Curriculum Vitae

Dr. Subhankar Paul

Professor

Department of Biotechnology and Medical Engineering
Chief Investigator, Nano-innovations Laboratory,
National Institute of Technology Rourkela, Rourkela-769 008, Odisha, India.

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Education

Ph.D (Biochemical Engineering & Biotechnology) ***Indian Institute of Technology Delhi***, New Delhi, India, 2003-2007.

M. Tech. (Chemical Engineering) ***Indian Institute of Technology Kanpur***, Kanpur, India, 2001.

B. Eng. (Chemical Engineering) ***Jadavpur University***, Kolkata, India, 1999.

Work Experience:

1. Professor, National Institute of Technology Rourkela (2020-Present)
2. Associate Professor, National Institute of Technology Rourkela (2011-2020)

3. Assistant Professor, National Institute of Technology Rourkela (2008-2011)
4. Lecturer, National Institute of Technology Rourkela (2007-2008)
5. Visiting Faculty, Motilal Nehru National Institute of Technology Allahabad (2007,Jan-2007, June)
6. Lecturer, Heritage Institute of Technology Kolkata (2006, Oct-2006, Dec)

Specialization and Experience

Nanotechnology in Industrial Waste Utilization, Solar Energy-Driven Pollutant Remediation, Green Construction Materials, and Nanotechnology in Therapeutic Applications.

Awards/Honors

Invited Talk at ICLED-2024, 2nd International Conference on Low-Energy Digital Devices and Computing (ICLED 2024), August 1st-4th, Singapore, 2024.
Speaker, ICSEECE-24, The 2024 International Conference on Sustainable Energy and Environmental Technology for Circular Economy SEECE-2024, Kasetsart University, Bangkok, Thailand.
Invited Talk at Yamagata University, Yonezawa, International symposium of YU-COE @ AFTEK and HECT, Nov 27th, 2018, Japan.
Certificate of recognition award by ACS Publication., 2017.
Invited Talk at Life Science Department, University of Tokyo, Japan, Nov 30, 2018.
Life Member, All India Institution of Engineers (AIIE).
Keynote speaker, International Conference in Chemical, Biological and Environmental Engineering, 2013, Bangkok.
JSPS (Japanese Society for the Promotion of Science) awards for East Asian Young Researcher (JENESYS), 2009.period: June, 2009-August, 2009 (02 months).
DST-fast track project, 2008
. Reviewer of the *Journal of Molecular Medicine*; *Nanomedicine:Nanotechnology, Biology, Medicine*; *ACS Applied Materials & Interface, RSC Advances, Advanced Science, New Journal of Chemistry; PloS One, Applied Science*
. *Reviewer of Project proposal: SERB, DBT; Govt. of India*
. Editorial Review Board member of Scientific Journals International (SJI). (http://www.scientificjournals.org/index.php).
. Research Fellowship, Indian Institute of Technology Delhi.
. Qualified in Graduate Aptitude Test in Engineering (GATE), for Master's fellowship.

Courses Taught at National Institute of Technology Rourkela:

Nanotechnology in Biomedical Engineering (BM428)
Bioprocess calculation (BM251)
Advanced Protein Engineering (BM643)
Bioprocess optimization (BM657)
Engineering Mass Transfer (BM236)
Protein Engineering and Proteomics (BM346)
Biochemical Engineering

Advanced Bioseparations
Protein misfolding disorder: current therapy
. Cell and molecular biology
. Biophysics and Structural Biology

Post-Doctoral Research Experience at the Institute for Molecular Sciences, Japan

June, 2009-August, 2009; Short-term JSPS Postdoctoral Researcher, Department of Life and Co-ordination Complex Molecular Science, Institute For Molecular Sciences, National Institutes of Natural Sciences, Okazaki, Japan.

Teaching Experience

Professor (February, 2020- Present) continuing teaching B.Tech, M.Tech and Ph.D students in the Dept. of Biotechnology and Medical Engineering at **National Institute of Technology Rourkela** since July 2011
Associate Professor (July, 2011- 2020) Dept. of Biotechnology and Medical Engineering at **National Institute of Technology Rourkela** since July 2011.
Assistant Professor (July, 2008- present) Dept. of Biotechnology and Medical Engineering at **National Institute of Technology Rourkela** since July 2008.
Lecturer (July, 2007- June, 2008) Dept. of Biotechnology and Medical Engineering at **National Institute of Technology Rourkela** since July 2007.
Visiting Faculty (Jan. 2007-July. 2007) in the dept. of Biotechnology, **Motilal Nehru National Institute of Technology, Allahabad**.
Lecturer (Oct., 2006- Jan. 2007) in the Dept. of Biotechnology, Heritage Institute of Technology, Kolkata.
Guiding M.Tech students in their major projects as part of the Indian Institute of Technology Fellowship program during Ph.D. Program.
B.Tech, M.Tech and Ph.D. laboratory classes (Microbiology, Biochemistry, Molecular Biology and Biophysics) as part of the Indian Institute of Technology Fellowship program during Ph.D. Program.

