



Prof. Umakanta Subudhi, PhD (Utkal)

Scientist F, CSIR-Institute of Minerals & Materials Technology, Bhubaneswar

Professor, Academy of Scientific & Innovative Research, Ghaziabad

Nationality Parents

INDIAN, Born on 5 July 1982, Cuttack, Odisha
Srimati Rupabati Barik & Pandit Kelucharan Barik

Professional Experience

Scientist F (L-13A) & Professor (2024 onwards)
Scientist E & Associate Professor (2019-2024)
Scientist D & Assistant Professor (2016 to 2019)
Scientist C & Assistant Professor (2012 to 2016)
Scientist B (07.08.2009 to 06.08.2012)



Academic Qualifications



Doctor of Philosophy (Biotechnology), 2010
Post Graduate Department of Biotechnology, Utkal University, Vani Vihar.
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 with Utkal University, Odisha

Awards, Associateship and Fellowship



- **Samanta Chandra Sekhar Award 2024** in Life Sciences by the Odisha Bigyan Academy, Ministry of Science & Technology, Government of Odisha.
- **Virendra B. Kamat Memorial Mid-Level Scientist Award 2020** by the Indian Association for Cancer Research (IACR), India.
- **Associate of the Indian Academy of Sciences, Bangalore (2019-2025)**
IASc was founded by Nobel Laureate Sir C.V. Raman in 1934.
- **Har Gobind Khorana Innovative Young Biotechnologist Award (IYBA) 2018** by the Department of Biotechnology, Government of India.
- **CSIR-Young Scientist Award 2016** in Biological Sciences by the Council of Scientific & Industrial Research, Government of India.
- **Odisha Young Scientist Award 2010** in Life Sciences by the Odisha Bigyan Academy, Ministry of Science & Technology, Government of Odisha.
- **Senior Research Fellowship (ICMR-SRF) 2008** by the Indian Council of Medical Research, Government of India.
- **Junior Research Fellowship (DBT-JRF) 2004** by the Department of Biotechnology, Government of India.
- **Merit Students Scholarship (2002-2004)** by the Department of Biotechnology Government of India through **All India-CEEB** conducted by JNU, New Delhi.

Address for Correspondence

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Indian Research Group in DNA Nanomaterials **Nanotechnology, Nanostructures, Z-DNA** **B-Z transition, Left-handed DNA**

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Prof. Umakanta Subudhi, PhD
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TITLE	CITED BY	YEAR
Organometallic Iridium (III) complex interacts with DNA and exhibits anticancer potential: Insights from biophysical, cell-based and computational studies D Chakraborty, S Behera, N Naik, PS Nal, KC Pradhan, U Subudhi, ... Biochemical and Biophysical Research Communications, 153920		2026
Burden of MASLD and liver fibrosis: evidence from Phenome India cohort M Arvind, A Verma, S Prakash, VS Kumar, MA Uddin, A Narayan, ... The Lancet Regional Health-Southeast Asia 45	4	2026
Assessing Inter-platform Variability of Blood Parameters across Three Automated Platforms: Report from Multi-centric Phenome India Study MI Ali, M Rathore, R Ujjainiya, S Prakash, A Sahu, S Ray, N Rawat, ... medRxiv, 2026.01.24.26344729		2026
Probing antibacterial activity of ZnO and ZnO: S thin films against E. coli and S. typhi with structural, optical and electrical properties A Pradhan, B Sahoo, G Parida, SK Sethy, KJ Sankaran, U Subudhi, ... Inorganic Chemistry Communications, 115865	1	2025

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 DNA Nanomaterials Metallo...

TITLE	CITED BY	YEAR
Alleviation of enhanced oxidative stress and oxygen consumption of L-tyroxine induced hyperthyroid rat liver mitochondria by vitamin E and curcumin U Subudhi, K Das, B Pallal, S Bhanja, GBN Chaiay Chemico-Biological Interactions 173 (2), 105-114	147	2008
Differential expression profiles of antioxidant enzymes and glutathione redox status in hyperthyroid rats: a temporal analysis S Chattopadhyay, DK Sahoo, U Subudhi, GBN Chaiay Comparative Biochemistry and Physiology Part C: Toxicology & Pharmacology ...	108	2007
Expression of hepatic antioxidant genes in L-tyroxine-induced hyperthyroid rats: regulation by vitamin E and curcumin U Subudhi, GBN Chaiay Chemico-biological Interactions 183 (2), 304-316	95	2010
Supplementation of curcumin and vitamin E enhances oxidative stress, but restores hepatic histoarchitecture in hypothyroid rats U Subudhi, K Das, B Pallal, S Bhanja, GBN Chaiay Life Sciences 84 (11-12), 372-379	93	2009

