Dr Umakanta Subudhi

Scientist, CSIR-Institute of Minerals & Materials Technology

Assistant Professor, Academy of Scientific & Innovative Research

Nationality	**INDIAN** Born on **5 July 1982,** Mangarajapur, (Odisha)
Parents	Srimati Rupabati Barik & Pandit Kelucharan Barik
Professional Experience	**Scientist** (07.08.2012 to till date) **Asst. Professor** (07.08.2012 to till date) **Junior Scientist** (07.08.2009 to 06.08.2012)
Academic Qualifications	**Doctor of Philosophy** (Biotechnology), **2009** Post Graduate Department of Biotechnology, Utkal University, Odisha
	Master of Science (Biotechnology), **2004** Post Graduate Department of Biotechnology, Utkal University, Odisha
	Bachelor of Science (Chemistry, Botany and Zoology *Honors*), **2002** Banki College (Now Autonomous), affiliated to Utkal University, Odisha

Awards and other Recognitions

- **CSIR-Young Scientist Award 2016** in Biological Sciences by Council of Scientific & Industrial Research, Government of India.
- **Odisha Young Scientist Award 2010** in Life Sciences by Odisha Bigyan Academy, Ministry of Science & Technology, Government of Odisha
- **Senior Research Fellowship** (ICMR-SRF) **2008**
  Indian Council of Medical Research, Government of India.
- **Junior Research Fellowship** (DBT-JRF) **2004**
  Department of Biotechnology, Government of India.
- **Post Graduate Fellowship** (**2002-2004**) by Department of Biotechnology, Government of India through All India **Combined Entrance Examination Biotechnology (CEEB)** conducted by Jawaharlal Nehru University, New Delhi.

Address for Correspondence

Dr Umakanta Subudhi, PhD (Utkal)
DNA **N**anotechnology & **A**pplication Laboratory
CSIR-Institute of Minerals & Materials Technology
Bhubaneswar 751013, Odisha, India. http://www.immt.res.in
E-mail: usubudhi@immt.res.in; subudhisai@gmail.com
Tel: +91-674-237-9299, 9249 (Lab #229), Mob: 9938672226

Research Publications (Total Citations: 350, h-index: 10)

1. S. Nahar, A.K. Nayak, A. Ghosh, **U. Subudhi*** and S. Maiti*. Enhanced and synergistic downregulation of oncogenic miRNAs by self-assembled branched DNA. **Nanoscale**, 10: 195-202, **2018**. **IF: 7.367** **(*Corresponding Author)**
2. M.M. Bhanjadeo, A.K. Nayak, **U. Subudhi***. Surface-assisted DNA self-assembly: An enzyme-free strategy towards formation of branched DNA lattice. **Biochem. Biophys. Res. Commun.,** 485: 492-498**, 2017**. **IF: 2.466 (*Corresponding Author)**
3. M.M. Bhanjadeo, A.K. Nayak, **U. Subudhi***. Cerium chloride stimulated controlled conversion of B-to-Z-DNA in self-assembled nanostructures. **Biochem. Biophys. Res. Commun.,** 482: 916-921, **2017**. **IF: 2.466 (*Corresponding Author)**
4. A.K. Nayak, A. Mishra, B.S. Jena, B.K. Mishra, **U. Subudhi***. Lanthanum induced B-to-Z transition in self-assembled Y-shaped branched DNA structure. **Nature Scientific Reports**, 6: 26855-26867, **2016**. **IF: 5.578. (*Corresponding Author)**
5. A.K. Nayak, **U. Subudhi***. Directed self-assembly of genomic sequences into monomeric and polymeric branched DNA structures. **RSC Advances** 4: 54506-54511, **2014, IF: 3.84. (*Corresponding Author)**
6. S. Mishra, P. Panda, N. Pradhan, D. Satpathy, **U. Subudhi**, S.K. Biswal, B.K. Mishra. Effect of native bacteria *Sinomonas flava 1C* and *Acidithiobacillus ferrooxidans* on desulphurization of Meghalaya coal and its combustion properties. **Fuel**. 117: 415-421, **2014, IF: 4.601.**
7. S. Majumder, Mishra I, **U. Subudhi,** S. Varma. Enhanced biocompatibility for plasmid DNA on patterned TiO_2 surfaces. ***Appl. Phys. Lett.*** 103: 63103, **2013, IF: 3.794.**
8. **U. Subudhi*,** G.B.N. Chainy. Curcumin and vitamin E modulate hepatic antioxidant gene expression in PTU-induced hypothyroid rats. ***Mol. Biol. Rep.*** 39:9849-9861, **2012, IF: 2.506. (*Corresponding Author)**
9. J. Panigrahi, B.B. Nayak D. Behera, **U. Subudhi**, B.S. Acharya. Synthesis of nano ZnO thin film on Al foil by rf glow discharge plasma and its effect on *E.coli* and *P. aeruginosa*. ***Appl. Phys. A*** 108: 577-585, **2012, IF: 1.704.**
10. J. Panigrahi, D. Behera, I. Mohanty, **U. Subudhi**, B.B. Nayak, B.S. Acharya. Radio frequency plasma enhanced chemical vapor based ZnO thin film deposition on glass substrate: A novel approach towards antibacterial agent**.** ***Appl. Surf. Sci****. 258:304-311*, **2011, IF: 3.387.**
11. N. Biswal, S. Martha, **U. Subudhi**, K. Parida. Incorporation of silver ions into Zirconium Titanium Phosphate: A Novel Approach towards Antibacterial Activity. ***Ind. Eng. Chem. Res***. 50: 9479-9486, **2011, IF: 2.843.**
12. **U. Subudhi**, G.B.N. Chainy. Expression of hepatic antioxidant genes in L-thyroxine-induced hyperthyroid rats: Regulation by vitamin E and curcumin. ***Chem. Biol. Interact.*** 183: 304-316, **2010, IF: 3.143.**

