

Atul Kumar Ojha

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 Web of Science Researcher ID: AAY-3010-2020



Education

- 2017 – 2024 **Ph.D., Indian Institute of Technology (I.I.T.) Kharagpur**
 School of Medical Sciences and Technology
 Thesis title: *Development of cervix analogue for women with cervical atresia using tissue engineering approach*
- 2014 – 2016 **M.Tech, Pondicherry Central University**
 Nanoscience and Technology 9.04 CGPA
 Thesis title: *Study of ceria alumina binary oxides composites for orthopedic implants*
- 2010-2014 **B.Tech, S.H.I.A.T.S., Allahabad**
 Biotechnology, Molecular and Cellular engineering 8.00 CGPA

Employment History

- Jan 2017-June 2017 **Junior research fellow, Indian Institute of Technology (I.I.T.), Guwahati**
 Bioscience and Bioengineering
 Project Title: Mechanistic insight of shear induced protein aggregation and effect of transition metals on it

Research Publications

Journal Articles

1. **Ojha AK**, Rajasekaran R, Hansda AK, Choudhury P, Biswas A, Sharma S, Chaudhury PP, Dogra N, Goswami R, Chaudhury K, Dhara S. Biochemical and immunomodulatory insights of extracellular matrix from decellularized human whole cervix: recellularization and in vivo ECM remodelling interplay. *Biofabrication*. 2024 Apr 25; **16** 035014 (**IF-9**)
2. **Ojha AK**, Rajasekaran R, Hansda AK, Singh A, Dutta A, Seesala VS, Das S, Dogra N, Sharma S, Goswami R, Chaudhury K, Dhara S. Biodegradable Multi-layered Silk Fibroin-PCL Stent for the Management of Cervical Atresia: In Vitro Cytocompatibility and Extracellular Matrix Remodeling In Vivo. *ACS Applied Materials & Interfaces*. 2023 Aug 14;15(33):39099-116 (**IF-9.5**)
3. Hadem H, **Ojha AK**, Mitra A, Rajasekaran R, Vaidya PV, Dhara S, Das S, Das K. Mixed alkali effect on the mechanical, thermal and biological properties of 58S bioactive glass. *Ceramics International*. 2024 Jun 1. (**IF 5.2**)
4. Rajasekaran R, **Ojha AK**, Seesala VS, Hansda AK, Dogra N, Parimi JL, Roy S, Goswami R, Banerjee M, Dhara S. Polyaniline doped silk fibroin-PCL Electrospunfiber: An electroactive fibrous sheet for full thickness wound healing study. *Chemical Engineering Journal*. 2023 Nov 1; 475:146245 (**IF-15.1**)
5. Chowdhury P, **Ojha AK**, Bhowmik S, Halder K, Sabnam K, Santra S, Chaudhury K, Dasgupta S. Cell Penetrability of a γ -Crystallin Peptide Fragment from the Discarded Cataractous Eye Emulsion. *ACS omega*. 2024 Mar 6;9(13):14840-8. (**IF-4.1**)
6. Hadem H, Mitra A, **Ojha AK**, Rajasekaran R, Satpathy B, Das D, Mukherjee S, Dhara S, Das S, Das K. Electrophoretic Deposition of 58S Bioactive Glass-Polymer Composite Coatings on 316L Stainless Steel: An Optimization for Corrosion, Bioactivity, and Cytocompatibility. *ACS Applied Bio Materials*. 2024 Apr 23. (**IF-4.7**)
7. Dutta A, Rajasekaran R, Ray PG, Seesala VS, Dogra N, Ghorai SK, **Ojha A**, Mukherjee K, Gupta S, Chattopadhyay S, Dhara S. Influence of surface engineering on 3D printed Ti lattice structure towards enhanced tissue integration: An in vitro and in vivo study. *Talanta Open*. 2023 Dec 1; 8:100256.
8. Seesala VS, Rajasekaran R, **Ojha AK**, Mahato A, Korrari RR, Das B, Venugopal SP, Roy S, Dhara S. A novel functional gradient hydroxyapatite coating for zirconia-based implants. *Surface and Coatings Technology*. 2023 Sep 25; 469:129817 (**IF-5.4**)

