Dr. Naveen Kumar Singh
Newton Bhabha Fellow

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SUMMARY

Driven and insightful professional with interpersonal skills working in In vitro diagnostic research with many year of advancing experience in project management. Strong strategic and analytical top down outlook couple with confident bottom up project management drive. Expertise in sensor development, surface chemistry, electrochemical assay development, bioanalytes testing protocol development, nanomaterial synthesis, proteomics, genomics, writing papers, patent and grants. Experience in data management and interpretation, issue identification and resolution, handling research orientation, teams, and method with ability to streamline effective communication with stakeholders. I blend everywhere with adaptive nature and thinkers attitude, and enjoy working individually and in team. For organization that values hard-working, protective and loyal individuals, I aspire to employ my skills fully to contribute in their growth and deliver real value to the organization. Qualities like methodical approach to work, commitment to accuracy and ethics, administrative management, teamwork and positive attitude inspire me to look for work opportunity in research and academics.

RESEARCH EXPERIENCE

1. Post-Doctoral Research Staff July 2019- Till date, Department of Electrical and Computer Engineering, University of California San Diego. Project Title: 1. Design and development of continuous monitoring implantable sensor for stress in human. 2. Development of point of care assay for SARS CoV-2 detection

There has been incessant endeavour to develop an implantable wireless sensor for continuous monitoring of target level variation under in vivo settings to meet the demand for implantable sensor from biomedical field. Herein, we are working on a regent less aptasensor over 3D nanocomposite antifouling layer for sensitive and continuous detection of stress biomarker from human serum by using in lab technology wireless implantable sensing chip “Biomote”.

In the urgency of COVID-19 pandemic, and to reduce the significant barriers in the diagnosis SARS-CoV-2 infection. We have developed an aptamer-based SARS-CoV-2 salivary antigen assay employing only low-cost reagents and an off-the-shelf glucometer. The test was engineered around a glucometer as it is quantitative, easy to use, and the most prevalent piece of diagnostic equipment globally making the test highly scalable with an infrastructure that is already in place.

2. Ph.D Jan 2014- Jan 2019, Department of Biosciences and Bioengineering, Indian Institute of Technology, Guwahati. Thesis Title: Development of Aptasensor for malaria diagnosis by using Plasmodium falciparum Glutamate dehydrogenase as target antigen.

The major focus of thesis was the development of specific aptamer against Plasmodium falciparum glutamate dehydrogenase (PfGDH) with an aim of developing novel malaria diagnostic platforms well-endowed with efficient biosensing parameters such as sensitivity, specificity and stability. For generating specific aptamer against PfGDH, we selected recombinant PfGDH as target antigen and human glutamate dehydrogenase (HGDH) as control protein. Both these proteins were cloned and expressed in BL21 (DE3) pLysS bacterial cells. The structural and functional integrity of the expressed and purified proteins were confirmed by various physical, biochemical methods. We performed systemic evaluation of ligand by exponential enrichment

(SELEX) technique and developed a novel specific ssDNA aptamer (NG3) against PfGDH. The PfGDH binding affinity of the developed aptamer as discerned by surface plasmon resonance spectroscopy (SPR) was 79.16 ± 1.58 nM. The specificity of the 90 mer long aptamer towards the target was confirmed by gel electrophoresis and CD studies. The presence of two quadruplex forming regions, two big and four small stem loop structures of aptamer with a ΔG of -7.99 kcal mole-1 were deduced by computational studies. The developed aptamer was utilized in four different independent approaches for detection of PfGDH in serum samples. (A) Protein induced fluorescence enhancement based detection of PfGDH (B) Development of capacitive aptasensor for PfGDH (C) Development of aptaFET sensor based and extended gate field effect transistor for PfGDH detection and lastly (D) Instrument based or instrument free detection of Plasmodium lactate dehydrogenase (PLDH) and PfGDH in serum samples following optical transduction principles.

3. Project: Jan 2013 - July 2013, Department of Biochemistry & Cell Biology, Vision Research Foundation, Sankara Netheralaya, Chennai, Tamilnadu. Project Title: - Expression, Purification and Stabilization of human mature lysyl oxidase and lysyl oxidase propeptide.

