter vascular conduits.

Junior Research Fellow, Indian Institute of Technology Guwahati, Assam, India

Period	January '19 – March '19
Guide	Prof. Biman B. Mandal
Project Title	Use of silk from northeast India for culture and transplantation of corneal endothelial cells.

Project Trainee, Indian Institute of Technology Guwahati, Assam, India

Period	December '17 – December '18
Guide	Prof. Biman B. Mandal
Project Title	Design and fabrication of silk-based 3D-printed annulus fibrosus for low back pain management.

List of Publications

Articles published / under revision / communicated in peer reviewed national/international journals:

(Cumulative impact factor: 130+; Citations: 300+; h-index: 8; i-10 index: 8)

1. **Souradeep Dey**, Amritha K Bhat, Janani G, Vartik Shandilya, Raghvendra Gupta and Biman B. Mandal. Microfluidic Human Physiometric Liver Model as a Screening Platform for Drug Induced Liver Injury. *Biomaterials* (2024); (I.F. 12.8)
2. Bibrita Bhar, Rajan Singh, Vaishak Ramesh, **Souradeep Dey**, Samit Nandi, Roy Paily and Biman B. Mandal. Wearable e-Bandage with Antimicrobial Ionogel as an Integrated Electroceutical Device for Accelerated Wound Healing. *ACS Materials Letters* (2024); (I.F. 9.6)
3. Ritvika Kushwaha, **Souradeep Dey**, Kanika Gupta, Biman B. Mandal and Debapratim Das. Secondary Chemical Cross-Linking to Improve Mechanical Properties in a Multifaceted Biocompatible Strain Sensor. *ACS Applied Materials & Interfaces* (2024); (I.F. 8.3)
4. Bibhas K. Bhunia, Ashutosh Bandyopadhyay, **Souradeep Dey** and Biman B. Mandal. Silk-hydrogel functionalized with human decellularized Wharton's jelly extracellular matrix (dWJECM) as a minimally invasive injectable hydrogel system for potential nucleus pulposus tissue replacement therapy. *International Journal of Biological Macromolecules*. (2024); (I.F. 7.7)
5. Rupam Khatua, Bibrita Bhar, **Souradeep Dey**, Chitra Jaiswal, Victoria J and Biman B. Mandal. Advances in Engineered Nanosystems: Immunomodulatory Interactions for Therapeutic Applications. *Nanoscale* (2024); (I.F. 5.8)
6. Yogendra Pratap Singh, Ashutosh Bandyopadhyay, **Souradeep Dey**, Nandana Bhardwaj, Biman B. Mandal. Trends and Advances in Silk-Based Bioinks for Cartilage Tissue Engineering. *Progress in Biomedical Engineering*. (2024); (I.F. 5.0)
7. Nandana Bhardwaj, **Souradeep Dey**, Bibrita Bhar and Biman B. Mandal. Bioprinted in vitro tissue models: An emerging platform for developing therapeutic interventions and disease modeling. *Progress in Biomedical Engineering*. (2023); (I.F. 5.0)
8. Shreya Mehrotra, **Souradeep Dey**, Kunj Sachdeva, Sujata Mohanty and Biman B. Mandal. Recent advances in tailoring stimuli responsive hybrid scaffolds for cardiac tissue engineering and allied applications. *Journal of Materials Chemistry B*. (2023); (I.F. 6.1)