13. S. Majumder, M. Priyadarshini, **U. Subudhi,** G.B.N. Chainy, S. Varma. X-ray photoelectron spectroscopic investigations of modifications in plasmid DNA after interaction with Hg nanoparticles. ***Appl. Surf. Sci.*** 256: 438-442, **2009, IF: 3.387.**
14. S. Majumder, M. Priyadarshini, **U. Subudhi,** M. Umananda, G.B.N. Chainy, P.V. Satyam, S. Varma. Fabrication, photoemission studies and sensor of Hg nanoparticles templated on plasmid DNA. ***Appl. Phys. Lett.*** 94: 073110**, 2009, IF: 3.794**.
15. **U. Subudhi**, K. Das, B. Paital, S. Bhanja, G.B.N. Chainy. Supplementation of curcumin and vitamin E enhances oxidative stress, but restores hepatic histoarchitecture in hypothyroid rats. ***Life Sci.*** *84: 372-379,* **2009, IF: 2.936.**
16. **U. Subudhi,** K. Das, B. Paital, S. Bhanja, G.B.N. Chainy. Alleviation of enhanced oxidative stress and oxygen consumption of L-thyroxine induced hyperthyroid rat liver mitochondria by vitamin E and curcumin. ***Chem. Biol. Interact.*** *173: 105-114,* **2008, IF: 3.143**.
17. S. Chattopadhyay, D.K. Sahoo, **U. Subudhi**, G.B.N. Chainy. Differential expression profiles of antioxidant enzymes and glutathione redox status in hyperthyroid rats: A temporal analysis. ***Comp. Biochem. Physiol. C*** 146: 383-391, **2007, IF: 2.707.**
18. P. Sar, B. Rath, **U. Subudhi,** G.B.N. Chainy, P.C. Supakar. Alterations in expression of senescence marker protein-30 gene by 3,3',5-triiodo-L-thyronone (T_3). ***Mol. Cell. Biochem.*** 303: 239-242, **2007, IF: 2.669**.
19. **U. Subudhi,** G.B.N. Chainy, P. Mohanty. Kinetics and mechanism of reduction of ferricytochrome c by glutathione and L-cysteine: A comparative study. ***Indian J. Biochem. Biophys.*** 43: 37-40, **2006, IF: 1.026**.

Papers highlighted in Nature India (Nature Publishing Group)

- A paper entitled "Enhanced and synergistic downregulation of oncogenic miRNAs by self-assembled branched DNA" published in *Nanoscale* 2018 is highlighted in Nature India with a running title **"DNA-based nanotherapy for Cancer", 2017. (Also highlighted in CSIR News)** https://www.natureasia.com/en/nindia/article/10.1038/nindia.2017.153

- A paper entitled "Lanthanum induced B-to-Z transition in self-assembled Y-shaped branched DNA structure" published in *Scientific Reports* 6: 26855-26867, 2016 is highlighted in Nature India with a running title **"New DNA-based model for making drugs, sensors", 2016** http://www.natureasia.com/en/nindia/article/10.1038/nindia.2016.82

- A paper titled "Fabrication, photoemission studies, and sensor of Hg nanoparticles templated on plasmid DNA" published in *Appl. Phys. Lett*. 94, 073110, 2009 is highlighted in Nature India with a running title **"Tiny mercury sensor**", **2009**. http://www.natureasia.com/en/nindia/article/10.1038/nindia.2009.68

Presentation in Seminars/ Symposia/Conferences

1. **U. Subudhi,** D. Mohapatra, S. Mohanty and G. B. N. Chainy. Alteration of nuclear DNA content by thyroid hormone in rat liver. *National symposium on Comparative Endocrinology and Reproductive Physiology,* Department of Zoology, University of Delhi, 17-19 November, **2005**, Book of Abstracts O-02.