Lysyl oxidase (LOX) plays a critical role in the formation and repair of the extracellular matrix (ECM) by oxidative deamination of lysine residues in elastin and collagen, thereby initiating the formation of covalent cross linkages which stabilize these fibrous proteins. Lysyl oxidase was very unstable enzyme and it was difficult to stabilize in a biologically active form in vitro system. The Lysyl oxidase gene was cloned into the E. coli M15 and standardizes the optimum condition for maximum expression of LOX. Isolation and purification were done by Ni-NTA column and stabilize the mLOX in suitable buffer system. Structural analysis done by mass spectroscopy, CD Spectroscopy.

4. Project: Jan 2012 – Dec 2012, Birla Institute of Technology and Sciences, PILANI (BITS, PILANI) Project Title: - Analysis of Aedes aegypti peroxidase and there role in mosquito immunity.

Peroxidases have various roles in mosquito as melanisation of egg, production of reactive oxygen species against the microbial infection and protection from reactive oxygen species. An attempt was made to analyse the role of peroxidase in mosquito immunity. It was observed that some specific peroxidases show relatively altered expression at some specific stages of the mosquito life cycle and environmental conditions. Under this objective we mimic the infection condition by giving immune challenge with pathogenic and non-pathogenic bacteria to fourth instar larva of Aedes aegypti. Further, samples were collected at different time interval after immune challenge and positive induction of target peroxidases was observed post immune challenge. Moreover in gut peroxidase experiment mosquitoes were divided into two sub groups, one group fed with sugar and the another group fed on blood after 24hr post feeding mosquito gut was dissected out. Some interesting observation has been made that some peroxidases were specifically induced in sugar fed mosquito but not in blood fed group.

5. Project: Jan 2011- May 2011, Radico Khaitan Pvt. Ltd, Rampur (U.P). Project Title:- Production of alcohol through Barley, Grain and Molasses.

The above study was done to obtain the idea and principles behind the fermentation process that yields alcohol. This project allowed me to venture and get a knowledge of the various methods of preparation of alcohol production through starchy and Malt material while it also allowed me to get an industrial exposure in an alcohol producing industry which helped me to grasp knowledge regarding biotechnology aspects and the techniques methods that are adopted for the production of alcohol on a large scale.

SKILLS

Biosensing Techniques	**Optical sensors:** Colorimetric, fluorescence based, preparation of nanomaterials, conjugation of biomolecules with nanomaterials. Fabrication of Ubent fiber optic probes, their modification with nanomaterials, Smartphone integration with optical sensing probe. **Electrochemical sensors**: Faradic and Nonfaradic methods, Electrode functionalization with biomolecules and nanomaterials, voltammetric and

	amperometric measurement techniques, capacitor and field effect transistor based sensor **Paper based sensor:** paper based microfluidics, fluidics and surface modifications.
Molecular biology and protein expression techniques	**Genomics:** Nucleic acid isolation and purification (DNA/RNA), Polymerase chain reaction, Primer designing, cloning techniques, Electrophoresis, Real Time PCR, Reverse transcriptase PCR, cDNA synthesis. **Proteomics:** Protein expression, purification and characterizations with various techniques, Affinity Chromatography, Dialysis, Enzyme Activity Assay, Sedimentation velocity experiment, western blot, Electrophoresis. **Advance technique:** SELEX (Systematic evolution of ligands by exponential enrichment), high resolution melting PCR, electrophoretic mobility shift assay, ELISA, Binding affinity analysis, ESI and MALDI mass spectroscopy.
Bioinformatics	Genome-wide identification of gene families in genome sequenced species, Gene annotation, Protein structure prediction, Molecular docking, Bioinformatics related online servers use (Expasy, Pfam, Genscan, Blast, Clustal, Mfold, Patchdock etc),
Analytical Techniques	Dynamic light scattering, Circular dichroism, Surface plasmon resonance, Analytical ultracentrifugation, Affinity chromatography, UV-Vis and fluorescence spectroscopy, FTIR and Raman spectroscopy, Microscopy.
Miscellaneous	Mosquito Rearing, Mosquito Dissection, Animal (Swiss albino mice) Handling, Cell line maintains, Cell viability and toxicity assays, Various biochemical/chemical assays, Photolithography and wax printing for paper microfluidics.