9. Swatilekha Hazra, **Souradeep Dey**, Biman B. Mandal and Charanya Ramachandran. In vitro profiling of extracellular matrix and integrins expressed by human corneal endothelial cells cultured on silk fibroin-based matrices. *ACS Biomaterials Science & Engineering*. (2023); (I.F. 5.4)
10. Angana Borbora, Yang Xu, **Souradeep Dey**, Xin Wang, Yuxing Yao, Biman B. Mandal, Xiaoguang Wang and Uttam Manna. Lubricated Interfaces Enabling Simultaneous Pulsatile and Continuous Chemical Release Modes. *Advanced Materials*. (2023); (I.F. 27.4)
11. Joseph Christakiran Moses, **Souradeep Dey**, Ashutosh Bandyopadhyay, Manoj Agarwala, and Biman B. Mandal. Silk Based Bioengineered Diaphyseal Cortical Bone Unit Enclosing an Implantable Bone Marrow Towards Atrophic Non-union Grafting. *Advanced Healthcare Materials*. (2022); (I.F. 10.0)
12. G Janani, Smriti Priya, **Souradeep Dey** and Biman B. Mandal. Mimicking native liver lobule microarchitecture in vitro with parenchymal and non-parenchymal cells using 3D bioprinting for drug toxicity and drug screening applications. *ACS Applied Materials & Interfaces* (2022); (I.F. 8.3).
13. Satyajit Mahata, **Souradeep Dey**, Biman B. Mandal, Vadivelu Manivannan. 3-(2-Hydroxyphenyl) imidazo [5, 1- α] isoquinoline as Cu (II) sensor, its Cu (II) ensemble for selective detection of CN⁻ ion and biological compatibility. *Journal of Photochemistry and Photobiology A: Chemistry*. (2022) (I.F. 4.1).
14. Satyajit Mahata, Sandeep Kumar, **Souradeep Dey**, Biman B. Mandal, Vadivelu Manivannan. A probe with hydrazinecarbothioamide and 1,8-naphthalimide groups for “turn-on” fluorescence detection of Hg²⁺ and Ag⁺ ions. *Inorganica Chimica Acta*. (2022) (I.F. 2.7).
15. **Souradeep Dey**, Chitra Jaiswal, Sayanti Shome, Bibrita Bhar, Ashutosh Bandyopadhyay, Kodieswaran Manikumar, Rajat Dadheech and Biman B. Mandal. Photocrosslinkable silk-based biomaterials for regenerative medicine and healthcare applications. *Regenerative Engineering and Translational Medicine*. (2022) (I.F. 2.2).
16. Bibhas K. Bhunia*, **Souradeep Dey***, Ashutosh Bandyopadhyay and Biman B. Mandal. Design and fabrication of 3D-printed biomimetic construct to recapitulate form and function of intervertebral disc. *Applied Materials Today*; (2021); (*equally contributed) (I.F. 7.2).

17. Shreya Mehrotra, Rishabh Deo Singh, Ashutosh Bandyopadhyay, G. Janani, **Souradeep Dey** and Biman B. Mandal. "Engineering Microsphere-Loaded Non-mulberry Silk-Based 3D Bioprinted Vascularized Cardiac Patches with Oxygen-Releasing and Immunomodulatory Potential." *ACS Applied Materials & Interfaces* (2021); **(I.F. 8.3)**.
18. Ashutosh Bandyopadhyay, Suvro Kanti Chowdhury, **Souradeep Dey**, Joseph Christakiran Moses and Biman B. Mandal. Silk - A promising biomaterial opening new vistas towards affordable healthcare solutions. *Journal of the Indian Institute of Science*, 1-43. (2019); **(equally contributed) (I.F. 1.8)**
19. **Souradeep Dey**, Pragya Mehra, Chitra Jaiswal, Bibrita Bhar, Raghvendra Gupta and Biman B. Mandal. 3D Bioprinted Human Microphysiological Osteochondral Tissue-on-a-chip Model for Disease Modeling and Drug Screening Applications. (2024) **(communicated)**;
20. Chitra Jaiswal, **Souradeep Dey**, Jayant Prasad, Raghvendra Gupta and Biman B. Mandal. 3D Bio-printed In Vitro Osteosarcoma Model-on A chip For Anticancer Drug Screening Applications. (2024) **(communicated)**;
21. Swatilekha Hazra, **Souradeep Dey**, Subhanarayan Rath, Biman B. Mandal and Charanya Ramachandran. Impact of microscale topographies on corneal endothelial growth on silk films. (2024) **(communicated)**
22. Swatilekha Hazra, **Souradeep Dey**, Bibrita Bhar, Biman B. Mandal and Charanya Ramachandran. Biomaterials for Corneal Tissue Regeneration: Advances and Future Prospects. (2024) **(communicated)**

Book chapter(s)

1. Chitra Jaiswal, **Souradeep Dey**, Sayanti Shome, Gargi Mandal, Amritha K Bhat, Rupam Khatua, Animesh Mishra, Baishali Ghibhela, Eshani Das, Shruti More, Biman B. Mandal. Non-mulberry silk-based biomaterials: Biomedical applications, current status and future perspective. *Silk-based Biomaterials for Tissue Engineering, Regenerative and Precision Medicine, Second Edition*. 2024;