Patent (Granted)

1. Inventors: **Subhankar Paul** and Sohel Das, "**METHOD FOR SYNTHESIS OF HIGHLY FLUORESCENT METAL-DOPED CARBON DOT AND ITS USE THEREOF**" application no.: 202231047725, Patent No.: 455180. **(Granted).**

2. Inventors: **Subhankar Paul** and Sohel Das, "**CONJUGATED METAL-DOPED CARBON QUANTUM DOT AND USE THEREOF"** application no.: 202231064082, Patent No. 447149, **(Granted)**.

3. Inventors: **Subhankar Paul** and Sohel Das, "**A PHOTO-FENTON BASED CATALYST USING CARBON QUANTUM DOTS AND USE THEREOF"** , application no. is: 202331045554, Patent No. 554242 (**Granted).**

Patent (Filed)

1. Inventors: **Subhankar Paul**, Umasankar Mondal and Sohel Das, "**TITANIA AND GRAPHENE OXIDE BASED PHOTO-FENTON CATALYST AND USE THEREOF**" Indian patent filed on 18.10.2023, application no. is: 202331071180. **(Filed)**

2. Inventors: **Subhankar Paul** and Ashutosh Kumar Singh. "**GREEN CONCRETE BEADS COATED WITH METAL DOPED TITANIA AND SILICA CONJUGATE AS PHOTOCATALYST AND USED THEREOF**" Indian patent filed on 02.11.2024, application no. is: 202431083867. **(FER Filed)**

Ongoing sponsored research projects:

1. Title of project: **multi-functional sprayable hydrogels for prevention of post-surgical abdominal adhesions (2022-2025),** Funding Agency: ICMR, Govt. of India. (**As Co-PI**) Date of Start **24 January 2022, (~49 Lakhs)**

2. Title of project: ***Hsp90-based therapeutic approach for breast cancer* (2008-2011),** Scheme: SERC Fast Track Proposals for Young Scientists. Funding Agency: Department of Science and Technology, Govt. of India. (**As PI**) Date of Start **11 Nov 2009, (~18.11 Lakhs)**

3. Title of project: ***ZnO and* Gold-mediated conformational study of bovine alpha-lactalbumin (2012-2015)**. Funding Agency: Department of BioTechnology (DBT), Govt. of India (**As PI**) Date of Start **12 Apr 2012, (~18.80 Lakhs)**

4. Title of project: **Autophagic cell death induction with abrus agglutinin"** (2011-2015) Funding Agency: Department of BioTechnology (DBT), Govt. of India (**As Co-PI),** Date of Start **24 Jun 2011, (~31.06 Lakhs)**

5. Title of project: **Stability, mutagenesis and functional studies on Fibroblast Growth Factor Homologous Factors.** Funding Agency: Department of BioTechnology (DBT), Govt. of India (**As Co-PI).** Date of Start **05 Sep 2013, (~28.08 Lakhs)**

6. Title of project: **Preparation of stable self-assembled hybrid nanostructure of bovine α-lactalbumin and egg white lysozyme for the evaluation of anti-proliferative activity in multiple cancer cells: Study of simultaneous targeting, therapy and anticancer drug delivery application (2016-2019)** Funding Agency: Science & Engineering Research Board **(SERB),** Govt. of India (**As PI),** Date of Start **26 Sep 2016, (~44.08 Lakhs)**

7. Title of project: **Protective autophagy by secretory clusterin associated with cell survival and chemoresistance in oral cancer.** Funding Agency: Science & Engineering Research Board **(SERB),** Govt. of India (**As Co-PI),** Date of Start **31 Mar 2017, (~31.27 Lakhs)**

8. Title of project: Multi-functional sprayable hydrogels for prevention of post-surgical abdominal adhesions.Sponsoring Agency: ICMR Govt. of India (**As Co-PI).**

Industry Consultancy:

Analysis of Import Balance and Consumption. IDL Explosive Limited, Sonaparbat, Sundargarh, Rourkela-769016 (As Consultant: Prof. Ajit Behera, Co-Consultant: Prof. S. Paul), 2024.

Journal Reviewer

- ACS Applied Materials & Interfaces
- Applied Organometallic Chemistry
- Nanomedicine: Nanotechnology, Biology and Medicine – Journal
- ACS Applied Materials & Interfaces
- Journal of Hazardous Materials
- International Journal of Biological macromolecule
- pLOS One
- J of Nanoparticle research, Nanoscale
- Carbohydrate Research
- Biomacromolecules
- Scientific Reports
- Colloids and Surfaces B

Publications

(a) International Journal

1. Sonali Mohanty, Sikta Panda, U. Devadharshini, Subhankar Paul, Proteins and their functionalization for finding therapeutic avenues in cancer: Current status and future prospective, **Biochimica et Biophysica Acta (BBA) - Reviews on Cancer**, 1878, 2023, 188862, https://doi.org/10.1016/j.bbcan.2023.188862.