PERSONAL SKILLS

Communication - Convey complex concepts and data to a wide audience; respond quickly to changing and challenging circumstances; deliver and receive feedback in a respectful manner; clear verbal and written communication.
Collaboration - Collaborate between multiple institutions and consortia; co-author on multiple collaborative studies from the University of California, San Diego (USA) and the University of Bath(U.K).
Writing and editing - Clear and concise writing; adaptable writing style, have written for both scientific and industry/non-scientific journals; able to edit for content, style, and grammar/spelling; go-to contact in labs for proofing and editing.
Personal - Reliable; professional and personable; self-motivated; organized and detail oriented; administrative capabilities; enjoy working with people from diverse backgrounds.
International experience – Half a year work exposure abroad at the University of Bath (UK) during PhD; Post-doc at the University of California, San Diego (USA).

PUBLICATIONS

1. **Naveen K Singh**, Sunil K Arya, Pedro Estrela, Pranab Goswami, Capacitive malaria aptasensor using Plasmodium falciparum glutamate dehydrogenase as target antigen in undiluted human serum, **Biosensors and Bioelectronics (Impact factor 10.25),** 2018, 117, 246-252. https://doi.org /10.1016 /j. bios.2018.06.022 (2018). **This work has been highlighted in Current Science, 115,(8), 25 October 2018.**

2. **Naveen K Singh**, Babina Chakma, Priyamvada Jain, P Goswami*, Protein induced fluorescence enhancement based detection of P. falciparum glutamate dehydrogenase using carbon dot coupled specific aptamer. **ACS Combinatorial Science (Impact factor 3.5)**, 20 (6), 350–357 (2018). https://doi.org/10.1021/acscombsci.8b00021

3. **Naveen K. Singh**, Phurpa Dema Thungoan, Pedro Estrela, Pranab Goswami, Development of an aptamer based BioFET sensor for quantitative detection of Plasmodium falciparum glutamate dehydrogenase in serum samples, **Biosensor and Bioelectronics (Impact factor 10.25),** 2018, 123, 30-35, (Doi.org/10.1016/j.bios.2018.09.085 (2018). **The work has been highlighted in nature INDIA as Biosensor for detecting malaria parasites, doi:10.1038/nindia.2018.143 Published online 16 November 2018.**

4. **Naveen K. Singh**, Priyamvada Jain, Smita Das, Pranab Goswami, Dye coupled aptamer-captured enzyme catalysed reaction for detection of pan malaria and *P. falciparum* species in laboratory settings and instrument–free paper based platform. Doi:10.1021/acs.analchem.9b00670 in **ACS Analytical chemistry (Impact factor 6.7)**. **The work has been highlighted in nature INDIA as Paper-based sensor detects malaria parasites, doi:10.1038/nindia.2019.65; Published online 24 May 2019. The work also published in The Hindu as new paper based test kit for malaria, Published on 9 June 2019 at page 17.**

5. **Naveen K Singh,** Partha Ray, Aaron F Carlin, Celestine Magallanes, Sydney Morgan, Louise C Laurent, Eliah Aronoff-Spencer, Drew A. Hall, Hitting the diagnostic sweet spot: Point-of-care SARS-CoV-2 salivary antigen testing with an off-the-shelf glucometer, **Biosensor and Bioelectronics (Impact factor 10.25),** 2021, , (https://doi.org/10.1016/j.bios.2021.113111). **The work is highlighted and covered by world print and electronic media, MIT press (https://www.eurekalert.org/pub_releases/2020-10/tmp-mar102220.php), ScienceMag (https://scienmag.com/media-alert-forthcoming-reviews-from-rapid-reviewscovid-19/), https://www.m24.ru/news/nauka/19102020/137572,https://www.gazeta.ru/social/news/2020/10/19/n_15103177.shtml, https://med.news.am/rus/news/27470/glyukometriy-mogut-ispolzovatsya-dlya-diagnostiki-koronavirusaucheniye.html**

6. **Naveen K Singh**, Kuldeep Mahato, The Contemporaneous and Impending Developments for Combatting COVID-19, Journal of Infectious disease and travel medicine; 4 (1), November, 2020 DOI: 10.23880/jidtm-16000S1-008.