2. **U. Subudhi**, G. B. N. Chainy and P. Mohanty. A comarative study of kinetics and mechanism of reduction of ferricytochrome c by glutathione and L-cysteine. *International Conference on Free Radicals and Antioxidants in Health, Disease and Radiation & V Annual Conference of Society for Free Radical Research India (SFRR-India),* Dr B. C. Roy Post Graduate Institute of Basic Medical Science & IPGME & R, Kolkata, 16-18 January, **2006**, Book of Abstracts P-93.

3. K. Das, **U. Subudhi** and G. B. N. Chainy. Response of hepatic antioxidant defence system to PTU-induced hypothyroidism is age specific. *International conference on free radicals and antioxidants in Health, disease and Radiation & V Annual conference of society for free radical Research India (SFRR-India),* Dr B. C. Roy Post Graduate Institute of Basic Medical Science & IPGME & R, Kolkata, 16-18 January, **2006**, Book of Abstracts P-21.

4. **U. Subudhi** and G. B. N. Chainy. Ameliorative effect of α-tocopherol on thyroxine induced oxidative stress in rat liver. *National symposium on Comparative Endocrinology and Reproductive Physiology: Insights and Challenges.* Department of Zoology, Visva-Bharati, Santiniketan, Kolkata. 26-28 November, **2007**, Book of Abstracts OP-20.

5. S. Majumder, M. Priyadarshini, B. Paital, **U. Subudhi,** G. B. N. Chainy and S. Varma. Attachment of metal nano-particles to plasmid. *INDO-US workshop on Science and Technology at the Nano-Bio Interface.* Virginia Commonwealth University, Institute of Physics, Bhubaneswar, Orissa. 19-22 February, **2008**, Book of Abstracts P-9.

6. K. Das, **U. Subudhi** and G.B.N. Chainy. Impairment of rat hepatic antioxidant defence system by neonatal hypothyroidism. *National seminar on Emerging Trends in Modern Biology*. Centre for Biotechnology, Acharya Nagarjuna University, Guntur, Andhra Pradesh. 18-20 October, **2008**, Proceedings of the papers, 46-56.

7. **U. Subudhi** and G. B. N. Chainy. Regulation of hepatic catalase gene expression by vitamin E and curcumin in hypo- and hyperthyroid rats. National Conference on New Frontiers in Life Sciences & 13th Orissa Bigyan Congress*, Organized by Indian Science Congress Association, Bhubaneswar Chapter at Regional Museum of Natural history, Bhubaneswar, Odisha.* 9-11 *December*, **2010**, Book of Abstracts OP-48.

8. B. Das, M. Nayak, S. Bhakta, J. Jena, R.R. Nayak, **U. Subudhi,** N. Pradhan, S.K. Mishra, P.K. Panda and L.B. Sukla. Raceway Pond: A suitable system for Algal Cultivation. National Conference on New Frontiers in Life Sciences & 13th Orissa Bigyan Congress*, Organized by Indian Science Congress Association, Bhubaneswar Chapter at Regional Museum of Natural history, Bhubaneswar, Odisha.* 9-11 *December*, **2010**, Book of Abstracts PP-11.

9. S. Bhakta, M. Nayak, J. Jena, N. Pradhan, **U. Subudhi,** P.K. Panda and L.B. Sukla. Diversity of Algae from Bahuda river mouth areas of Orissa, National Conference on New Frontiers in Life Sciences & 13th Orissa Bigyan Congress*, Organized by Indian Science Congress Association,*

Bhubaneswar Chapter at Regional Museum of Natural history, Bhubaneswar, Odisha. 9-11 *December*, **2010**, Book of Abstracts OP-47.

10. J. Jena, M. Nayak, S. Bhakta, B. Das, R. R. Nayak, N. Pradhan, **U. Subudhi,** P.K. Panda, S. K. Mishra, S. P. Adhikary, L.B. Sukla and B. K. Mishra. Utilization of microalgae isolated from Orissa coast as a potential source for biodiesel production and CO_2 fixation. 51st Annual conference of Association of Microbiologists of India (AMI)-2010, International symposium on Recent Advances in Cross-disciplinary Microbiology: Avenues & Challenges and International Workshop on rRNA sequencing, phylogeny & Next generation genome sequencing, *Jointly Organized by Association of Microbiologists of India, Birla Institute of Technology, Central University of Jharkhand, Birsa Agricultural University, Ranchi, India*. 14-17 *December*, **2010**, Book of Abstracts AB-07.