2. Devadharshini U, Sonali Mohanty, **Subhankar Paul**, Fabrication of curcumin conjugated self-assembled lysozyme nanoparticle as potential food additive with enhanced antibiofilm and antioxidant activity, **Biocatalysis and Agricultural Biotechnology**, Volume 60, 2024,103305, ISSN 1878-8181, https://doi.org/10.1016/j.bcab.2024.103305.

3. Somu P, Mohanty S, Basavegowda N, Yadav AK, **Paul S**, Baek KH. The Interplay between Heat Shock Proteins and Cancer Pathogenesis: A Novel Strategy for Cancer Therapeutics. **Cancers** (Basel). 2024 Feb 1;16(3):638. doi: 10.3390/cancers16030638. PMID: 38339390; PMCID: PMC10854888.

4. S Das, P Somu, AK Yadav, P Hopke, **S Paul**. Recent advances on II-VI group semiconductors and carbon-based quantum dots for fluorescence-based sensing of metal ions in water, ***Environ. Sci.: Nano***, 2024, **11**, 739-765.

5. Prathap Somu, Nagaraj Basavegowda, Levin Anbu Gomez, Jayaprakash H.V., Puneetha G.K., Akhilesh Kumar Yadav, **Subhankar Paul***, Kwang-Hyun Baek. Crossroad between the Heat Shock Protein and Inflammation Pathway in Acquiring Drug Resistance: A Possible Target for Future Cancer Therapeutics, **Biomedicines Journal**, 2024, MDPI.

6. S Mohanty, T Bharadwaj, D Verma, **S Paul**. Development of Ag-doped ZnO nanostructure and tranexamic acid infused chitosan-guar gum film: A multifunctional antimicrobial dressing with hemostatic and wound closure potential. **Chemical Engineering Journal** 472, 144976, 2023.

7. Somu, P.; Basavegowda, N.; Gomez, L.A.; Jayaprakash, H.V.; Puneetha, G.K.; Yadav, A.K.; **Paul, S**.; Baek, K.-H. Crossroad between the Heat Shock Protein and Inflammation Pathway in Acquiring Drug Resistance: A Possible Target for Future Cancer Therapeutics. ***Biomedicines*** **2023**, *11*, 2639.

8. S Das, U Mondal, and **Subhankar Paul**, Highly fluorescent metal-doped carbon quantum dots prepared from hen feather demonstrating pH-dependent dual sensing of 4-Nitrophenol and Hg^{2+} ion, **Applied Surface Science**, Available online 11 July 2023, 157998.

9. S Mohanty, S Panda, U Devadarshini and **Subhankar Paul**, Proteins and their Functionalization for Finding Therapeutic Avenues in Cancer: Current Status and Future Prospective, **BBA-Reviews on Cancer,** 1878, 2023, 188862.

10. U Mondal, S Das, Prathap S and **Subhankar Paul**, Silica Sand Supported Nano Zinc Oxide-Graphene Oxide Composite Induce Rapid Photocatalytic Decolorization of Azo Dyes Under Sunlight and Improved Antimicrobial Activity, ***Environ Sci Pollut Res*** (2022). DOI:10.1007/s11356-022-23248-6.

11. A Khadria, S Paul. Formation of Stable Cruciform Assembly of Gold Nanoparticles from *Cannabis indica* Leaves. Applied Nano 3 (3), 2022, 143-148.

12. S Panda and **Subhankar Paul**. Influence of Strontium and Niobium on The Physical and Biological Performance of Hydroxyapatite as A Bioactive Coating on Implant Materials. **Ceramic International,** 48, 33256-33266**, 2022**.DOI: 10.1016/j.ceramint.2022.07.268.

13. SR Sahoo, D Sarkar, P Somu, **Subhankar Paul**, P Lönnecke. Unprecedented Rearrangement of β-difluoroboryloxy Ethers: A Route to C-2 alkyl-chromenones. **Synlett,** 2022. DOI: 10.1055/a-1833-8927.

14. S Panda, BP Behera, SK Bhutia, CK Biswas, **S Paul**. Rare Transition Metal Doped Hydroxyapatite Coating Prepared via Microwave Irradiation Improved Corrosion Resistance, Biocompatibility and Anti-biofilm Property of Titanium Alloy. **Journal of Alloys and Compounds**, 165662, 2022.

15. S Das and **Subhankar Paul**. Optimized One Pot Synthesis of CdSe Quantum Dot Capped with 3-mercaptopropionic acid as an efficient fluorescent probe for selective detection of Hg (II). In Press, **Water and Environment Journal,** 2022. DOI:10.1111/wej.12785.

16. S Das, V Singh and **Subhankar Paul**. Surface Conjugation of Titanium Dioxide Nanoparticles on Nano Graphene Oxide Enhances Photocatalytic Degradation of Azo dyes under Sunlight. **Environmental Science and Pollution Research**, 2022. DOI: 10.1007/s11356-022-18796-w.