7. Naveen K Singh, Partha Ray, Aaron F Carlin, Celestine Magallanes, Sydney Morgan, Louise C Laurent, Eliah Aronoff-Spencer, Drew A. Hall, Dataset on optimization and development of a point-of-care glucometer-based SARS-CoV-2 detection assay using aptamers. Data in Brief (**Impact factor 1.7**) Data Brief 2021 Oct;38:107278. doi: 10.1016/j.dib.2021.107278. Epub 2021 Aug 1221.

8. **Naveen K Singh**, Michael Sveiven, Drew A Hall, A sensitive electrochemical structure switching aptasensor over an antifouling nanocomposite layer for cortisol detection from undiluted human serum. In press **ACS Omega (Impact factor 3.51**).

9**.** Manoharan Sanjay, **Naveen K. Singh**, Lightson Ngashangva and Pranab Goswami, A smartphone-based fiber-optic aptasensor for label-free detection of Plasmodium falciparum glutamate dehydrogenase. **RSC Analytical method 2020, 12, 1333–1341 (Impact factor 2.60**). Doi: 10.1039/c9ay02406a

10. Somasekhar R. Chinnadayyala, Mallesh Santhosh, **Naveen K Singh**, Pranab Goswami*. Alcohol oxidase protein mediated in-situ synthesized and stabilized gold nanoparticles for developing amperometric alcohol biosensor. **Biosensor Bioelectron (Impact factor 10.25),** (2015) 69:155-161

11. Kuldeep Gupta, Rini Dhawan, Mithilesh Kajla, B Jnanasiddhy, Singh, **Naveen K Singh**, Lalita Gupta*. Molecular Identification and Colonization of Yellow Fever Mosquito Aedes aegypti (Diptera: Culicidae) Isolated from Rajasthan Region, India. **Journal of vector borne diseases, (Impact factor 1.17)** 53(2):149-155, 2016.

12. Mallesh Santhosh, Somasekhar R. Chinnadayyala, **Naveen K Singh**, Pranab Goswami*.Human serum stabilized gold nanocluster act as electron transfer bridge supporting specific electrocatalysis of Bilirubin useful for biosensing application. **Bioelectrochemistry, (Impact factor 4.77),** 111, 7–14 (2016). https://doi.org/10.1016/j.bioelechem.2016.04.003

13. Priyamvada jain, Babina Chakma, **Naveen K Singh**, Pranab Goswami*. Aromatic Surfactant as Aggregating Agent for Aptamer-Gold Nanoparticle-Based Detection of Plasmodium Lactate Dehydrogenase. **Molecular biotechnology, (Impact factor 2.27)**, 58 (7): 497–508 (2016). DOI 10.1007/s12033-016-9946-x

14. R. Bhuvanasundar, R. N. Naresh Kumar, **Naveen K Singh**, K. Coral, P. R. Deepa, K. N. Sulochana. Expression, purification and characterization of a biologically active and thermally stable human lysyl oxidase**. Indian journal of biochemistry and biophysics, (Impact factor 0.48), 56,105-116, 2019.**

15. Babina Chakma, Priyamvada jain, **Naveen K Singh**, Pranab Goswami*. Development of indicator displacement based detection of malaria targeting HRP-II as biomarker for application in point of care and analytical settings. **Anal chem (Impact factor 6.7)**, 88 (20): 10316-10321 (2016). https://doi.org/10.1021/acs.analchem.6b03315

16. Priyamvada Jain, Babina Chakma, **Naveen K. Singh**, Sanjukta Patra, Pranam Goswami*, Metal-DNA interactions improve signal in high resolution melting of DNA for species differentiation of *Plasmodium* parasite, **Molecular Biotechnology, (Impact factor 2.27)**. 59 (6), 179-191, DOI: 10.1007/s12033-017-0004-0 (2017)

17. Babina Chakma, Priyamvada Jain, **Naveen K Singh**, P Goswami*, Development of Electrochemical Impedance Spectroscopy Based Malaria Aptasensor Using HRP-II as Target Biomarker, **Electroanalysis (Impact factor 3.3)**, https://doi.org/10.1002/elan.201800142 (2018).