11. **U. Subudhi** and G. B. N. Chainy. Expression of hepatic antioxidant genes in L-thyroxine-induced hyperthyroid rats: Intervention of vitamin E and curcumin. International Conference on Recent Trends in Therapeutic Advancement of Free Radical Science & 10th Annual Meeting of the Society for Free Radical Research – India *(SFRR-India)*. Department of Biochemistry, Bharathi Women's College, Chennai, 9-11 January, **2011**, Book of Abstracts S02-175.

12. L. B. Sukla, N. Pradhan, **U. Subudhi**, R.R. Nayak and B.K Mishra. Utilization of bioresources for bioprocessing and material synthesis. International Conference on Tissue Engineering and Regenerative Medicine (ICTERM-2011) and Workshops on scaffold fabrication, flow cytometry and cryopreservation. Department of Biotechnology and Medical Engineering, National Institute of Technology, Rourkela, Odisha, 30 September – 2 October, **2011**, Book of Abstracts IL 102.

13. M.M. Bhanjadeo, K. Rath and **U. Subudhi**. Differential desulfurization of dibenzothiophene by potential microbes. 53rd Annual conference of Association of Microbiologists of India (AMI)-2012, *International Conference on Microbial World: Recent Innovations and Future Trends. Organized by KIIT University,* Bhubaneswar-24, Odisha, India. 22-25 November, **2012.** Book of Abstracts PD1-346.

14. S. Mishra, P.P. Panda, N. Pradhan. **U. Subudhi** and S.K. Biswal. Application of microorganisms for desulfurization of high sulfur coal. 53rd Annual conference of Association of Microbiologists of India (AMI)-2012, *International Conference on Microbial World: Recent Innovations and Future Trends. Organized by KIIT University,* Bhubaneswar-24, Odisha, India. 22-25 November, **2012** Book of Abstracts PD2-607.

15. Suresh K Bunker, **U Subudhi**, J Dandapat, G.B.N. Chainy. Aging modulates methylation pattern of catalase promoter of rat liver. *National Conference on Emerging Trends and Challenges in Basic and Translational Research in Biochemistry*. Organized by the Centre of Advanced Study, Department of Zoology, Banaras Hindu University, Varanasi UP India. 4-5, February **2013**. Book of Abstract Pp-38.

16. Suresh K Bunker, **U Subudhi**, J. Dandapat, and G.B.N. Chainy. DNA methylation pattern of rat liver catalase promoter is modified by aging and neonatal Hypothyroidism. *First International and Third National Conference on Biotechnology, Bioinformatics and Bioengineering.* Organized by Society for Applied Biotechnology (India), Sri Venkateswara University, Tirupati, Andhra Pradesh India. 28-29 June, **2013**. Book of Abstract Pp 46.

17. A. K. Nayak and **U. Subudhi.** A novel strategy of using genomic sequences for the generation of branched DNA materials. *International conference on emerging materials & processes (ICEMP-2014). Organized by CSIR-Institute of Minerals & Materials Technology,* Bhubaneswar-13, Odisha, India. 26-28 February, **2014** Book of Abstracts NMNC-26.

18. A. K. Nayak, A. Mishra, B. S. Jena, B. K. Mishra and **U. Subudhi.** Rare-earth induced conformation changes in branched DNA. EMN Meeting on DNA and RNA *International conference on Energy, Materials & Nanotechnology. Jointly Organized by* Bogazici University, Turkey & IFFS, UESTC, China, at Istanbul, Turkey, 9-12 November, **2015** Book of Abstracts A-37.

19. A. K. Nayak, and **U. Subudhi.** A Leaf-like branched DNA material by molecular self-assembly of genomic sequences. *International conference on Faraday Discussion on Nanoparticle assembly: From fundamentals to applications. Jointly Organized by* Royal Society of Chemistry, UK at Indian Institute of Technology Mumbai, India. 7-9 January, **2016,** Book of Abstracts P16.

20. **U. Subudhi**, B.C. Tripathy, K. Sarangi and B.K. Mishra. Rare-earth elements: Beneficiation to extraction. *One Day Workshop on Rare Earths Technology Development (RETD-2016)* Organized by Indian Institute of Technology Bhubaneswar, Odisha, India on 4 September **2016.**

21. M. Gourai, A.K. Nayak, M.M. Bhanjadeo, B. Satpathy, S.K. Singh and **U. Subudhi**. Moringa leaf-based biochar for mitigation of fluoride menance in Odisha. 33rd International conference of International Society for Fluoride Research (ISFR) organized by National Institute of Nutrition, Hyderabad, India during 9-11 November, **2016**. (**Best Poster award @ ISFR**)

22. **U. Subudhi**, B.C. Tripathy, K. Sarangi and B.K. Mishra. Rare-earth elements: Beneficiation to extraction. The 4th International conference on advances in materials & materials Processing (ICAMMP-IV) Organized by Department of Metallurgical & Materials Engineering, Indian Institute of Technology Kharagpur, India on 5-7, November, **2016.**

23. S. Nahar, A.K. Nayak, A. Ghosh, M.M. Bhanjadeo, **U. Subudhi** and S. Maiti. Self-assembled branched DNA: From designing to delivery of anti-miRNA for down-regulating cancer-causing miRNAs. India International Science Festival- Young Scientists' Conclave (IISF-2016) organized by CSIR-National Physical Laboratory, New Delhi, India during 7-11 December, **2016**.