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List of Research Publications by US Group

Prof. Umakanta Subudhi, PhD, Scientist-F, Google Scholar (*Corresponding Author)

(Total: 68, Citations: >1500, h-index: 23, i10-index: 42, Cumulative IF: 396, Average IF: 6.48)

A. Nucleic acids Research: DNA Nanomaterials & Applications

1. I. Mishra, R. Chitara, S. Majumder, S.R. Joshi, **U. Subudhi**, P.N. Gajjar, S.K. Gupta, S. Varma*. Oxygen vacancy-engineered interfacial bonding for DNA conjugation on nanopatterned Rutile TiO₂: Experimental and in silico study. **Surf. Interfaces** 98, 110407, **2026. IF: 6.0**
2. D. Chakraborty, S. Behera, N. Naik, P.S. Nial, K.C. Pradhan, **U. Subudhi**, J. Dandapat, S. Pal, J. Pradhan*. Organometallic Iridium(III) complex interacts with DNA and exhibits anticancer potential: Insights from biophysical, cell-based and computational studies **Biochem. Biophys. Res. Commun.** 823, 153920, **2026**. PMID: 42143443 **IF: 3.6**
3. A. Kar, K. Sundaray, B.S. Jena, **U. Subudhi***. DNA nanomaterials loaded with curcumin and anti-miRNA inhibits cell proliferation: A biophysical and cellular study. **J. Drug Deliv. Sci. Technol.** 121, 108277, **2026. IF: 5.2**
4. S.N. Satapathy, **U. Subudhi***. Molecular mechanism of heavy rare earth elements-induced G-quadruplex DNA: Structural switch in human telomeric variants. **Int. J. Biol. Macromol.**, 329, 147817, **2025**. PMID: 40976304, **IF: 8.7**
5. K. Sundaray, A. Kar, G.B.N. Chainy, **U. Subudhi***. Differential activity of superoxide dismutase in response to tetrahedral and polyhedral DNA nanostructures: A biophysical and cellular study. **Biomed. Pharmacother.** 188, 118207, **2025**. PMID: 40446443, **IF: 7.5**
6. B. Baral, A.K. Nayak, K.D. Tulsiyan, **U. Subudhi***. Molecular self-assembly of stable and small branched DNA nanostructures: Higher than a helical turn is enough for hybridization. **Int. J. Biol. Macromol.** 282, 137491, **2024**. PMID: 39528187, **IF: 8.7**
7. P.S. Nial, C. Sathyaseelan, M.M. Bhanjadeo, K.D. Tulsiyan, T. Rathinavelan, **U. Subudhi***. Computational simulation and biophysical study on cerium chloride induced B-to-Z transition in (CG)_n DNA. **ACS Omega.** 9: 46784-46795, **2024**. PMID: 39619516, **IF: 5.2**
8. A. Kar, B. Baral, **U. Subudhi***. Minimum number of oligonucleotide-based stable monomeric branched DNA nanostructure: Biochemical and biophysical study. **Int. J. Biol. Macromol.** 276, 133930, **2024**. PMID: 39025185. **IF: 8.7**
9. P.S. Nial, C. Sathyaseelan, M.M. Bhanjadeo, K.D. Tulsiyan, T. Rathinavelan, **U. Subudhi***. Praseodymium chloride-mediated B-to-Z DNA transition in pyrimidine-purine repeat sequences: Simulation and biophysical study. **J. Mol. Liq.** 407, 125173, **2024. IF: 6.0**
10. P.S. Nial, **U. Subudhi***. Zeta potential of Z-DNA: A new signature to study B-Z transition in linear and branched DNA. **Int. J. Biol. Macromol.** 266, 131238, **2024**. PMID: 38554916 **IF: 8.7**