Patent(s) applied

1. Biman B. Mandal and **Souradeep Dey**. Microfluidic human physiometric liver model as a drug screening platform. **Date: 20.05.2024**

Conference proceeding(s)

1. **Souradeep Dey**, Pragya Mehra, Chitra Jaiswal, Bibrita Bhar and Biman B. Mandal. 3D Bioprinted Microphysiological In Vitro Osteochondral Model to Study Osteoarthritic Niche. *Tissue Engineering Part A*. 2024; S-193. **(I.F. 3.5)**
2. **Souradeep Dey**, Amritha K Bhat, Janani G, Ashutosh Bandyopadhyay, Vartik Shandilya, Raghvendra Gupta and Biman B. Mandal. Perfusion bioreactor-based 3D printed *in vitro* liver model for drug screening applications. *Tissue Engineering Part A*. **2023**; 29 (13-14), PP-129. **(I.F. 3.5)**
3. **Souradeep Dey**, Triya Saha and Uttamchand Narendrakumar. Analysis of Urine as Indicators of Specific Body Conditions. *IOP Conf. Ser.: Mer. Sci. Eng.* **2017**; 263 022051.

Conference (Oral/Poster/Video) Presentations

- **Dey S**, Mehra P, Jaiswal C, Bhar B and Mandal BB, “3D Bioprinted Microphysiological In Vitro Osteochondral Model To Study Osteoarthritic Niche”, **7th Termis World Congress**, which will be held on June 25th-28th, 2024 in Seattle, USA. **(Poster Presentation)**.
- Jaiswal C, **Dey S**, Bhar B and Mandal BB, “3D Bio-printed In Vitro Osteosarcoma Model-on A chip For Anticancer Drug Screening Applications”, **7th Termis World Congress**, which will be held on June 25th - 28th, 2024 in Seattle, USA. **(Poster Presentation)**.
- Bhar B, Singh R, **Dey S**, Roy P and Mandal BB, “Development of a Low-cost Wearable Electrotherapeutic Modality for Accelerated Wound Healing”, **7th Termis World Congress**, which will be held on June 25th-28th, 2024 in Seattle, USA. **(Poster Presentation)**.
- **Dey S**, Bhat AK, Janani G, Bandyopadhyay A, Shandilya V, Gupta R and Mandal BB, “Microscale Bioreactor Based In Vitro Human Biomimetic Liver Acinus Model for Drug Induced Liver Injury Evaluation”, **12th World Biomaterials Congress (WBC 2024)** which will be held on May 26th ~ 31st, 2024 in Daegu, Republic of Korea. **(Awarded “Best Poster Presentation” sponsored by Science Advances: AAAS)**.
- Jaiswal C, **Dey S** and Mandal BB, “A Dynamic Perfusion-based 3D Bio-printed In Vitro Osteosarcoma Model for Anticancer Drug Screening Application” **12th World Biomaterials Congress (WBC 2024)**, which will be held on May 26th ~ 31st, 2024 in Daegu, Republic of Korea. **(Oral Presentation)**.
- **Dey S**, Bhar B, Singh R, Roy P and Mandal BB, “A Wearable Electrotherapeutic Modality: Application of Pulsed Electric-field Generating Bandage in Combination with

Antimicrobial Silk-Based Ionogel for Chronic Wound Treatment”, **12th World Biomaterials Congress (WBC 2024)**, which will be held on May 26th ~ 31st, 2024 in Daegu, Republic of Korea. **(Poster Presentation)**.