24. M.M. Bhanjadeo, A. Nayak, and **U. Subudhi**. Reversible conformational conversions of $(CG)_n$ and $(GC)_n$ sequences under low concentration of $LaCl_3$. International conference on Recent Advances in Material Chemistry (RAMC-2017), organized by Utkal University, Bhubaneswar, Odisha during 24-26 February, **2017**.

25. A. Nayak, M.M. Bhanjadeo, and **U. Subudhi.** Thermodynamic study of branched DNA nanostructure: Revealing the self-assembly process and structural stability. International conference on Recent Advances in Material Chemistry (RAMC-2017), organized by Utkal University, Bhubaneswar, Odisha during 24-26 February, **2017**.

26. M.M. Bhanjadeo, A. Nayak, and **U. Subudhi**. Controlled conversion of B-Z transition in DNA nanostructures by $CeCl_3$. International Conference on Nano-Materials and Nanotechnology, organized by Vinoba Bhabe Research Institute, Allahabad, Uttar Pradesh during 1-3 March, **2017**.

27. S. Nahar, A.K. Nayak, A. Ghosh, S. Maiti and **U. Subudhi.** AntimiR-bDNA Nanostructures: Novel nucleic acid therapeutics for down-regulating ongogenic miRNAs. An Industry-Academia Meet "IMTechCon 2017" organized by CSIR-Institute of Microbial Technology, Chandigarh, India during 4-6 October, **2017**.

28. M.M. Bhanjadeo, A. Nayak, and **U. Subudhi**. Rare-earth induced conformational conversions of $(CG)_n$ and $(GC)_n$ sequences: Model to study B-to-Z transition in DNA. India International Science Festival- Young Scientists' Conclave (IISF-2017) jointly organized by Anna University, CSIR-CLRI, National Institute of Ocean Technology, and Indian Institute of Technology Madras, Chennai, India during 13-16 October, **2017**.

29. J. Tudu, S. Majhi, S. Choudhury, V. Surana, and **U. Subudhi**. Rapid synthesis of Gold nanoparticles using thermal cycler and its interaction with self-assembled branched DNA. Recent advances in Nano Science and Technology organized by the Institute of Nano Science and Technology, Mohali, India during 19-21 December, **2017**. (**Best Poster Award @ INST**)

30. B. Baral, M.M. Bhanjadeo, and **U. Subudhi**. Loop length and overhangs of self-assembled branched DNA directs the Lanthanum-induced B-Z transition. Frontiers in Modern Biology (FIMB) 2018 organized by the Department of Biological Sciences, Indian Institute of Science Education and Research Kolkata, India during 19-21 January, **2018**, Book of Abstracts, page 25.

31. A. Nayak, S.K. Rath and **U. Subudhi**. Structural and thermodynamic study of self-assembled monomeric branched DNA. Frontiers in Modern Biology (FIMB) 2018 organized by Department of Biological Sciences, Indian Institute of Science Education and Research Kolkata, India during 19-21 January, **2018**, Book of Abstracts, page 73.

Research Projects (August 2009 onwards)

Sl. No.	Title	PI/ Co-PI	Duration	Funding Agency	Cost (Lakhs)
01	Studies on Microbial desulfurization of Calcined Petroleum coke	Co-PI	April 2008-October 2010	Aluminum Company of America (ALCOA), USA	25
02	Design and development of multiplexed branched DNA biomaterials.	**PI**	August 2010-September 2012	EMPOWER-Phase I, Council of Scientific & Industrial Research, Govt. of India, New Delhi	18
03	Biodesulfurization of high-sulfur NE Coal.	**Co-PI**	January 2011-December 2013	Ministry of steel, Govt. of India, New Delhi	250
04	Biospecific aqueous separation of metallic elements.	**Co-PI**	April 2012-March 2017	Council of Scientific & Industrial Research, Govt. of India, New Delhi	150
05	Preparation of multiplexed bDNA from Genomic DNA Sequences.	**PI**	October 2012-September 2015	EMPOWER-Phase II, Council of Scientific & Industrial Research, Govt. of India, New Delhi	36
06	Designing of DNA nanostructures for nucleic acid therapeutics.	**PI**	April 2017-March 2022	Council of Scientific & Industrial Research, Govt. of India, New Delhi	25