17. S Panda, M Kazama, T Kawai, CK Biswas, **Subhankar Paul.** Controlled surface modification of Ti6Al4V using biomimetic mineralization via thermo-chemical route improves bioactivity. **Ceramics International**. Available online 7 January 2022. https://doi.org/10.1016/j.ceramint.2021.12.351.

18. S. Das, P Somu and **Subhankar Paul**. Visible light induced efficient photocatalytic degradation of azo dye into nontoxic byproducts by CdSe quantum dot conjugated nano graphene oxide. **Journal of Molecular Liquids,** 340, 117055, 2021.

19. S Panda, CK Biswas and **Subhankar Paul**. Coating of Ti-6Al-4V alloy with chitosan and BSA for enhanced biocompatibility. **Materials Today: Proceedings** 33, 5577-5581, 2020.

20. S Panda, CK Biswas and **Subhankar Paul**. A comprehensive review on the preparation and application of calcium hydroxyapatite: A special focus on atomic doping methods for bone tissue engineering. **Ceramics International** 47 (20), 28122-28144, 2021.

21. Prathap Somu, Vineeta Singh, **Subhankar Paul**. Effective removal of proteins using carbon-based nanoadsorbent: relevancy to the application of membrane-driven pre-water treatment. **Journal of Chemical Technology & Biotechnology**.2021.

22. Prathap S, Vineeta S, **Subhankar Paul**. Surface conjugation of curcumin with self-assembled lysozyme nanoparticle enhanced its bioavailability and therapeutic efficacy in multiple cancer cells. **Journal of Molecular Liquids** 338, 116623, 2021.

23. Prathap S and **Subhankar Paul.** Protein assisted one pot-controlled synthesis of monodispersed, multifunctional colloidal silver-gold alloy nanoparticles. **Journal of Molecular Liquids**, 291, **2019,** 111303**.**

24. Prathap S and **Subhankar Paul.** Biomolecule assisted one-pot synthesis of zinc oxide nanoparticles and its bioconjugate with curcumin for potential multifaceted therapeutic application. ***New J. Chem.***, **2019**, 43, 11934-11948.

25. Prajna P. Naik, Debasna P. Panigrahi, Kewal K. Mahapatra, Srimanta Patra, Prakash P. Praharaj, Chandra S. Bhol, Sarbari Saha, Aditya K. Panda, Krupasindhu Panda, **Subhankar Paul**, Palok Aich, Sujit K. Bhutia. Secretory clusterin-dependent autophagy contributes to cell survival and chemoresistance in oral squamous cell carcinoma. **Cancer Biology & Therapy**, 264:118722, **2019**.

26. Vidyalata Kolli, Praveen K Guttula, **Subhankar Paul** and Nandini Sarkar. Elucidating the Role of Val-Asn 95 and Arg-Gly 52 Mutations on Structure and Stability of Fibroblast Growth Factor Homologous Factor 2. In Press**, Protein & Peptide Letters**, 26, 848-859, **2019.**

27. Prathap Somu and **Subhankar Paul**. Supramolecular nanoassembly of lysozyme and α-lactalbumin (apo) exhibits selective cytotoxicity and enhanced bioavailability of curcumin to cancer cells. **Colloids and Surfaces B: Biointerfaces**. 178:297-306, **2019.**

28. Prathap Somu, Uma Khannan and **Subhankar Paul.** Biomolecule functionalized magnetite nanoparticles efficiently adsorb and remove heavy metal from contaminated water. **Journal of Chemical Technology & Biotechnology**. Online published. **2019**. https://doi.org/10.1002/jctb.5984.

29. Deependra K Ban, Prathap S and **Subhankar Paul**. Functionalized gold and silver nanoparticles modulate amyloid fibrillation, defibrillation and cytotoxicity of lysozyme via altering protein surface character. **Applied Surface Science**, 473, 373-385, **2019**.

30. Deependra K Ban, Prathap S and **Subhankar Paul**. Graphene oxide quantum dot alters amyloidogenicity of hen egg white lysozyme via modulation of protein surface character. **Langmuir,** 34, 15283-15292, **2018**.

31. Prathap S and **Subhankar Paul**. Bio-conjugation of curcumin with self-assembled casein nanostructure via surface loading enhances its bioactivity: An efficient protein-based therapeutic system. **Applied Surface Science**, 462, 316-329, **2018**.

32. Deependra K Ban and **Subhankar Paul**. Rapid colorimetry and spectroscopy based sensing of heavy metal and cellular free oxygen radical by surface functionalized silver nanoparticles. **Applied Surface Science**, 458, 245-251, **2018**.

33. Saranya P, Prathap S and **Subhankar Paul**. Chitosan and graphene oxide hybrid nanocomposite film doped with silver nanoparticles efficiently prevents biofouling. **Applied Surface Science**, 452, 487-497, **2018**.