- **Dey S**, Bhat AK, Janani G, Bandyopadhyay A, Shandilya V, Gupta R and Mandal BB, “*Perfusion bioreactor-based 3D printed in vitro liver model for drug screening applications*”, Tissue Engineering and Regenerative Medicine International Society (TERMIS) European Chapter Meeting held in Manchester, UK on 28th - 31st March 2023 **(Poster Presentation)**.
- **Dey S**, Bhat AK, Janani G, Shandilya V, Gupta R and Mandal BB, “*Development of microscale physiomimetic bioreactor based 3D printed in vitro liver model for high-throughput drug toxicity and drug screening applications*”, International Conference on Biomaterials, Regenerative Medicine and Devices (BIO-Remedi 2022) held at IIT Guwahati, Guwahati, Assam, India on 14th – 18th Dec, 2022 (***Springer In vitro models "Best Poster Award"***).
- Awasthi S, **Dey S** and Mandal BB, “*3D In-vitro Liver Fibrosis Models for High Throughput Drug Screening Application*”, International Conference on Biomaterials, Regenerative Medicine and Devices (BIO-Remedi 2022) held at IIT Guwahati, Guwahati, Assam, India on 14th – 18th Dec, 2022 **(Poster Presentation)**.
- **Dey S**, Mehra P and Mandal BB, “*Recent Advances in Pre-clinical In Vitro Osteochondral Models for Osteoarthritis Therapeutics*”, International Conference on Biomaterials, Regenerative Medicine and Devices (BIO-Remedi 2022) held at IIT Guwahati, Guwahati, Assam, India on 14th – 18th Dec, 2022 **(Poster Presentation)**.
- Hazra S, Gupta P, **Dey S**, Mandal BB and Ramachandran C, “*Silk Fibroin Membranes for Engineering Human Corneal Endothelium*”, 28th Annual Meeting of the Indian Eye Research Group held at L V Prasad Eye Institute, Hyderabad on 9th – 11th September, 2022 **(Poster presentation)**.
- Bandyopadhyay A, Bhar B, Jaiswal C, **Dey S**, Shome S and Mandal BB, “*Silk based 3D printing of Human Tissue Models*”, North-East Research Conclave, 20th-22nd May, 2022 at IIT Guwahati **(Poster Presentation)**.
- **Dey S**, Bhar B, Jaiswal C and Mandal BB, “*Clinically relevant silk-based 3d printed small diameter “biotube” vascular grafts as sustainable and affordable healthcare product*”. Innovation and Entrepreneurship Conclave (IEC), 20th April, 2022 at IIT Guwahati **(Poster presentation)**.

- Bandyopadhyay A, **Dey S**, Shome S and Mandal BB, "*3D Printed Silk-based Affordable Patient-specific Platelet Rich Plasma Functionalized Knee Meniscus Implants for Treatment of Knee Injuries*", Innovation and Entrepreneurship Conclave (IEC), 20th April, 2022 at IIT Guwahati (**Poster presentation**).
- Bhar B, Singh R, **Dey S**, Janani G and Mandal BB, "*Affordable Electronic Smart Bandage for Accelerated Wound Healing*", Innovation and Entrepreneurship Conclave (IEC), 20th April, 2022 at IIT Guwahati (**Poster presentation**).
- Bhunia BK, **Dey S**, Bandyopadhyay A, Mandal BB, "*Silk based biomimetic 3D printed constructs with angle-ply architecture for intervertebral disc replacement*", International conference on advanced material for better tomorrow (AMBT, 2021), 13th -17th July 2021, India. (**Poster presentation**).
- Bhunia BK, Bandyopadhyay A, **Dey S**, Mandal BB. "*Fabrication of a minimally invasive injectable nucleus pulposus equivalent bioactive silk-hydrogel functionalized with decellularized human Wharton's jelly extracellular matrix for disc regeneration therapy*". International e-Symposium on "Smart Polymers: Applications in current scenario" (SP-ACS) 15th to 16th January 2021 on virtual platform (**Poster presentation**).
- Bhunia BK, Bandyopadhyay A, **Dey S**, Mandal BB. "*Development of nucleus pulposus equivalent silk-hydrogel functionalized with decellularized human Wharton's jelly extracellular matrix for disc regeneration therapy*". Young Scientist Conference (YSC) in India International Science Festival (IISF 2020) 22nd to 25th December 2020 on virtual platform (**Oral presentation**).
- Bhunia BK, **Dey S**, Bandyopadhyay A, Mandal BB. "*Silk hydrogel functionalized with human decellularized Wharton's jelly matrix as a minimally invasive injectable hydrogel for nucleus pulposus tissue engineering*". International conference on biomedical materials innovation 2020 (ICBMI 2020). 30th SBAOI annual meeting and 12th STERMI annual meeting, 6th -9th December, 2020, Virtual conference. (**Oral presentation**).
- **Dey S**, Bandyopadhyay A, Bhunia BK, Mandal BB. "*Demonstration of 3D printing*". 6th National Workshop on NEMS/MEMS and Theranostics Devices (NWNTD 2020), Centre for Excellence in Research and Development of Nanoelectronics Theranostic Devices under the aegis of Centre for Nanotechnology at the Indian Institute of Technology Guwahati (IIT Guwahati) is organizing a workshop on NEMS/MEMS and Theranostic Devices from 1st December to 3rd December 2020, virtual conference. (**Video presentation**).
- **Dey S**, Kumar M, Chouhan D, Gangrade A, Bhunia BK, Mehrotra S, Gupta P, Singh YP, Christakiran J, Janani G, Bandyopadhyay, Mandal BB. "*North east Silk based Healthcare*