Research and Teaching Experience

- Post M.Sc. research work on "Kinetics and mechanism of reduction of ferricytochrome c by glutathione and L-cysteine" (August 2004 to December 2004) under the guidance of **Prof. Prakash C. Mohanty** in the Post Graduate Department of Chemistry, Utkal University, Odisha.
- **Standardization of PCR and RT-PCR** method at Post-Graduate Department of Biotechnology under the partial guidance of **Prof. M.S. Kanungo,** FNA**,** (First Bhatnagar Awardee from Odisha) and Emeritus Professor of Banaras Hindu University, Varanasi.
- **Doctoral thesis work** (January 2005 to April 2009) on **"Modulation of hepatic antioxidant gene expression in hypo-and hyperthyroid rats by vitamin E and curcumin"** under the supervision of **Prof. G.B.N. Chainy,** FNASc in the Post Graduate Department of Biotechnology, Utkal University, Odisha.
- **More than 5 years of teaching experience** on theory as well as practical classes of M.Sc. Biotechnology students at the Post Graduate Department of Biotechnology, Utkal University, Odisha. Experienced in teaching Cell Biology, Biochemistry, Genetic Engineering and Molecular Biology Techniques.
- **Independent Research Experience** (Since 7 August 2009 to till date) on DNA Nanotechnology & Application at CSIR-Institute of Minerals and Materials Technology, Bhubaneswar, Odisha as Scientist.
- **More than 5 years of Teaching experience** as Assistant Professor in the Academy of Scientific & Innovative Research (AcSIR). Designing the course curricula for doctoral students of Biological sciences. Taking classes during pre-PhD course work in two phases in each academic session.

Supervision of Doctoral Students

Doctoral Student	**Title of the PhD Thesis**	**Duration**
Madhabi M. Bhanjadeo, CSIR-SRF AcSIR Regd No. 10BB12A36005	Lanthanide mediated B-to-Z transition in self-assembled bDNA: A biophysical study.	October 2012- September 2017
Ashok K. Nayak, CSIR-SRF Ravenshaw Univ. Regd No. 15PH-BT-005	Synthesis of DNA Nanostructures from Genomic Sequences and their application.	September 2013- till date
Bineeth Baral, DST-INSPIRE- JRF AcSIR PhD Scholar	Self-assembled bDNA nanostructures for Genome engineering: synthesis to application.	August 2017- till date
Jamuna Tudu, CSIR-JRF AcSIR PhD Scholar	Genomic sequence-driven self-assembled Nucleic acid nanomaterials for biomedical applications.	September 2017- till date
Sampat N Satpathy, DBT-JRF AcSIR PhD Scholar	Continuing the course work	January 2018
Rashmi Rekha Samal, DST-INSPIRE- JRF AcSIR PhD Scholar	Continuing the course work	January 2018

Trainings Undergone

1. National Workshop cum Training Program on **Application of Bioinformatics and Statistics in Aquaculture** during February 4-7, 2003, conducted by *Central Institute for Freshwater Aquaculture (ICAR)*, Bhubaneswar, Orissa.
2. Training Course on **Fermentation Technology** during January 15-22, 2004, conducted by *Central Tuber Crops Research Institute (ICAR),* Bhubaneswar, Orissa.
3. Training on **Plant Tissue culture and related Techniques** during February 16-23, 2004, conducted by *Central Tuber Crops Research Institute (ICAR),* Bhubaneswar, Orissa.
4. Basic Techniques in molecular Biology (**Transformation, Subcloning, Plasmid DNA isolation, PCR, site directed mutagenesis and expression of recombinant protein**) during 26th February to 29th April 2004, under the supervision of **Prof. Pramod C. Rath**, Molecular Biology Laboratory, School of Life Sciences, *Jawaharlal Nehru University*, New Delhi.
5. National Workshop on **Bioinformatics and its Application** during January 10-13, 2005, organized by *Institute of Life Sciences (DBT),* Bhubaneswar, Orissa.
6. Workshop on **Techniques in Neurobiology** during February 28- March 5, 2005, conducted by Department of Zoology, Centre of Advance Study, *Banaras Hindu University, Varanasi.*
7. Workshop on Training in **Molecular Biology Techniques** during March 14-18, 2005, organized by *Institute of Life Sciences (DBT),* Bhubaneswar, Orissa.
8. Seminar cum Workshop on **Freshwater algae and their utilization**, during March 18-19, 2007 conducted by *Post Graduate Department of Biotechnology, Utkal University*, Bhubaneswar, Orissa.
9. **Hindi Praveen Training** under Hindi Teaching Scheme, during January 2010 to May 2010 conducted by the *Commissioner of the Regional Provident Fund*, Bhubaneswar, Odisha.
10. **Induction Training Programme for Scientists**, during July 04-13, 2010 conducted by *CSIR-Human Resource Development Centre, Ghaziabad*.
11. **ISO Internal Auditors** Training programme during March 21-22, 2013 organized by *CSIR-Institute of Minerals & Materials Technology, Bhubaneswar*.
12. **CSIR Leadership development programme** during 25 November to 5 December, 2013 (Phase I) and 3-6 February, 2014 (Phase II) organized by CSIR-Human Resource Development Centre, Gaziabad.
13. *One Day Workshop on Rare Earths Technology Development (RETD-2016)* Organized by Indian Institute of Technology Bhubaneswar, Odisha, India on 4 September **2016.**
14. **Sri Sathya Sai International Youth Leadership Programme** during 12-14 July, 2016 organized by Sathya Sai International Oganization at Prasanthi Nilayam, Andhra Pradesh, India.