11. K. Sundaray, B. Baral, **U. Subudhi***. DNA polyhedrons cube, prism, and square pyramid protect the catalytic activity of catalase: A thermodynamics and kinetics study. **Int. J. Biol. Macromol.** 264, 130557, **2024**. PMID: 38431020. **IF: 8.7**
12. S.N. Satapathy, P.S. Nial, K.D. Tulsian, **U. Subudhi***. Light rare earth elements stabilize G-quadruplex structure in variants of human telomeric sequences. **Int. J. Biol. Macromol.** 254, 127703, **2024**. PMID: 37918592 **IF: 8.7**
13. B. Baral, B. Panigrahi, A. Kar, K.D. Tulsian, U. Suryakant, D. Mandal*. **U. Subudhi***. Peptide nanostructures-based delivery of DNA nanomaterial therapeutics for regulating gene expression. **Mol. Ther. Nucleic acids.** 33: 493-510, **2023**. PMID: 37583574, **IF: 10.2**
14. B. Baral, P.S. Nial, **U. Subudhi***. Enhanced enzymatic activity and conformational stability of catalase in presence of tetrahedral DNA nanostructures: A biophysical and kinetic study. **Int. J. Biol. Macromol.** 242: 124677, **2023**. PMID: 37141969, **IF: 8.7**
15. A.B. Jena, R.R. Samal, J. Dandapat, **U. Subudhi***. Thermodynamics of benzoquinone-induced conformational changes in nucleic acids and human serum albumin. **Chem. Biol. Interact.** 369, 110281, **2023**. PMID: 36436547 **IF: 5.4**
16. A. Kar, K. Kumari, S.K. Mishra, **U. Subudhi***. Self-assembled DNA nanostructure containing oncogenic miRNA-mediated cell proliferation by downregulation of FOXO1 expression. **BMC Cancer**, 1332, **2022**. PMID: 36539739, **IF: 4.6**
17. I. Mishra, S. Majumder, S.R. Joshi, **U. Subudhi**, S. Varma*. Integrated X-ray photoelectron spectroscopy and DFT investigations of DNA adsorption on nanostructured SiO_x surface. **Chem. Phys.** 562: 111665, **2022**. **IF: 2.8**
18. M.M. Bhanjadeo, P.S. Nial, C. Sathyaseelan, A.K. Singh, J. Dutta, T. Rathinavelan, **U. Subudhi***. Biophysical interaction between lanthanum chloride and (CG)_n or (GC)_n repeats: A reversible B-to-Z DNA transition. **Int. J. Biol. Macromol.** 216, 698-709, **2022**. PMID: 35809677, **IF: 8.7**
19. K. Kumari, A. Kar, A.K. Nayak, S.K. Mishra, **U. Subudhi***. miRNA-mediated alteration of Sulfatase Modifying Factor-1 expression using self-assembled branched DNA nanostructures. **RSC Adv.**, 11: 10670–10680, **2021**. PMID: 35423539, **IF: 6.1**
20. B. Baral, J. Dutta, **U. Subudhi***. Biophysical interaction between self-assembled DNA nanostructures with bovine serum albumin and bovine liver catalase. **Int. J. Biol. Macromol.** 177: 119-128, **2021**. PMID: 33609575, **IF: 8.7**
21. M.M. Bhanjadeo, B. Baral, **U. Subudhi***. Sequence-specific B-to-Z transition in self-assembled DNA: A biophysical and thermodynamic study. **Int. J. Biol. Macromol.** 137: 337-345, **2019**. PMID: 31247230, **IF: 8.7**
22. A.K. Nayak, S.K. Rath, **U. Subudhi***. Preparation of stable branched DNA nanostructures: Process of cooperative self-assembly. **J. Phys. Chem. B**, 123: 3591-3597, **2019**. PMID: 30964993, **IF: 3.5**

23. M.M. Bhanjadeo, U. Subudhi*. Praseodymium promotes B-to-Z transition in self-assembled DNA nanostructures. **RSC Adv.**, 9: 4616-4620, **2019**. PMID: 35520195, **IF: 6.1**
24. S. Nahar, A.K. Nayak, A. Ghosh, U. Subudhi*, S. Maiti*. Enhanced and synergistic downregulation of oncogenic miRNAs by self-assembled branched DNA. **Nanoscale**, 10: 195-202, **2018**. PMID: 29210414, **IF: 8.3 (Highlighted in the CSIR News)**
25. 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**. PMID: 28189681, **IF: 3.6**
26. 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**. PMID: 27890616, **IF: 3.6**
27. 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. **Nat. Sci. Rep.**, 6: 26855-26867, **2016**. PMID: 27241949, **IF: 5.6**
28. A.K. Nayak, U. Subudhi*. Directed self-assembly of genomic sequences into monomeric and polymeric branched DNA structures. **RSC Adv.** 4: 54506-54511, **2014**. **IF: 6.1**
29. S. Majumder, I. Mishra, U. Subudhi, S. Varma*. Enhanced biocompatibility for plasmid DNA on patterned TiO₂ surfaces. **Appl. Phys. Lett.** 103: 63103, **2013**. **IF: 4.0**
30. 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: 7.4**
31. 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: 4.0**