Technologies". The day-long workshop IITG Society and Northeast India (ISANI-an Introspection) on 21st of February at the Conference Center (**Poster presentation**)

- Moses J. C., **Dey S.**, G. Janani., Mandal BB. "*Reconstructing the cortical bone and bone marrow niches through silk-based 3D bioprinting strategies*". 6th world congress of the Tissue Engineering and Regenerative Medicine International Society (TERMIS 2021), 31st May – 4th June 2021 in Maastricht, the Netherlands. (**Poster presentation**).
- Bhunia BK, **Dey S**, Bandyopadhyay A, Mandal BB. "*Silk based biomimetic 3D printed constructs with angle-ply architecture for intervertebral disc tissue engineering*". 11th World Biomaterials Congress, 11th -16th December 2020, Glasgow, Scotland. (**Poster presentation**).
- Bhunia BK, **Dey S**, Bandyopadhyay A, Mandal BB. "*Design and fabrication of 3D-printed biomimetic constructs to recapitulate form and function of annulus fibrosus tissue*". 1st Departmental retreat (Biotech Express) organized by Department of Biosciences and Bioengineering (BSBE), IIT Guwahati on 21st December 2019 (**Poster presentation**).
- Bhunia BK, **Dey S**, Bandyopadhyay A, Mandal BB. "*3D Printing of Annulus Fibrosus Anatomical Equivalents Recapitulating Angle-ply Architecture for Intervertebral Disc Replacement*". Young Scientist Conference (YSC) in India International Science Festival (IISF Kolkata 2019) 5th to 8th November 2019 at Biswa Bangla Convention Center, Kolkata, West Bengal, India (**Poster presentation**).
- Prabhu YD, **Dey S**, Saha T and Abilash V.G. "*In Silico Functional SNP Analysis and Interpretation of Human Genes associated with Amenorrhea*". Research conclave 2018, held at IIT Guwahati, March 14-17, 2018 (**Poster presentation**).
- **Dey S**, Saha T and I. Manjubala. "*Efficacy of Dental Ceramics on Biofilm Formation*". 15th International Conference on Science Engineering and Technology, Vellore Institute of Technology, Vellore, November 12, 2017 (**Oral presentation**).
- **Dey S**, Saha T and I. Manjubala. "*Investigation of the Effects of Various Drinks on Human Enamel Surface*". 14th International Conference on Science Engineering and Technology, Vellore Institute of Technology, Vellore, April 12, 2017 (**Oral presentation**).
- **Dey S**, Saha T, Das S and Ghosh AR., "*Effective and Affordable Methods of DNA Extraction from Insects*". 13th International Conference on Science Engineering and Technology, Vellore Institute of Technology, Vellore, November 12, 2016 (**Oral presentation**).

Projects Sponsored by Department of Science & Technology (DST), Government of India (NewGen IEDC, IIT Guwahati)

The following projects were selected under the New Generation Innovation and Entrepreneurship Development Centre (NewGen IEDC) programme launched by National Science and Technology Entrepreneurship Development Board (NSTEDB), Department of Science & Technology (DST), Government of India. The projects were supervised by Prof. Biman B. Mandal, Department of Bioscience and Bioengineering, IIT Guwahati.