18. Babina Chakma, **Naveen K Singh**, Priyamvada Jain, and Pranab Goswami, Quantitative detection of histidine-rich proteins using silver nanoparticle-based sensitive competitive binding assay. **(Under review**)

19. Jacob Gross, **Naveen K Singh**, Drew A. Hall, and Jacob Sunshine, Devices and Diagnostics for OIRD. **ASCPT Clinical Pharmacology & Therapeutics (Impact factor 7.3)** - Manuscript ID 2020-0310 (under review).

20. Da Ying, Joshua Rosenberg, **Naveen K Singh**, and Drew A. Hall A 26.5pArms Neurotransmitter Front-End with Class-AB Background Subtraction, VLSI-2021.

21. **Naveen K Singh**, Partha Ray, Aaron F Carlin, Celestine Magallanes, Sydney Morgan, Louise C Laurent, Eliah Aronoff-Spencer, Drew A Rapid and Wash free Multiplexed Electrochemical Aptamer displacement assay for detection of SARS CoV-2 from saliva, **Submitted in Biosensor and Bioelectronics (Impact factor 10.25),**

22. Saeromi Chung*, **Naveen K Singh*** and Drew Hall. Detection of low therapeutic index Carbamazepine drug from undiluted serum and whole blood with novel confirmation switching aptasensor,. **Submitted in ACS Sensor, Impact factor 7.5. (**Equal first author contribution**)**

23. Smita Das, Sudarshan Gogoi, **Naveen K Singh**, P goswami*, Analytical Application of H2O2-induced chiroptical graphitic carbon dots. In Press Nanoexpress (https://doi.org/10.1088/2632-959X/ac3389).

24. Vinay Bachu, Lazmy Deware, Ayush Kumar, Pooja Rani Kuri, Malay Mili, **Naveen Kumar Singh**, & Pranab Goswami **APTABASE Database for global aptamers. https://www.iitg.ac.in/proj/aptabase/index.html**

PATENTS

1. DNA aptamers specifically binding to *Plasmodium falciparum* glutamate dehydrogenase (PfGDHa) [Patent Application No.201631025722].

2. A novel syringe design to facilitate instrument free Detection of NADP/NAD+ based enzymatic reactions in paper platform following optical signal [Patent Application No. 201831030902 Dated 17.08.2018].

3. Optisense - A Smartphone-based multi-channel, static LSPR system using U-bent plastic optic fibre probes for point-of-care diagnosis or telediagnosis. [Patent Application No. 201931039853 Dated 03.10.2019]

4. An aptamer based point of care test for COVID-19 using a glucometer [US Patent- Application submitted, UCSD Docket/Case No. SD2021-018].

BOOK CHAPTER

1. Carbon based nanomaterial and carbon dots for sensing application, Advance Materials and Techniques for Biosensors and Bio analytical Applications, CRC Press; 1 edition (15 Nov. 2020)

2. Enzymatic biosensor platforms for non-infectious diseases: Diagnostics of metabolic disorders, Enzyme-based biosensors: Recent advance and application in healthcare. Springer publishing house, (Under Editing)

3. Recent trends in clinical diagnosis for viral disease detection based on miniaturized biosensors, Elsevier publishing house, Naveen K Singh, Himali horo, Vikky Rajulpati

CONFERENCE PROCEEDINGS

1. Participated at the National Symposium on "Advances in Transgenic Technology and its Impact on the National Economy" for poster presentation held at SHIATS, Allahabad on 23rd April, 2010.

2. Sanjeev Kumar, Lalita Gupta, Mithilesh Kajla, Naveen Kumar Singh. Modulation of mosquito immunity during Plasmodium development. Poster (S1301M03) presented at the XXIV International Congress of Entomology (ICE 2012) held at Daegu Korea from 19th to 25th August, 2012.