B. Chemical Biology: Biochemical and Biophysical Study

32. P Tiwari, M Garg, S Pattanayak, I Sarkar, R Roy, N Bhatraju, A Verma, S Raj K, S Prakash, V S Kumar, MA Uddin, N Rawat, A Sahu, Y Kumar, PH Leuva, A Mridha, V Yenamandra, AP Singh, A Mishra, S Raychaudhuri, KB Tallapaka, GR Chandak, MJ Kulkarni, M Dharne, R Wahengbam, J Kalita, P Manna, U Subudhi, S Majumder, P Chakraborty, K Chaudhary, S Sengupta, Phenome India Consortium, V Sardana*, S Chatterjee*, D Ganguly* A Scalable Biological Clock for Metabolic Disease Prediction from the Phenome India Cohort. **medRxiv**, **2026** //doi.org/10.64898/2026.08.29.26361656
33. Md I. Ali, M. Rathore, R. Ujjainiya, S. Prakash, A. Sahu, S. Ray, N. Rawat, R. K. Vijyakumari, M. K. Das, M. S. Kale, S. Chowdhury, P. Basu, A. Mishra, K. Chaudhary, S. Roychaudhri, K. B. Tallapaka, P. Chakraborty, U. Subudhi, M. Kulkarni, J. Kalita, A. Awasthi, Phenome India Consortium, V. Sardana, S. Sengupta.* Assessing inter-platform

- variability of blood parameters across three automated platforms: Report from multi-centric phenome India study. [medRxiv](https://doi.org/10.64898/2026.01.24.26344729), **2026** //doi.org/10.64898/2026.01.24.26344729.
34. M. Arvind, A Verma, S Raj K., S. Prakash, V.S. Kumar, MA Uddin, A. Narayan, M. Rathore, N. Rawat, A. Sahu, Y. Kumar, P. H Leuva, M. Sharma, Rajesh S., D. Saha, A. Mridha, I.J Nath, A. Hussain, B. Rajkumari, M. Thapa, N. Kumari, Vishwapriya S., S. Chatterjee, D. Ganguly, A. Awasthi, V.K. Yenamandra, A.P Singh, A. Mishra, S. Raychaudhuri, K.B. Tallapaka, G.R. Chandak, M.J. Kulkarni, M.S. Dharne, R. Wahengbam, **U. Subudhi**, S. Biswas, Shalimar, K. Chaudhary*, S. Sengupta*, P. Chakrabarti*, V. Sardana*, Phenome India Consortium. Burden of MASLD and Liver Fibrosis in India: Evidence from Phenome 1 India study. [Lancet Reg Health Southeast Asia](#) 45:100723, **2026**. PMID: 41684741 **IF: 6.4**
 35. A. Pradhan, B. Sahoo, G. Parida, S.K. Sethy, K.J. Sankaran, **U. Subudhi**, D. Behera*. Probing antibacterial activity of ZnO and ZnO:S thin films against *E. coli* and *S. typhi* with structural, optical and electrical properties. [Inorg. Chem. Commun.](#)184: 115865, **2026**. **IF: 5.9**
 36. M. Arvind, A. Verma, S. Raj K, S. Prakash, V.S Kumar, Unveiling the Burden of MASLD and Liver Fibrosis in India: Novel Insights from the Phenome India Study into fibrosis without MASLD, [medRxiv](#), **2025**.
 37. S. Sengupta*, Phenome India Consortium, D. Dash, V. Sardana, K. Chaudhary, G.R. Chandak, S. Raychaudhuri, K.B. Tallapaka, M.J. Kulkarni, P. Chakraborty, D. Ganguly, **U. Subudhi**. Study Research Protocol for Phenome India-CSIR Health Cohort Knowledgebase (PI-CHeCK): A Prospective multi-modal follow-up study on a nationwide employee cohort. [Biol. Methods Protoc.](#) 10: bpaf061, **2025**, PMID: 41080463 **IF: 2.8**
 38. J. Nath, M. Kar, N. Priyadarsini, B. Ramasamy, **U. Subudhi**, T. Das* Ambient air pollution exposures and alterations in health biomarkers: Evidence from a prospective observational study. [Air Qual. Atmos. Health](#), 1-26, **2025**, **IF: 3.8**
 39. S. Bhoi, K.S.S. Kiran, B.P. Dash, K. Sundaray, **U. Subudhi**, N.K. Narasimha*. SDS-induced phenoloxidase activity involves structural perturbation of the N-terminal domain in hemocyanin from Indian horseshoe crab *Tachypleus gigas*: Kinetics and thermodynamics studies with catecholamines. [Int. J. Biol. Macromol.](#), 318: 144887, **2025**. **IF: 8.7**
 40. R.R. Samal, **U. Subudhi***. Modulation of antioxidant enzyme by light and heavy rare earth metals: A case study with catalase. [Int. J. Biol. Macromol.](#), 283: 137820, **2024**. PMID: 39566800, **IF: 8.7**
 41. Phenome India Consortium, Study Research Protocol for Phenome India-CSIR Health Cohort Knowledgebase (PI-CHeCK): A Prospective multi-modal follow-up study on a nationwide employee cohort. [medRxiv](#) **2024**.