1. *“In vitro 3D skin model for high throughput drug screening applications”* consisting of a student team (Bibrita Bhar, Kodieswaram M, **Souradeep Dey** and Chitra Jaiswal) (2022-2023). **(Funding INR 2.50 lacs)**
2. *“Silk based oxygenating spray formulation for chronic wound healing”* consisting of a student team (Kodieswaram M, Bibrita Bhar, Rajat Dadheech and **Souradeep Dey**) (2022-2023). **(Funding INR 2.50 lacs)**
3. *“Clinically Relevant Silk-based 3D Printed Small Diameter “Biotube” Vascular Grafts as Sustainable and Affordable Healthcare Product”* consisting of a student team (**Souradeep Dey**, Bibrita Bhar, Chitra Jaiswal and Ashutosh Bandyopadhyay) (2021-2022). **(Funding INR 2.50 lacs)**
4. *“3D Printed Silk-based Affordable Patient-specific Platelet Rich Plasma Functionalized Knee Meniscus Implants for Treatment of Knee Injuries”* consisting of a student team (Ashutosh Bandyopadhyay, **Souradeep Dey**, Sayanti Shome and Ananya Das) (2021-2022). **(Funding INR 2.50 lacs)**
5. *“Affordable Electronic Smart Bandage for Accelerated Wound Healing”* consisting of a student team (Bibrita Bhar, Rajan Singh, **Souradeep Dey** and Janani G) and co-supervised by Prof. Roy P. Paily, Department of Electronics & Electrical Engineering, IIT Guwahati (2020-2021). **(Funding INR 2.50 lacs)**

Experimental Skills

- Mammalian/ Plant/ Microbial Cell Culture handling, Induced Pluripotent Stem Cells (iPSCs) handling and maintenance, Primary/Stem Cell isolation and maintenance, Tissue and Organ harvesting, 3D Bioreactor culture.
- 3D matrix development: 3D Bioprinting, Conventional Techniques: Porous and lamellar scaffolds, injectable hydrogels, flat/patterned films.

- Fabrication of microfluidic organ-on-a-chip models for disease modelling, drug screening and drug discovery.
- Field Emission Scanning Electron Microscopy (FESEM), Transmission Electron Microscope (TEM), Energy-dispersive X-ray spectroscopy (EDAX), Fourier Transform-Infrared Spectroscopy (FTIR), Rheology, Mechanical Testing, Circular Dichroism Spectroscopy (CD), Dynamic Light Scattering (DLS), Polymerase chain reaction/ Reverse transcription polymerase chain reaction (PCR/RT-PCR), Histopathology.
- Immunohistochemistry, Immunocytochemistry, Biochemical assays, ELISA.
- Animal handling: Mice model experimentations, Tumor development.
- Dissection procedures of *Periplaneta americana*, *Channa punctatus* and *Rattus norvegicus*, study of meiosis from *Caelifera* sp. (staining and identification of different stages of meiotic division) and gut content of *Galloanserae* sp. and *Capra aegagrus hircus*.
- Identification of bones of *Columba* sp. and *Cavia* sp. and identification of several Chordates, Non-Chordates and Larval forms.

Technical Skills

3D Printing Software:

AutoCAD, 3D Builder, Repetier Host, Slic3r, Cura, Chitubox.

Data Analysis Tools:

Origin, ImageJ, SnapGene, GraphPad Prism, CodonW.

Insilico Data Analysis Tools:

GeneMANIA, STRING, SIFT, PANTHER, Regulatory Sequence Analysis Tools (RSAT), ALGGEN PROMO, Tfsitescan, Sitecon, ORFfinder, Sequence Editor, Tm Calculator, Snapgene.

Academic Achievements

- Awarded **Dr. Himangshu Roy Memorial Young Scientist Award (2023)** by The Zoological Society, Kolkata.
- Awarded **Prime Minister's Research Fellowship (PMRF)** by Ministry of Education, Government of India for pursuing doctoral research.
- Qualified **Graduate Aptitude Test in Engineering (GATE 2019)**
- **Departmental Rank – 2nd**, M.Sc Biotechnology Batch (2016-2018) (VIT, Vellore).
- Awarded **Institute Merit Scholarship** during Master's Degree (M.Sc. Biotechnology) (2016 - 2018) (VIT, Vellore).
- Selected for **DST-INSPIRE Internship Science Camp (2011)**.