3. Somasekhar R. Chinnadayyala, Mallesh Santhosh, Naveen Kumar Singh, Pranab Goswami* (2014). National conference in New Advances and Horizons in Nanoscience and Nanotechnology, 20-21th December, held at IASST Guwahati, Assam, India

4. R.Bhuvansunder,M Arun, Naveen Kumar Singh. Characaterization of Human Lysyl Oxidase(LOX) and development of novel peptides to inhibit its activity. Poster presented at International Confrence held at KIIT Bhubhenshwer.

5. Mallesh Santhosh, Naveen Kumar Singh. HAS stabilized gold nanocluster supporting specific electrocatalysis of bilirubin useful for biosensing application.Poster presented at Reserch conclave, 17-20th March, IIT Guwahati.

6. Naveen Kumar Singh, Phurpa D Thungon, Vinay B. "Development of Plasmodium falciparum glutamate dehydrogenase based sensor for Malaria" poster Presentation, 19-23 Feb 2017 at International Conference on Advances in Biological Systems and Material Science in NanoWorld (ABSMSNW-2017), IIT BHU.

7. Phurpa D Thungon, Naveen K Singh. "Study of peroxidase mimicking of nanoscience for development of alchohol biosensor" IUMRS-ICYRAN.

8. Babina Chakma, Priyamvada Jain, Naveen. K. Singh and P. Goswami*, Label-free colorimetric detection of histidine rich proteins using glutathione functionalized silver nanoparticles probe. International conference on sophisticated instruments in Modern Research, Organized by CIF, IIT Guwahati during 30th June-1stJuly,(2017)

9. Naveen Kumar Singh, Vinay B and Pranab Goswami. Carbon dots as peroxidase mimetic catalyst for detection of H2O2 and cholesterol. International Conference on Advanced Nanomaterials and Nanotechnology (ICANN)-2017, Organised by Centre for Nanotechnology, IIT Guwahati during 18th Dec-21 Dec (2017).

10. Phurpa Dema Thungon, Naveen Kumar Singh, Pranab Goswami, Study of Peroxidase mimicking agents/ Nanoenzymes for development of alcohol biosensors, IUMRS-International Conference of Young Researchers on Advanced Materials (IUMRS-ICYRAM 2016) organized by Materials Research Society of India (MRSI) and Indian Institute of Science Bangalore, held at Indian Institute of Science Bangalore, India, during December 11-15. Conference proceeding page No. 128

11.Naveen Kumar Singh, Lightson Ngashangva, Dr. Pranab Goswami, A Pragmatic Plasmodium falciparum glutamate dehydrogenase based sensor for malaria diagnosis, Shastri Indo Canadian International Conference held in New Delhi, 7-8 July 2018.

12. Naveen Kumar Singh , Dr. Pedro Estrela , Dr. Pranab Goswami, Development of simple, pragmatic and low cost aptasensor for malaria diagnosis. in International Conference on Advancement in Science and Technology (ICAST-2018) 3-4 September, 2018 organized by JSPS society, Japan at Visva-Bharati, Santiniketan-731235,West Bengal, India.

13. Naveen Kumar Singh , Dr. Pedro Estrela , Dr. Pranab Goswami, The aptaFET sensor for Malaria Diagnosis. International conference of nanosciences and engineering (ICONSEA), JNTU Hyderabad, October 4-7, 2018.

14. Naveen K Singh, Drew Hall, Continuous in-vivo Monitoring of Stress Biomarkers, Centre for wearable sensor, University of California San Diego, November 2020.