42. R.R. Samal, U. **Subudhi***. Biochemical and Biophysical Interaction of Rare Earth Elements with Biomacromolecules: A Comprehensive Review. **Chemosphere**. 357: 142090, **2024**. PMID: 38648983, **IF: 8.9**
43. B. Sahoo, U. **Subudhi**, S.K. Pradhan, D. Behera*. Probing the effect of stoichiometry on structural, optical, and bacterial growth inhibition properties of ZnO thin films against E. Coli. **Nano-Structures and Nano-Objects**. 38: 101124, **2024**. **IF: xxxx**
44. R.R. Samal, H.S. Navani, S. Saha, B. Kisan, U. **Subudhi***, Evidence of microplastics release from polythene and paper cups exposed to hot and cold: a case study on the compromised kinetics of catalase. **J. Hazard. Mater.** 454, 131496, **2023**. PMID: 37121030, **IF: 14.22**
45. M. Gourai, A.K. Nayak, P.S Nial, B. Satpathy, R. Bhuyan, S.K. Singh, U. **Subudhi***. Thermal plasma processing of Moringa oleifera biochars: Adsorbents for fluoride removal of water. **RSC Adv.**, 13 (7), 4340-4350, **2023**. PMID: 36744284, **IF: 6.1**
46. R.R. Samal, K. Sundaray, K.D. Tulsian, S. Saha, G.B.N. Chainy, U. **Subudhi***, Compromised conformation and kinetics of catalase in the presence of propylthiouracil: A biophysical study and alleviation by curcumin. **Int. J. Biol. Macromol.** 226, 1547-1559, **2023**. PMID: 36455824, **IF: 8.7**
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54. K. Kumari, G.B.N. Chainy, U. **Subudhi***, Prospective role of thyroid disorders in monitoring COVID-19 Pandemic. [Heliyon](#), 6: e05712, **2020**. PMID: 33344794, **IF: 4.0**
55. R.R. Samal, M. Mishra, U. **Subudhi***. Differential interaction of Cerium chloride with Bovine Liver Catalase: A computational and biophysical study. [Chemosphere](#). 239: 124769-, **2020**. PMID: 31526997, **IF: 8.9**
56. S. Sharma, R.R. Samal, U. **Subudhi***, G.B.N. Chainy*. Lanthanum chloride-induced conformational changes of bovine liver catalase: A computational and biophysical study. [Int. J. Biol. Macromol.](#) 115:853-860, **2018**. PMID: 29698762, **IF: 8.7**
57. M.M. Bhanjadeo, K. Rath, D. Gupta, N. Pradhan, S.K. Biswal, B.K. Mishra, U. **Subudhi***. Differential desulfurization of dibenzothiophene by newly identified *MTCC* strains: Influence of *Operon* Array. [PLOS ONE](#) 13(3): e0192536, **2018**. PMID: 29518089, **IF: 3.8** (Highlighted in the Hindu and CSIR news).
58. S. Mishra, P. Panda, N. Pradhan*, D. Satpathy, U. **Subudhi**, S.K. Biswal, B.K. Mishra. Effect of native bacteria *Sinomonas flava* IC and *Acidithiobacillus ferrooxidans* on desulphurization of Meghalaya coal and its combustion properties. [Fuel](#). 117: 415-421, **2014**. **IF: 8.0**
59. 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: 3.0**
60. 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**. PMID: 22733496, **IF: 3.2**
61. 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: 7.4**
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64. 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**. PMID: 19174171, **IF: 6.8**
65. 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**. PMID: 18377885, **IF: 5.4**