9. Singh A, Ghosh P, Mukherjee S, **Ojha AK**, Hansda A, Choudhury P, Halder S, Sharma S, Mukherjee G, Dasgupta S, Chaudhury K. Transition metallo-curcumin complexes: a new hope for endometriosis?. *Journal of Materials Chemistry B*. 2022;10(46):9682-98 (**IF-7**)
10. Rajasekaran R, Dutta A, Ray PG, Seesala VS, **Ojha AK**, Dogra N, Roy S, Banerjee M, Dhara S. High fibroin-loaded silk-PCL electrospun fiber with core-shell morphology promotes epithelialization with accelerated wound healing. *Journal of Materials Chemistry B*. 2022;10(46):9622-38. (**IF-7**)
11. Choudhury P, Biswas S, Singh G, Pal A, Ghosh N, **Ojha AK**, Das S, Dutta G, Chaudhury K. Immunological profiling and development of a sensing device for detection of IL-13 in COPD and asthma. *Bioelectrochemistry*. 2022 Feb 1; 143:107971. (**IF-5**)
12. **Ojha AK**, Ponnillavan V, Kannan S. Structural, morphological and mechanical investigations of in situ synthesized c-CeO₂/α-Al₂O₃ composites. *Ceramics International*. 2017 Jan 1;43(1):686-92. (**IF-5.2**)

Patents Filed

- 1 **Atul Kumar Ojha**, Ragavi Rajasekaran, Pravin Vaidya, Hushnaara Hadem, Sunita Sharma, Koel Chaudhury, Santanu Dhara A BIODEGRADABLE CERVICAL STENT AND A FABRICATION METHOD THEREOF (Feb, 2024)

Review articles/ Book Chapters

- 1 Kugarajah V*, **Ojha AK***, Ranjan S, Dasgupta N, Ganesapillai M, Dharmalingam S, Elmoll A, Hosseini SA, Muthulakshmi L, Vijayakumar S, Mishra BN. Future applications of electrospun nanofibers in pressure driven water treatment: A brief review and research update. *Journal of Environmental Chemical Engineering*. 2021 Apr 1;9(2):105107. (**IF 7.7**)
- 2 Biswas A, Rajasekaran R, Saha B, Dixit K, Vaidya PV, **Ojha AK**, Dhara S. Human placenta/umbilical cord derivatives in regenerative medicine—Prospects and challenges. *Biomaterials Science*. 2023;11(14):4789-821. (**IF- 6.6**)
- 3 **Ojha AK**, Rajasekaran R, Pandey AK, Dutta A, Seesala VS, Das SK, Chaudhury K, Dhara S. Nanotheranostics: Nanoparticles applications, perspectives, and challenges. *BioSensing, Theranostics, and Medical Devices: From Laboratory to Point-of-Care Testing*. 2021 Dec 10:345-76.
- 4 Rajasekaran R, **Ojha AK**, Kulkarni G, Parimi JL, Saha B, Banerjee M, Dhara S. Conducting Polymer-Based Biocomposites in Flexible Bioelectronics. *In Bioelectronics 2022 Dec 8 (pp. 373-393)*. CRC Press.
- 5 Kugarajah V*, **Ojha AK***, Hadem H, Dasgupta N, Mishra BN, Ranjan S, Dharmalingam S. Nanoparticles and nanofluids: Characteristics and behavior aspects. *In Food, Medical, and Environmental Applications of Nanomaterials 2022 Jan 1 (pp. 41-71)*. Elsevier
- 6 Kugarajah V, Hadem H, **Ojha AK**, Ranjan S, Dasgupta N, Mishra BN, Dharmalingam S. Fabrication of nanomaterials. *In Food, Medical, and Environmental Applications of Nanomaterials 2022 Jan 1 (pp. 1-39)*. Elsevier.