ACHIEVEMENTS, GRANTS AND FELLOWSHIP

Xprize Rapid COVID testing kit-2020	Registered as a team (Naveen K Singh, Drew Hall, Partha Ray, E Spencer) with product name PanDemiX, **short listed as Semi-finalist**
Received Rapid Acceleration of Diagnostics (RADx) grant from National Institutes of Health (NIH) (July 2020- till now)	Received Work package 0 and 1 from NIH, applied as team under Prof Drew Hall as principle investigator. **Team members**: **Naveen K Singh**, Partha Ray, Eliah Aronoff-Spencer and **Drew Hall (principle investigator)**
Newton-Bhabha PhD Fellowship 2017	Organized by British council and Department of Biotechnology, under part of PhD research work carried out at University of Bath, United Kingdom for 6 months under the supervision of Dr. Pedro Estrela.
North East Bio start talent search contest 2018	**Received Third prize** with prize money Rs 20,000, conducted by Guwahati Biotech Park.
Shastri-Indo Canadian International Conference	**Received travel grant** for Conference held in New Delhi, 7-8 July 2018.
DST Nano Postdoc Research associate fellowship (2019)	from Govt. of India, selected from across the India for research based on innovation in proposal.
DBT Postdoc Research associate fellowship (2019)	from Govt. of India, selected from across the India for research based on innovation in proposal.
International Conference on Advancement in Science and Technology (ICAST-2018)	**Received best poster award** in Conference on Advancement in Science and Technology (ICAST-2018) organized by JSPS society, Japan at Visva-Bharati, Santiniketan-731235, West Bengal, India.
Biotechnology Ignition Grant-13	Selected till final round of Expert selection committee screening in Biotechnology ignition grant, BIG-13 organised by BIRAC India.
GATE 2011	Percentile: 90.8 Graduate Aptitude Test in Engineering in Life Science, conducted by Ministry of Human Resource and Development, Govt. of India
Excellent reviewer award-2021	by Journal of Pharmaceutical research International

EDUCATION

Degree	Year	CGPA	Institute

Ph.D	**2014- 2019**	**8.75/10**	Department of Biosciences and Bioengineering, Indian Institute of Technology, Guwahati Assam, India
M.E	**2011-13**	**7.97/10**	Department of Biological Sciences, Birla Institute of Technology and Sciences, Pilani, Rajasthan, India
B. Tech	**2007-11**	**8.81/10**	Department of Biotechnology, Allahabad Agriculture University, Allahabad, Uttar Pradesh, India
12th	**2004**	**67.7 %**	Uttar Pradesh Board, India
10th	**2002**	**60.0 %**	Uttar Pradesh Board, India

EXTRACURRICULAR ACTIVITIES

1. Since 2015: Both Tutorial and Teaching Assistantship at IIT Guwahati for UG and PG students.
2. Since 2015: Postgraduate demonstrator in DBT Support Facility, IIT Guwahati
3. 2011-2013: Teaching assistant at BITS Pilani One Year (2011-2013)
4. Active member of Biological Society Birla Institute of Technology and Sciences (BITS) Pilani.
5. Active member of youth empowerment club, IIT Guwahati.
6. Gold Medals in Weightlifting and powerlifting competition in SPARDHA at IIT Guwahati.
7. Technical article published in North East Bioline magazine 4th Edition.
8. Article capacitive aptasensor (doi.org /10.1016 /j. bios.2018.06.022) highlighted in Current science magazine

WORKSHOP ATTENDED

1. Workshop attended on "WTO and Development Opportunities" at SHIATS, Allahabad on 10th October, 2007.
2. National Symposium attended on "Advance in transgenic technology and its impact on the national economy" at SHIATS, Allahabad.
3. Workshop attended on "Intellectual property rights and innovation" at IIT Guwahati, on 11-12th Dec 2014.
4. Participated in the Research Scholar Congress held on 23rd-24th May 2015 organized by IIT Guwahati.
5. Participated in TEDx IIT Guwahati.

CERTIFICATIONS

- BITS Pilani - Teaching Assistant Certification
- Sexual Violence and Sexual Harassment Prevention – UCSD
- Biological Laboratory Safety
- Cyber security and Awareness
- Ethical values and scientific conduct
- Lab safety and Lab Hazards training
- Biomedical Responsible Conduct of Research
- MicroMBA from Rady School of Management, University of California San Diego

PROFESSIONAL ACTIVATES AND ACHIEVEMENTS

1. Oral talk and poster presentation at national and international conferences.
2. Invited talk at ISPE San Diego (UCSD) and University of California return to learn programme, on point of care sensor for COVID detection.
3. Member of various scientific community and University level cultural board.

COMPUTER SKILLS

Softwares Familiar: MS-Office, ChemBioDraw, Origin, Adobe Illustrator, Sigma plot, DICHROWED, ImageJ, Pymol, DOG.

DECLARATION:

I, hereby declare that all the statements made in this C.V. are true and correct to the best of my knowledge.

LIST OF REFEREES

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Professor. Partha Ray

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