66. 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. Part C** 146: 383-391, **2007**. PMID: 17561443, **IF: 4.5**
67. 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 (T₃). **Mol. Cell. Biochem.** 303: 239-242, **2007**. PMID: 17426926, **IF: 4.7**
68. **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**. PMID: 16955750, **IF: 2.1**

Patents filed by US Lab @ CSIR-IMMT

A self-assembled 3D tri-oligonucleotide DNA tetrahedral nanostructure and a process for the preparation thereof (**IN202611083193-Patent application filed on 06/07/2026**).

Research Papers Highlighted in Nature India (Nature Publishing Group)

- A paper entitled “Sequence-specific B-to-Z transition in self-assembled DNA: A biophysical and thermodynamic study” published in *Int. J. Biol. Macromol.* 2019 is highlighted in Nature India with a running title “**DNA-based nanodevices for detecting nerve disorders**”, 2019. <https://www.natureasia.com/en/nindia/article/10.1038/nindia.2019.95>
- A paper entitled “Differential desulfurization of dibenzothiophene by newly identified *MTCC* strains: Influence of *Operon* Array” published in *PLOS ONE* 2018 is highlighted in Nature India with a running title “**Bacteria help produce low-Sulphur fossil fuels**”, 2018. <https://www.natureasia.com/en/nindia/article/10.1038/nindia.2018.35>
- 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. <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 template 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>

Doctoral and Post-Doctoral Alumni of US Lab @ IMMT

Name of the Scholar Award Month & Year	Academy/University External Examiners	Title of the PhD Thesis *Post-doctoral Project	Working as Current Affiliation
Dr M. M. Bhanjadeo CSIR/UGC-SRF 31 December 2018	AcSIR, Ghaziabad Prof. Souvik Maiti IGIB, New Delhi	Lanthanide mediated B-to-Z transition in self-assembled bDNA: A biophysical study	Asst. Professor, Dept. of Biotechnology, Ravenshaw University
Dr Kanchan Kumari CSIR-Nehru PDF 5 September 2019	CSIR-Nehru Science PDRF 2019-2022	*Association of miR-148, 106 and 128 with reduced expression of SUMF-1 in breast cancer	PostDoc @, Dept. of Mol. Biol. Umea University, Sweden
Dr Ashok K Nayak CSIR-SRF 13 March 2020	Ravenshaw Univ. Prof.M.K. Thakur BHU, Varanasi	Synthesis of DNA Nanostructures from Genomic Sequences and their application	Asst. Professor, Dept. of Biotechnology, RD Women's University
Dr Atala Bihari Jena Project-SRF 19 September 2022	Utkal University, Prof. Shukla Prasad BHU, Varanasi	Conformational dynamics of biomolecules exposed to polycyclic aromatic hydrocarbons	Post-Doctoral Fellowship @ State University of New York
Dr Bineeth Baral DST-INSPIRE-SRF 18 January 2024	AcSIR, Ghaziabad Prof. Jyotirmayee Dash, IACS, Kolkata	Genomic sequence based self-assembled bDNA nanostructures for gene regulation	MK Bhan Young Researcher Fellowship @ BRIC-ILS, Odisha
Dr Rashmi R. Samal DST-INSPIRE-SRF 22 March 2024	AcSIR, Ghaziabad Prof.M.K. Thakur BHU, Varanasi	Conformational changes in catalase by REEs: A computational and biophysical study	ANRF National Post-Doctoral Fellowship @ Institute of Life Sciences, Bhubaneswar
Dr Partha S Nial UGC-SRF 27 November 2024	AcSIR, Ghaziabad Prof. Dhiraj Bhatia IIT Gandhinagar	Sequence-specific conformational switching in self-assembled Nucleic acids	ANRF National Post-Doctoral Fellowship @ BRIC-NIAB Hyderabad
Dr Avishek Kar ICMR-SRF 28 November 2024	AcSIR, Ghaziabad Prof. Reji Varghese IISER, Kerala	Self-assembled DNA nanostructures for switching gene expression	ANRF National Post-Doctoral Fellowship @ IISER Berhampur
Dr Sampat N. Satapathy DBT-SRF 30 April 2025	AcSIR, Ghaziabad Prof. N.K. Sharma NISER, Odisha	Metal-induced conformational changes in G-quadruplex: A biophysical study	Looking for Post-Doctoral Fellowship
Dr Kajal Sundaray CSIR-SRF 3 March 2026	AcSIR, Ghaziabad Prof. Dhiraj Bhatia IIT Gandhinagar	Biophysical characterization of self-assembled DNA nanostructures	Looking for Post-Doctoral Fellowship