34. Prathap Somu and **Subhankar Paul**. Casein based biogenic-synthesized zinc oxide nanoparticles simultaneously decontaminates heavy metal ions, dyes and pathogenic microbes: A rational strategy for wastewater treatment. **Journal of Chemical Technology & Biotechnology**. 93, 2962–2976, **2018**

35. Babu MS, Mahanta S, Lakhter AJ, Hato T, **Paul S**, Naidu SR. Lapachol inhibits glycolysis in cancer cells by targeting pyruvate kinase M2. **PloS one** 13 (2), **2018**, e0191419.

36. Sailendra Mahanta, Prathap S., Deependra Ban and **Subhankar Paul**. Protein functionalization of ZnO nanostructure exhibits selective and enhanced toxicity to breast cancer cells through oxidative stress-based cell death mechanism. **J Photochem Photobiol B**. 173, 376-388, **2017**.

37. Takenaka T, Nakamura T, Yanaka S, Yagi-Utsumi M, Chandak MS, Takahashi K, **Paul S**, Makabe K, Arai M, Kato K, Kuwajima K. Formation of the chaperonin complex studied by 2D NMR spectroscopy. **PLoS One.** 12(10): e0187022, **2017**.

38. Panda PK, Behera B, Meher BR, Das DN, Mukhopadhyay S, Sinha N, Naik PP, Roy B, Das J, **Paul S**, Maiti TK, Agarwal R, Bhutia SK. Abrus agglutinin, a type II ribosome inactivating protein inhibits Akt/PH domain to induce endoplasmic reticulum stress mediated autophagy-dependent cell death. **Mol Carcinog**. 56, 389-401, **2017**.

39. Deependra Ban and **Subhankar Paul**. Nano Zinc Oxide Inhibits Fibrillar Growth and Suppresses Cellular Toxicity of Lysozyme Amyloid. **ACS Applied Materials & Interfaces**, 8(46) , 31587-3160, **2016**.

40. Deependra K Ban and **Subhankar Paul**. Protein corona over silver nanoparticles triggers conformational change of proteins and drop in bactericidal potential of nanoparticles: Polyethylene glycol capping as preventive strategy. **Colloids and Surfaces B: Biointerfaces,** 146, 577–584, **2016**.

41. Vidyalatha Kolli, **Subhankar Paul**, Nandini Sarkar. An Overview on Fibroblast Growth Factors: Structural, Functional and Therapeutic Implications**. Current Proteomics,** 13, 144-151, **2016**.

42. Sailendra Mahanta and **Subhankar Paul.** Stable self-assembly of bovine α-lactalbumin exhibits target specific anti-proliferative activity in multiple cancer cells. **ACS Appl Mater Interfaces**. 7, 28177-87, **2015**.

43. Deependra K Ban, Swadesh K. Pratihar and **Subhankar Paul.** Controlled modification of starch in the synthesis of gold nanoparticle with tunable optical properties and its application in heavy metal sensing. **RSC Advances**, 5, 81554-81564, **2015**.

44. Sailendra Mahanta, **Subhankar Paul**, Ankit Srivastava; Ashutosh Pastor; Bishwajit Kundu; Tapan K Chaudhuri. Stable self-assembled nanostructured hen egg white lysozyme exhibits strong anti-proliferative activity against breast cancer cells. **Colloids and Surfaces B: Biointerfaces**, 130, 237-45, **2015**.

45. Sailendra Mahanta and **Subhankar Paul.** Bovine α-lactalbumin functionalized graphene oxide nano-sheet exhibits enhanced biocompatibility: A rational strategy for graphene-based targeted cancer therapy. **Colloids and Surfaces B: Biointerfaces,** 134, 178–187, **2015**.

46. Kanti Yadav and **Subhankar Paul**. Unfolding and refolding study of a large dimeric protein β-glucosidase from Almond monitored by fluorescence spectroscopy. **Protein and Peptide Letter**, 22, 7, **2015**.

47. Deependra K Ban, Swadesh K Pratihar and **Subhankar Paul**. An Investigation of Optical properties of Zinc oxide nanoparticle synthesized by starch mediated assembly and its application in photocatalytic bleaching of Methyl green and Rhodamine-B. **Materials Science in Semiconductor Processing**. 39, 691–701, **2015**.

48. **Subhankar Paul** and Deependra Kumar Ban. Synthesis, Characterization and the Application of ZnO Nanoparticles in Biotechnology, Int'l Journal of Advances in Chemical Engg., & Biological Sciences (IJACEBS) 1, 2014.

49. Shumaila Khalid and **Subhankar Paul**. Identifying a C-terminal ATP binding sites-based novel Hsp90-Inhibitor in-silico: A plausible therapeutic approach in Alzheimer's disease. **Medical Hypotheses.** 83, 39–46, **2014**.

50. Deependra K Ban and **Subhankar Paul**. Zinc Oxide Nanoparticles modulates the production of β-glucosidase and protects its functional state under alcoholic condition in Saccharomyces cerevisiae. **Journal of Applied Biochemistry and Biotechnology.** 173, 155-66, 2014.