Seminars, and Conferences Attended

1. Medical Education Program in Immunology on 26th November, 2002, conducted by the **Regional Medical Research Center (ICMR),** Bhubaneswar, Orissa.
2. International Conference on Free radicals and Antioxidants in Health, Disease and Radiation and V Annual Conference of Society for Free Radical Research, India, during January 16-18, 2006, organized by **Institute of Post Graduate Medical Education and Research, Kolkata**, India
3. **Over Expression: Systems and Challenges**, IV Annual Conference of Biotechnology Society of India, during November 26-28, 2006, conducted by **CSIR-Centre for Cellular and Molecular Biology,** Hyderabad, India.
4. Indian Ageing Congress-2006, during December 22-24, 2006, conducted by **KIIT University,** Bhubaneswar, Orissa.
5. National Symposium on Comparative Endocrinology and Reproductive Physiology: Insights and Challenges, during November 26-28, 2007, conducted by Department of Zoology, Centre of Advance Study, **Visva-Bharati, Santiniketan**, Kolkata, India.
6. **Frontiers of Science and Technology**, Kolkata March 2-3, 2011.
7. **International Conference on Recent Trends in Therapeutics Advancements of Free Radical Science** & 10th Annual meeting of the Society of Free radical Research, India, during January 9-11, 2011, organized by Bharati Women's college, Chennai, India and Angiogenesis Laboratory, University of Connecticut, USA.
8. 53rd Annual conference of **Association of Microbiologists of India (AMI)-2012,** ***International Conference on Microbial World: Recent Innovations and Future Trends.*** *Organized by KIIT University,* Bhubaneswar-24, Odisha, India. 22-25 November, **2012** Book of Abstracts PD2-607.
9. *International conference on emerging materials & processes (ICEMP-2014). Organized by CSIR-Institute of Minerals & Materials Technology,* Bhubaneswar-13, Odisha, India. 26-28 February, **2014** Book of Abstracts NMNC-26.
10. **Inauguration of National Institute of Science Education and Research** (NISER) Bhubaneswar on 7 *February 2016 by the* Prime Minister of India Sri Narendra Modi.
11. **CSIR Paltinum Jubliee Foundation Day** celebration at Vigyan Bhawan, New Delhi on 26 September **2016**. Address by Sri Narendra Modi, Prime Minister of India followed by Receiving the CSIR Young Scientist Award from Dr Harsha Vardhan, Minister of Science & Technology, Government of India.
12. **CSIR-Platinum Jubilee TechnoFest** 2016 being organized as a part of the 36th India International Trade Fair at Pragati Maidan, New Delhi from 14th November to 27th November, **2016**.
13. **India International Science Festival**- Young Scientists' Conclave (IISF-2016) organized by CSIR-National Physical Laboratory, New Delhi, India during 7-11 December, **2016**.
14. **An Industry-Academia Meet IMTechCon 2017** organized by CSIR-Institute of Microbial Technology, Chandigarh, India during 4-6 October, **2017**.
15. Inaugural address by Sri Narendra Modi, Prime Minister of India on the occasion of **125th Birth Anniversary Celebration of Prof. S. N. Bose** organized by S.N. Bose National Centre for Basic Sciences, Salt Lake, Kolkata 700106 on 1 January 2018.