Awards and Fellowship Received by Doctoral Students

- 2026 ANRF National Post-Doctoral Fellowship by Dr Rashmi R Samal @ BRIC-ILS.
- 2026 DESIGN for BIOE3 Challenge Award to Dr Partha S Nial by BRIC-DBT.
- 2025 MK Bhan Young Researcher Fellowship by Dr Partha S Nial @ NIAB Hyderabad.
- 2025 ANRF National Post-Doctoral Fellowship by Dr Avishek Kar @ IISER Berhampur.
- 2025 ANRF National Post-Doctoral Fellowship by Dr Partha S Nial @ NIAB Hyderabad.
- 2025 Young Researcher Award in Pharmaceutical Sciences to Dr Rashmi R Samal by SYBS.
- 2024 MK Bhan Young Researcher Fellowship by Dr Bineeth Baral @ BRIC-ILS, Odisha.
- 2023 MK Bhan Young Researcher Fellowship by Dr Atal Bihari Jena @ BRIC-NCCS, Pune.
- 2023 Best Oral Presentation Award to Bineeth Baral by the Soft Materials Research Society.

Current Lab Members @ US Lab Research Group

Research Fellows	Research Problem	Duration
Alok Pattanaik , UGC-SRF AcSIR Regd. No. 10BB24J36005	Metal-assisted structural changes in DNA nanomaterials	Jan 2024- Dec 2028
Swagatika Dash , UGC-SRF AcSIR Regd. No. 10BB24J36004	Designing of DNA polyhedrons as carrier of nucleic acid therapeutics for gene regulation	May 2024 -Apr 2029
Prangyasinee Jena , CSIR-JRF AcSIR Regd. No. 10BB25A36007	Understanding the stability of lanthanide-induced left-handed DNA	Aug 2025 –July 2030
Sonalika Balabantaray , CSIR-JRF AcSIR Regd. No. 10BB25A36003	Metal-mediated complexation of DNA nanomaterials for drug delivery	Aug 2025 –July 2030
Monalisha Routray , CSIR-JRF AcSIR Regd. No. 10BB26J36004	Lanthanide-induced RNA G-quadruplexes and stabilization by phytochemicals by	Jan 2026- Dec 2030
Soumya Ranjan Patra , CSIR-JRF AcSIR Regd. No. 10BB26A36002	Metal profile biomarker for diabetic population in PhenomeIndia Cohort	Aug 2026- July 2031
Suvendu Panda , Project JRF PhenomeIndia Project	Serum metallomics in Indian population	2025-2027
Nikita Dash , Project JRF PhenomeIndia Project	Serum metallomics in Indian population	2026-2027

Reviewer in International Journals

Chemical Society Reviews, Nanoscale, International Journal of Biological Macromolecules, Chemical Communications, Scientific Reports, Molecular Biology Reports, Gene Reports, Chemosphere, RSC Advances, Journal of Nanoparticle Research, Journal of Nanomaterials, Cellular Signaling, Environmental Toxicology & Pharmacology, Environmental Health, Carbohydrate Polymers, Journal of Molecular Liquids, Neuroendocrinology, Journal of Chemical Information and Modeling, Biomaterials Science, Applied Surface Science, Food Chemistry, Biochemistry & Biophysics Reports, Microchemical Journal, Biogerontology, Chemico Biological Interactions, ACS Omega, Energy & Fuels, Journal of Biosciences, Physical Chemistry Chemical Physics, Journal of Molecular Structure, Biochemical & Biophysical Research Communications, Chemical Physics Impact, Journal of Hazardous Materials Advances, ChemistrySelect, Nucleosides, Nucleotides & Nucleic Acids, Cancer Genetics etc.