Honors & awards

- Awarded “**Best Poster Presentation Award**” sponsored by *Science Advances: AAAS* at 12th World Biomaterials Congress (WBC 2024) held at Daegu, Republic of Korea on May 26th ~ 31st, 2024.
- Awarded “**1st Place in Poster Presentation Competition**” by Next Big Innovation Labs, India for my work on “Microfluidic Human Physiomic Liver Model as a Screening Platform Recapitulates Intrinsic and Idiosyncratic Drug Toxicity” (2024).
- Acted as a **resource person** in *Startup Conclave “Kickstart 3.0”* organized by IITG BioNEST, held at IIT Guwahati, Guwahati, Assam, India on April 29 & 30, 2024.
- Acted as a **resource person** in INUP-i2i Offline Familiarization Workshop on “*Nano- and Bio-electronics: Fabrication and Characterization*” organized by Centre for Nanotechnology, at the Indian Institute of Technology Guwahati, Guwahati, Assam, India on April 8th-10th, 2024.
- Awarded *Springer In vitro models* “**Best Poster Award**” at International Conference on Biomaterials, Regenerative Medicine and Devices (BIO-Remedi 2022) held at IIT Guwahati, Guwahati, Assam, India on 14th Dec – 18th Dec, 2022.
- Acted as a **resource person** in *Pre-conference Workshop “3D Bioprinting Module”* at International Conference on Biomaterials, Regenerative Medicine and Devices (BIO-Remedi 2022) held at IIT Guwahati, Guwahati, Assam, India on 14th Dec – 18th Dec, 2022.
- Acted as **student co-chair** at International Conference on Biomaterials, Regenerative Medicine and Devices (BIO-Remedi 2022) held at IIT Guwahati, Guwahati, Assam, India on 14th Dec – 18th Dec, 2022.
- Highlighted as “**Commendable Research by PMRFs**” under the category “*Interdisciplinary areas in Science and Engineering*” as chosen by the National Review Panel, National Coordination Committee (NCC), Ministry of Education, Govt. of India. (2022-2023).
- Team (Silk based 3D bioprinted human tissues, members included **Dey S**, Bandyopadhyay A, Mehrotra S, Bhunia BK and Mandal BB), presented our work on “3D Bioprinting” and was awarded “**Third Prize for model presentation**” in Research Conclave’19 at IIT Guwahati during 14th – 17th March, 2019.
- Team (Silk-Bots, members include Singh YP, Bhunia BK, Mehrotra S, **Dey S**, Bandyopadhyay A, Mandal BB), presented our work on “3D Bioprinting” and awarded the “**Best project from IIT Guwahati**” in TechExpo 2018 organized during Techniche 2018 at IIT Guwahati during 30th August to 2nd September 2018.
- “**Commendable Performance Award**” given by St. Augustine’s Day School, Kolkata. (2012-2013).

- Awarded “**2nd Prize**” in Science Exhibition organized by St. Augustine’s Day School, Kolkata. (2011) on my work entitled “Extraction of DNA in Kitchen”.

Member of Scientific Organizations

TERMIS	Tissue Engineering and Regenerative Medicine International Society
APA	Asian Polymer Association, India (<i>Life member</i>)
STERMI	Society for Tissue Engineering and Regenerative Medicine, India (<i>Life member</i>)
SBAOI	Society for Biomaterials and Artificial Organs, India (<i>Life member</i>).
ZSK	The Zoological Society, Kolkata, India (<i>Life member</i>)

Teaching Assistantship

1. **3D Printers and Bioprinters (extrusion and light-based 3D printers) Operator (July, 2024 – Ongoing)**, Centre for Nanotechnology, IIT Guwahati.
2. **Guest Lecturer (Jan, 2021 – July, 2024)**, North Gauhati College, Assam, India (*TA duty under PMRF scheme*). Courses taught include human physiology (04 semesters) and molecular biology (02 semesters) and evolutionary biology (02 semesters).
3. **3D Micro-extrusion Printer Operator (July, 2023 – July, 2024)**, Centre for Nanotechnology, IIT Guwahati.
4. **Lab Teaching Assistant (January, 2024 - April, 2024)** for the course of “Tissue Engineering and Regenerative Medicines” M. Tech students (HT510) at Jyoti and Bhupat Mehta School of Health Sciences and Technology, IIT Guwahati.
5. **Confocal Microscopy Operator (July, 2022 - July, 2023)**, Centre for Nanotechnology, IIT Guwahati.
6. **Lab Teaching Assistant (January, 2021 - April, 2021)** for the course of “Analytical Biotechnology Laboratory” for B. Tech and M. Tech students (BT312/BT510) at Department of Biosciences and Bioengineering, IIT Guwahati.