Professional Recognitions (Reviewer in International Journals)

- Neuroendocrinology
- Journal of Nanomaterials
- **Nature Scientific Reports**
- **Chemical Society Reviews**
- Molecular Biology Reports
- Journal of Environmental Management
- Journal of Cardiovascular Pharmacology and Therapeutics

Member in Association and Scientific Academy

- Life Member, Vijnana Bharati, New Delhi, India *(Since 2017)*.
- Life Member, Odisha Bigyan Academy, Bhubaneswar, Odisha *(Since 2017)*.
- Active worker, Sri Sathya Sai Seva Organisation Odisha, (Since **26 January *1999***)
- **Distinguished Alumni** of the P.G. Department of Biotechnology, Utkal University.
- **Secretary**, RRL Sangeeta Kendra, CSIR-IMMT Campus, Bhubaneswar (***2010-2012***)
- **Secretary**, Biotechnology Alumni Association (BAAS), Utkal University, (***2005-2011***).
- Coordinator of **Jignyasa**, National Initiative for Students of Kendriya Vidyalayas, India.
- **Life Member**, Association of Microbiologist of India, I.D. No. AMI 100/2011, ***Since 2011***
- Member, **Board of Studies of Zoology**, Banki Autonomous College, Odisha (***2006-2012***).

Invited Talk in the Conferences and Workshop

- **EMN Meeting on DNA and RNA *International conference on Energy, Materials & Nanotechnology.*** *Jointly Organized by* Bogazici University, Turkey & IFFS, UESTC, China, at Istanbul, Turkey, 9-12 November, **2015**
- National seminar on **Environmental Impact assessment and Human Health: perspectives, Approaches & Future direction** (EIAHH-2016) organized by MS College, Baramba during 28-29, September, **2016.**
- UGC-sponsored State level seminar on **Recent Trends in Nanotechnology** organized by BJB Autonomous College, Bhubaneswar, India, 27-28 October, **2016.**
- Workshop on **Recent Developments in Biology: Research and Applications** for PGT Biology organized by Zonal Institute of Education & Training Bhubaneswar, Kendriya Vidyalaya Sangathan, New Delhi, 10-12 October, **2017**. (Lecture dedicated to **Prof. David Boveri**)
- Organized a one day programme under Jignyasa **Visit of Kendriya Vidyalaya TGT Teachers to the R&D Facility of CSIR-IMMT** on 26 December 2017. Forty-five Teachers from all around India have participated and interacted with the Scholars and Scientist of our Institute.

Invited Talk in the School, College or University

- Invited Talk "**Application of DNA from Biology to NonBiology and NanoBiology**" at the Post graduate department of Botany and Biotechnology in the Ravenshaw University as part of Professor Pranakrushna Parija memorial lecture series on 18 March 2017. (Lecture dedicated to **Prof. David Shemin**)
- Invited Talk "**DNA: from Hereditary molecule to Hierarchical material**" at the Department of Biotechnology in the Orissa University of Agriculture and Technology on the occasion of seminar series on 25 March 2017. (Lecture dedicated to **Prof. Norman Ernest Borlaug**)
- Invited Talk "**Use of DNA Nanotechnology towards therapeutics for human health**" at the MITS School of Biotechnology, Bhubaneswar in their annual day celebration 24 February 2017. (Lecture dedicated to **Prof. Carl Grabe)**
- Regular interaction with School and College students. Interacted more than 2000 students in the last three years in the state of Odisha.
- Invited talk "Discovery of DNA and DNA Nanotechnology" at various Kendriya Vidyalayas of Odisha as Coordinator of "**Jignyasa**" Programme.
- **CSIR Platinum Jubilee lecture** on "Discovery of DNA and Nucleic acid Nanotechnology' during 9 – 11 October, 2017 to the Bhubaneswar based students of SAI International School, St. Xavier International School, Trident Academy of Creative Technology. DAV Public School, Unit-8, Delhi Public School and many others.
- Invited Talk in the **XIV Regional Science Congress**-2017 on "Discovery of DNA and Nucleic acid Nanotechnology" to the students of Jawahar Navodaya Vidyalaya of Bhopal region organized by Navodaya Vidyalaya Samiti, at JNV, Mundali Cuttack, Odisha 14-19 November, 2017. (Lecture dedicated to **Prof. James B Sumner and Prof. George E. Palade**)
- Invited Talk in the Kendriya Vidyalaya Nuapada and Jawahar Navodaya Vidyalaya Nuapada on "Discovery of DNA and Nucleic acid Nanotechnology" at Nuapada, Odisha 23 December, 2017. (Lecture dedicated to **Prof. Niels K. Jerne)**

Social Work through Sri Sathya Sai Seva Organisation, India

- ✓ Medical Seva at Capital Hospital, Bhubaneswar.
- ✓ Regular Interaction with School Children on Saturdays.
- ✓ Free education on Human values and Veda to the Children.
- ✓ Gram Seva through Sri Sathya Sai Village Integrated Programme.
- ✓ Motivating Sai youths of Odisha as **State Youth Coordinator**, SSSSO.
- ✓ Member, **National Youth Council** of Sri Sathya Sai Seva Organisation, India.
- ✓ Mentor, Sri Sathya Sai Vidhya Jyothi Programme, A National Project by SSSSO.