Teaching Experience (>18 years) @ Utkal University, Bhubaneswar & AcSIR, Ghaziabad

- **More than 14 years of teaching experience @ AcSIR** as Professor (2024 to till date), Associate Professor (2019 to 2024) and Assistant Professor (2012 to 2019) in the Faculty of Biological Sciences under Academy of Scientific & Innovative Research (AcSIR, MHRD Id: U-0713). Designing the course curricula for doctoral students of Biological Sciences. Taking classes during Pre-PhD course work on Techniques in Biochemistry, Molecular Biology, and DNA Nanoscience for the January and August sessions.
- **More than 5 years of teaching experience @ Utkal University (2004-2009)** on theory as well as practical classes of M.Sc. Biotechnology students at the Post Graduate Department of Biotechnology, Utkal University, Odisha. **Courses Taught:** Cell Biology, Biochemistry, Enzymology, Genome and Gene Regulation, Molecular Biology, Genetic Engineering and Techniques in Molecular Biology.

Research Experience (>20 years) Including Independent Research (>16 years)

- **Post-Doctoral and Independent Research Experience as Scientist** (Since 7 August 2009) in the area of DNA Nanomaterials & Application under the Mentorship of **Prof. B.K Mishra**, FNAE, (Former Director, CSIR-IMMT, Bhubaneswar and Founder Director, IIT Goa), with the support of various funding agencies and national awards.
- **Doctoral thesis work** on “Modulation of hepatic antioxidant gene expression in hypo-and hyperthyroid rats by vitamin E and curcumin” under the supervision of **Professor Gagan Bihari Nityananda Chainy**, FNASc in the Post Graduate Department of Biotechnology, Utkal University, Odisha during 15 January 2005 - 6 May 2009.
- **Pre-Doctoral work and standardization of PCR, RT-PCR and Western blot techniques** at the Department of Biotechnology under the guidance of Grand Guru **Padma Shri Professor Madhusudan Kanungo**, FNA (First Bhatnagar Awardee from Odisha,) and Lifetime Professor, Banaras Hindu University, Varanasi.
- **Inspiration for Doctoral study from Professor Kalappa Muniyappa**, Former Chairman & Professor, Department of Biochemistry, Indian Institute of Science, Bangalore, India.
- **Post MSc Research work** on “Kinetics and mechanism of reduction of ferricytochrome c by glutathione and L-cysteine” (August to December 2004) under the guidance of **Prof. Prakash C. Mohanty** in the Department of Chemistry, Utkal University, Odisha.
- **MSc Dissertation on Molecular Biology Techniques** under the guidance of **Prof. Pramod C Rath** in the School of Life Sciences, Jawaharlal Nehru University, New Delhi.
- **Post BSc Career Counseling and Research motivation under the mentorship of Professor Balaram Sahoo**, Former Professor of Chemistry, Indian Institute of Technology, Kharagpur and Founder of DAV School in Rural area of Baramba, Cuttack.

Societal Recognition by Registered Bodies/Association/Organisation

- **Sri Bhimasen Samman** by Sai Aradhana Sangeet Sudha for Excellence in Education 2026.
- **Samaja Suddha Samman** by the SAR Foundation Trust for Scientific Excellence 2019.
- **Secretary**, Biotechnology Alumni Association (BAAS), Utkal University, (2005-2011).
- **Secretary**, RRL Sangeeta Kendra, CSIR-IMMT Campus, Bhubaneswar (2010-2012).
- **State Youth Coordinator**, Sri Sathya Sai Seva Organisations, Odisha (2014-2018).
- **Distinguished Alumni** of the P.G. Department of Biotechnology, Utkal University.

Life Member in Scientific Society/Association/Academy

- **Life Member**, Odisha Bigyan Academy (OBA), Bhubaneswar, Odisha, since 2017.
- **Life Member**, Indian Association for Cancer Research (IACR), India, since 2020.
- **Life Member**, Chemical Research Society of India (CRSI), India, since 2020.
- **Life Member**, Society of Biological Chemists, India (SBCI), since 2026.
- **Life Member**, Chemical Biology Society, India (CBSI), since 2026.
- **Life Member**, Association of Microbiologist of India, since 2011.
- **Life Member**, Orissa Environmental Society (OES), since 2026.
- **Life Member**, Vijnana Bharati, New Delhi, India, since 2017.
- **Life Member**, Indian Biophysical Society, (IBS), since 2026.