Conference abstracts

Pal Chaudhuri P, **Ojha AK**, Rajasekaran R, Sharma S, Dhara S, Chaudhury K, Chakravarty B. P-466 Decellularization of whole organ human cervix: Physio and biochemical aspects of decellularized extracellular matrix. *Human Reproduction*. 2022 Jul 1;37(Supplement_1): deac107-438.

Projects and Advisor

- Project titled "Development of Biodegradable stent for cervix reconstruction for women with Cervical Atresia." Sponsored by Department of Scientific and Industrial research DSIR under Promoting Innovations in Individuals, Start-ups and MSMEs (PRISM scheme) (Dec 2022-Feb 2024) -**Investigator**
- **Advised and helped** 2 Ph.D. students on PhD topics- **title:** Development of ECM based scaffolds for Muscle tissue engineering; **title:** Silk Fibroin- Polycaprolactone Electrospun Membrane with Polyaniline as Electroactive Dopant towards dermal and skeletal tissue engineering

Skills (Technical/Scientific)

Bio/(nano) Fabrication: 3D printing by extrusion method, Micro/nano fiber by electro spinning, micro/nanoparticles synthesis by emulsion and nanoprecipitation method, decellularization, hydrogel formation, Nanocomposites synthesis via sol gel method

● **Physicochemical analysis:** X-Ray diffraction, Scanning electron microscopy, Mechanical testing, Rheology, Confocal microscopy, Raman spectroscopy

● **Cell culture studies:** Experience on working with primary human cervical epithelial cells, endometrial stromal cells, Placental mesenchymal stem cells, endothelial cells, THP-1 macrophage cells and cancer cell lines like L929, MG63, C2C12, 3T3 .

● **Biochemistry:** DNA quantification, Reverse Transcriptase PCR, Protein quantification, ELISA

● **Animal handling:** Subcutaneous implantation, histological and immunohistochemical staining

● **High end equipment handling:** Hands on experience in Atomic force microscope, 3D Printing, Zetasizer DLS, Fluorescence microscope

● Experience in formulating research proposals including grant-acquisition and institute-level purchase protocols

Miscellaneous Experience and community services

Awards and Achievements

2021 📌 **Atul Kumar Ojha**, Ragavi rajasekaran, Apoorva singh, Sunita Sharma, Nantu Dogra, Santanu Dhara, Koel Chaudhury Development of cervix analogue for women with cervical atresia using tissue engineering approach, Oral presentation at 9th Annual conference of the Academy of Clinical Embryologists of India, 1st-3rd October 2021, Kolkata, India (**Awarded 3rd Prize for oral presentation**)

2022 📌 Secured 10 lakhs INR (1 million INR) from DSIR for **individual startup**

2017-2021 📌 Founding governor member of student lead **community services- Sarth** working for underprivileged children free education classes (weekend classes) nearby IIT Kharagpur

Certification

2015 📌 Completed certification Course in MCB63x: Principles of Biochemistry offered by HarvardX, an online learning initiative of Harvard University through edX. Verify the authenticity of this certificate at (<https://verify.edx.org/cert/1aaaaf59d81440ada70c5309e5d53305>)

References

- 📌 Prof Santanu Dhara, School of Medical Sciences and Technology (SMST), Indian Institute of Technology (I.I.T.) Kharagpur, West Bengal, India (sdhara@smst.iitkgp.ac.in), Alternative email: santanudhara@gmail.com
- 📌 Prof. Koel Chaudhury, School of Medical Sciences and Technology (SMST), Indian Institute of Technology (I.I.T.) Kharagpur, West Bengal, India (koel@smst.iitkgp.ac.in), Alternative email: koeliitkgp@gmail.com
- 📌 Dr. Nishant Chakraborty, School of Medical Sciences and Technology (SMST), Indian Institute of Technology (I.I.T.) Kharagpur, West Bengal, India (nishant@smst.iitkgp.ac.in), Alternative email: nishichakra@gmail.com