51. Rajesh K Tripathy, Sailendra Mahanta and **Subhankar Paul**. Artificial Intelligence-based classification of Breast Cancer using cellular images. **RSC Advances**. 4**,** 9349-9355, **2014**.

52. Supriya Patil and **Subhankar Paul**. A Comprehensive Review on the Role of various materials in the osteogenic Differentiation of Mesenchymal Stem Cells with a special focus on the association of Heat Shock Proteins and nanoparticles. **Cells, Tissues Organs**. 199, 81-102, **2014**.

53. Ashutosh Shukla and **Subhankar Paul.** Identification the factors responsible for the interaction of Hsp90α and its client proteins. **Open Bioinformatics journal**. 8, 6-15, **2014**.

54. **Subhankar Paul*** and Sailendra Mahanta. Association of Heat shock proteins in various Neurodegenerative disorders: Is it a master key to open the therapeutic door? **Molecular and Cellular Biochemistry**. 386, 45-61, **2014**.

55. Gupta UK, Mahanta S, **Paul S***. In silico design of small peptide based Hsp90 inhibitor: A novel anticancer agent. **Medical Hypotheses,** 81, 853-61, **2013.**

56. Mahanta S, Pilla S, **Paul S***. Design of novel Geldanamycin analogue hsp90 alpha-inhibitor in silico for breast cancer therapy**. Medical Hypotheses** 81, 463–469, 2013.

57. M. Bhanu Prakash and **Subhankar Paul*.** Green Synthesis of silver nanoparticles using vinca roseus leaf extract and evaluation of their antimicrobial activities**. Int. J of Appl. Biology and Pharmaceutical Technology,** 3, 105-110, **2012.**

58. Sorabh Chaudhary and **Subhankar Paul**. Antimicrobial Studies of Silver Nanoparticles Synthesized from Vitis vinifera Extract. **J. Bionanosci.** 6, 104-108, **2012.**

59. Barnali Ashe and **Subhankar Paul*.** Isolation and characterization of lactic acid bacteria from dairy effluents**. *Journal of Envionment Res. And Dev*.**, 4, 983-991, **2010.**

60. Jaskaran Lamba, **Subhankar Paul**, Vivek Hasija, Ruchi Aggarwal and Tapan K. Chaudhuri. Monitoring Protein Folding and Unfolding Pathway by Surface Hydrophobicity Changes using Extrinsic Fluorescence Spectroscopy**. Biochemistry (Moscow) Journal**, 74, 393-398, **2009.**

61. **Subhankar Paul,** Madhuchhanda Kundu, Kali P. Das, Saroj Mishra and Tapan K. Chaudhuri. Unfolding Studies of *Escherichia coli* Maltodextrin Glucosidase Monitored by Fluorescence Spectroscopy. **J Biol. Phys.**, 34, 539–550, **2008**.

62. **Subhankar Paul***. Dysfunction of ubiquitin proteasome system and disease propagation: therapeutic approaches. ***BioEssays journal,*** 30, 1172-1184, **2008.**

63. **Subhankar Paul*** and Apurba Dey. Wnt Signaling and cancer development: a therapeutic implication. ***Neoplasma,*** 55, 165-176, **2008.**

64. **Subhankar Paul*** and Tapan K Chaudhuri. Factors affect Solubilization of recombinant maltodextrin glucosidase in Escherichia coli. ***Journal of Applied Microbiology***, 104, 35–41, **2008**.

65. **Subhankar Paul***, Shasikala Punam and Tapan K Chaudhuri. Chaperone-assisted refolding of *Escherichia coli* maltodextrin glucosidase. ***FEBS Journal***, 274, 6000-10, **2007.**

66. **Subhankar Paul**, Chanpreet Singh, Saroj Mishra and Tapan K. Chaudhuri. The 69-kDa Escherichia coli Maltodextrin Glucosidase does not Get Encapsulated Underneath GroES and Folds through trans Mechanism During GroEL/GroES Assisted Folding. ***The FASEB journal,*** 21, 2874-2895, 2007.

67. RamGopal Nitharwal**, Subhankar Paul**, Rajesh K Soni, Sukrat Sinha, Dhaneswar Prusthy, Tara Keshav, Nirupam RoyChoudhury, Gauranga Mukhopadhyay, Tapan K. Chaudhuri, Samudrala Gourinath, and Suman Kumar Dhar. The unique domain structure of Helicobacter pylori DnaB helicase: The N terminal region can be dispensable for helicase activity whereas the extreme C terminal region is essential for its function. ***Nucleic Acid Research (NAR),*** 35, 2861-2874, 2007.

68. **Subhankar Paul***. Polyglutamine-mediated neurodegeration: Use of Chaperones as prevention strategy. ***Biochemistry (Moscow)***, 72, 359-66, 2007**.**

69. Tapan K. Chaudhuri and **Subhankar Paul**. Protein-misfolding diseases and chaperone-based therapeutic approaches. ***FEBS journal***, 273, 1331-1349, 2006.