Workshops / Certificate courses

- Acted as a **resource person** in *Startup Conclave “Kickstart 3.0”* organized by IITG BioNEST, held at IIT Guwahati, Guwahati, Assam, India on April 29 & 30, 2024.
- Acted as a **resource person** in *INUP-i2i Offline Familiarization Workshop* on “*Nano- and Bio-electronics: Fabrication and Characterization*” organized by Centre for

Nanotechnology, at the Indian Institute of Technology Guwahati, Guwahati, Assam, India on April 8th-10th, 2024.

- Acted as a **resource person** in *Pre-conference Workshop “3D Bioprinting Module”* at International Conference on Biomaterials, Regenerative Medicine and Devices (BIO-Remedi 2022) held at IIT Guwahati, Guwahati, Assam, India on 14th Dec – 18th Dec, 2022.
- Participated in 2-weeks comprehensive online “*Patent Information Course*” organized by Turnip Innovations, India.
- Participated in 2 days online workshop on “*Flow Cytometry Techniques and Applications*” organized by North East Centre for Biological Sciences and Healthcare Engineering, Indian Institute of Technology Guwahati, Assam in collaboration with Becton, Dickinson and Company -BD.
- Participated and presented poster in One day-long Workshop “*IITG-Society-And-Northeast India (ISANI- an Introspection)*” organized by IIT Guwahati, celebrated as a part of Silver Jubilee Celebration, IIT Guwahati (2020).
- Participated in “*qPCR One day-long Workshop*” by “genesig” organized by Vellore Institute of Technology, Vellore (2016).

Internships

- **Summer Internship** at IIT Guwahati under the guidance of Prof. Biman B. Mandal (2017).
- Selected and participated in **DST-INSPIRE Internship Science Camp** (one week) organized jointly by Department of Science and Technology (DST, Govt. of India) and Jagadis Bose National Science Talent Search (JBNSTS, Govt. of West Bengal) (2011).

Student/Trainee Guidance

- Ms. Shreya Singh, Integrated M.S. student, School of Biosciences and Technology, Vellore Institute of Technology, India (2024-ongoing)
- Mr. Tanmay Jadhav, M.Tech. student, Department of Biosciences and Bioengineering, IIT Guwahati, India (2024-ongoing).
- Ms. Pragya Mehra, M.Tech student, Department of Biotechnology, National Institute of Technology, Warangal (2022-2023)
- Mr. Animesh Mishra, M.Sc. student, School of Biosciences and Technology, Vellore Institute of Technology, India (2021-2022)
- Ms. Amritha Bhat, M.Tech. student, Department of Biosciences and Bioengineering, IIT Guwahati, India (2021-2022).

- Ms. Priyanka Korgaonkar, M.Tech. student, Food Science and Technology, International joint program between IIT Guwahati, India and Gifu University, Japan (2020-2021).

Extra-Curricular Activities and Interests


- Student Volunteer in 8th International Conference on Advanced Nanomaterials and Nanotechnology - ICANN 2023, organized by the Centre for Nanotechnology, from 29th November to 1st December, 2023.
- Acting general secretary, Manas hostel, IIT Guwahati (2023-2024)
- Associate mess convener, Manas hostel, IIT Guwahati (2022-2023)
- Organizing events in Shishu-Gram Orphanage Society, Guwahati- 781039, India.
- School Prefect (St. Augustine's Day School, Kolkata) for four years (2008-2012).
- Organizer at Agosto Utsav 2012 (Annual Fest, St. Augustine's Day School, Kolkata).
- Plan and manage my academics and research work efficiently.
- Good in problem solving and active listening.
- Flexible nature, respect for the opinion of others.
- Good in guiding a group of people, being the leader.
- Languages known: English, Bengali, Hindi and French.

Declaration

I hereby declare that the details furnished above are true to my knowledge and belief.

Date: - 30.08.24

Place: - Guwahati


(SOURADEEP DEY)