Book Chapter

1. Somu P., Mohanty S., **Subhankar Paul**. A Detailed Overview of ROS-Modulating Approaches in Cancer Treatment. In: Chakraborti S. (eds) Handbook of Oxidative Stress in Cancer: Therapeutic Aspects. **Springer**, Singapore. **2022**. https://doi.org/10.1007/978-981-16-1247-3_213-1.
2. **Subhankar Paul**. Role of Heat Shock Protein 90 in the Cause of Various Diseases: A Potential Therapeutic Target. In: Asea A., Almasoud N., Krishnan S., Kaur P. (eds) Heat Shock Protein-Based Therapies. Heat Shock Proteins, vol 9. **Springer**, Cham. **2015**, https://doi.org/10.1007/978-3-319-17211-8_14.
3. Jesse Joel Thathapudi, Levin Anbu Gomez, Vishruth Vijay, Vani Chandrapragasam, Ritu Shepherd, **Subhankar Paul**, Meng-Jen Lee, Prathap SomuFate of Micro/Nano Plastic Pollutants in the Marine Ecosystem. Remediation of Plastic and Microplastic Waste, Pg 12, 2024, eBook ISBN9781003449133.
4. *Uma Sankar Mondal, Anisha Karmakar, Aritri Paul, Subhankar Paul*Emerging Applications of Magnetic Nanomaterials in the Remediation of Microplastics from the Aquatic Environment. Remediation of Plastic and Microplastic Waste, Pg 14, 2024, eBook ISBN9781003449133
5. Sikta Panda, Chandan Kumar Biswas, **Subhankar Paul**. Techniques of Biopolymer and Bioceramic Coatings on Prosthetic Implants. Mechanical Engineering in Biomedical Applications, 2024, 231-259, John Wiley & Sons, Inc.. https://doi.org/10.1002/9781394175109.ch8.

6. Prathap S and **Subhankar Paul.** HSP90 and its Inhibitors for Cancer Therapy: Use of Nano-delivery System to improve its Clinical Application. "***Heat Shock Protein 90 in Human Diseases and Disorders***", 159-182, **Springer**, August **2019**.
7. Prathap S and **Subhankar Paul**, Inter-Relationship Between the Inflammation and Heat Shock Protein in Cancer Development: A Possible Target for Diagnosis and Cancer Immunotherapy. In: Heat Shock Proteins. 1-29**, Springer**. **2020**. https://doi.org/10.1007/7515_2020_19.
8. Prathap S and **Subhankar Paul**, Recent advancements and challenges in the field of nanotechnology for wastewater treatment, recycle, and reuse, The Future of Effluent Treatment Plants: Biological Treatment Systems. **Elsevier**, DOI: 10.1006/C2019-0-04851-0, **2020**.
9. Somu P, Mohanty S, Chakraborty S, **Paul S**. Application of Nanoscale Materials and Nanotechnology Against Viral Infection: A Special Focus on Coronaviruses. Adv Exp Med Biol. **2021**;1352:173-193. **Springer**, DOI: 10.1007/978-3-030-85109-5_11.
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13. Sonali Mohanty, Sristhi Chakroborty, Moumita Das, **Subhankar Paul,** Role of Nanomaterials in Phytoremediation of Tainted Soil. *Phytoremediation Technology For The Removal Of Heavy Metals And Other Contaminants From Soil And Water*, **Elsevier** (In Press), **2022.**
14. Prathap S and **Subhankar Paul**, Microalgal mediated bioelectricity generation and concomitant value-added products recovery from wastewater treatment in the bioelectrochemical system: Current status and future perspectives. *Development in Waste Water Treatment Research and Processes: Bio electrochemical systems for Wastewater management.* **Elsevier**, (In Press), **2022**.
15. Sonali Mohanty and **Subhankar Paul**. Bioremediation of Black Tides: Strategies Involving Genetically Modified Organisms. *Phytoremediation Technology for the removal of heavy metals and other contaminants from soil and water,* **Elsevier**, (In Press), **2022**.
16. Sikta Panda, Chandan Kumar Biswas and **Subhankar Paul**. Anodization of the Implantable Metal and Alloy Surfaces: Current Status and Future Scope. *Surface Engineering: Methods and Applications*, **CRC Press**, (In Press). **2022**.
17. AK AM Shabbirahmed, M Kumaravel, P Somu, S Paul. Recent Advancements in Nanomaterials for Photodynamic Therapy of Cancers. Handbook of Oxidative Stress in Cancer: Therapeutic Aspects, 1-24, **2022**.
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(b) Conference

1. Uma Sankar Mondal, and Subhankar Paul*. Enhanced catalytic degradation of azo dyes using Fe-ZnO/GO heterojunction nanocomposite by photo-Fenton reaction. ICNB, 2023, IIT Gandhinagar.
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3. Sikta Panda, Chandan Kumar Biswas, **Subhankar Paul.** Development of Chitosan Coating on Ti-6Al-4V Alloy for Bone Implants. 5th International Conference on Mechatronics and Robotics Engineering (**ICMRE 2019**). Temple University Rome, Italy February 16-19, **2019**.

4. Prathap S and **Subhankar Paul**. Casein nanostructure loading improves bioavailability and bioactivity of curcumin: An efficient therapeutic strategy, International Conference on Advances in Chemical Biology and Biologics (**ICACB-2019**), Feb 28-Mar 2, IICT Hyderabad, India.

5. **Subhankar Paul.** Biomolecule – based therapeutic approach in cancer: current status and future Prospects. International symposium of YU-COE (C) Advanced Food Technology Research Center & Health-Care Technology **2018**, Yamagata University, Japan.

6. **Subhankar Paul** and Sailendra Mahanta. Preparation and Characterization of Self Assembled Graphene Oxide Supramolecular Structures. 4th International Conference on Environment Science and Biotechnology (**ICESB 2014**), Phuket, Thailand.

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10. **Subhankar Paul**, Koki Makabe and Kunihiro Kuwajima. Thermodynamic Study of the Chaperonin-complex formation.. General Meeting and Mini Symposium. Institute for Molecular Science, **JENESYS Programme 2009**, Japan.

11. Barnali Ashe and **Subhankar Paul**. Isolation and characterization of lactic acid bacteria from dairy effluents. 2nd International Congress of Environmental Research ICER -08, **ICER, 2008**, Goa, India.

12. **Subhankar Paul** and M. Archana. Role of Hsp90 as a therapeutic target for breast cancer. 2nd International Congress of Environmental Research ICER -08, **ICER, 2008**, Goa, India.

13. **Subhankar Paul** and Tapan K. Chaudhuri. "*Escherichia coli* protein Maltodextrin Glucosidase (MalZ) folds through *trans* sided mechanism in the GroEL-GroES assisted pathway". Society of Biological Chemists (India), **SBC 2006**, New Delhi, India.

14. RamGopal Nitharwal, **Subhankar Paul**, Rajesh K Soni, Sukrat Sinha, et al. "The unique domain structure of Helicobacter pylori DnaB helicase: The N terminal region can be dispensable for helicase activity whereas the extreme C terminal region is essential for its function". Society of Biological Chemists (India), **SBC 2006**, New Delhi, India.

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16. Debjit Sanpui, **Subhankar Paul** and Ashok Khanna,"Validation of a nonequilibrium model for liquid liquid extraction", International symposium of Heat and Mass Transfer, IIT Guwahati, January 2002.

17. Debjit Sanpui, **Subhankar Paul** and Ashok Khanna." Validation of a non-equilibrium mass transfer model, for liquid-liquid extraction". Recent trends in Heat and Mass Transfer, 2000.

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Book Editorship

1. Editor, Mondal, S., Das, P., Mondal, A., **Paul, S**., Pandey, J.K., & Das, T.K. (Eds.). (2024). Remediation of Plastic and Microplastic Waste (1st ed.). CRC Press. https://doi.org/10.1201/9781003449133
2. Section Editor, Section F: *Nanotechnology based therapeutics of ROS induced cancer (20 book chapters),* Handbook of Oxidative Stress in Cancer: Therapeutic Aspects. Springer, Singapore. 2023, https://doi.org/10.1007/978-981-16-1247-3_119-1.

3. Editor, Remediation of Plastic and Microplastic Waste, CRC Press, 1st Edition, 2024, https://doi.org/10.1201/9781003449133.

Conference organized

1. Organizing Secretary of UGC sponsored national seminar on "Nature, Environment & Society" at Neelashaila Mahavidyalaya, Jagda, Rourkela., 2013.

Ph.D degree awarded/submitted : 03

Sl. No.	Name	Title/Area	Year of Joining	Status
1	Sailendra Mahanta	An investigation of self-assembled nanostructured protein-based therapeutic approaches in Breast cancer	2010	Awarded, 2015
2	Deependra Kumar Ban	A detailed study on the interaction of metal-based nanoparticles with proteins: Relation to structure, function and amyloid-forming propensity of lysozyme and α-lactalbumin	2011	Awarded, 2016
3	Prathap S	A detailed investigation on the development of biomolecule-based multifaceted therapeutic nanoformulations and their cytotoxic behavior in multiple cancer cells	2014	Awarded, 2020
4	Vidyalata Kolli	Stability, Mutagenesis and Functional Studies on fibroblast growth factor homologous factors.	2019	Awarded, 2020
5	Sikta Panda	Development of Biopolymer coated Ti6Al4V samples for the enhancement of corrosion resistance and biocompatibility	2023	Awarded, 2023
6	Sohel Das	Semiconductor Nanostructured materials in the sensing of biological and chemical species	2017	Awarded, 2024
7	Umashankar Mondal	Nano-photocatalyst for wastewater treatment	2018	Ongoing
8	Sonali Mohanty	Development of macromolecule-based film for antimicrobial functionality for food packaging	2019	Ongoing
9	Ashutosh Kumar Singh	Environmental Engineering	2020	Ongoing