

## CURRICULUM VITAE

Name	<b>Prof. Luna Samanta, FNASc</b>		
Designation	Professor of Zoology Coordinator, Centre of Excellence for Environment & Public Health		
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<b>Education</b>			
Degree	Institution	Year	Subjects/Specialization
B.Sc.	Utkal University	1989	Zoology (Honours), Botany & Chemistry (Distinction)
M.Sc.	Utkal University	1991	Zoology (Cytogenetics specialization)
M.Phil.	Utkal University	1993	Zoology (Biochemistry & Molecular Biology) Dissertation entitled "Linden-induced lipid peroxidation in chick liver"
Ph.D.	Utkal University	1999	Zoology (Biochemistry & Molecular Biology) Dissertation entitled, "Effect of hexachlorocyclohexane on rat testicular enzymes of active oxygen metabolism as a function of age"
<b>Career Profile</b>			
Organisation/Institution	Designation	Duration	Role
Odisha University of Agriculture & Technology, Bhubaneswar	Assistant Professor of Biotechnology	2004-2005	Teaching & Research
Utkal University, Bhubaneswar	Lecturer in Zoology & Collaborative faculty in Biotechnology	2005-2010	Teaching & Research
Ravenshaw University, Cuttack	Reader in Zoology	2010-2014	Teaching & Research

Ravenshaw University, Cuttack	Professor of Zoology	2014 onwards	Teaching & Research
<b>Research Interests / Specialization</b>			
<p><b>Redox Biology and Disease Biomarkers:</b></p> <ul style="list-style-type: none"> <li>• Identification of redox regulators and discovery of potential biomarkers associated with pathophysiological states, with a specific focus on male infertility, endocrinopathies, and cancer, through an integrated multi-OMICS approach.</li> </ul> <p><b>Antioxidant Research and Mechanistic Studies:</b></p> <ul style="list-style-type: none"> <li>• Laboratory and clinical investigations on the efficacy and molecular mechanisms of antioxidants in mitigating oxidative stress and restoring redox homeostasis.</li> </ul> <p><b>Natural Product Bioprospecting:</b></p> <ul style="list-style-type: none"> <li>• Screening, isolation, and purification of bioactive compounds from diverse natural sources of Odisha for therapeutic and preventive health applications.</li> </ul> <p><b>Translational Smart Materials Research:</b></p> <ul style="list-style-type: none"> <li>• Development of smart biomaterials—including functional polymers, nanomaterials, carborane-based biomolecules, and dendritic macromolecules—for biomedical and diagnostic applications.</li> </ul>			
<p><b>Research Experience:</b> 31 years</p> <p><b>Teaching Experience:</b> 21 years (Subject/ Specialization): Zoology (Reproductive Biology, Biochemistry, Molecular Biology, Biotechnology, OMICS)</p> <p><b>Mentorship:</b></p> <p>Ph.D. awarded: 18; Submitted: 02; Working: 08</p> <p>M.Phil. awarded: 20, Master in Dental Surgery awarded: 07, working 03</p> <p><b>Ph.D Awarded</b></p> <ol style="list-style-type: none"> <li>1. "Role of lysine acetylation of sperm proteome in idiopathic male infertility: a proteomic approach", Lisa Goutami, Ravenshaw University, 2026</li> <li>2. "Studies on diversity and molecular taxonomy of freshwater turtles in Mahanadi delta of Odisha". Manjushree Swain, Ravenshaw University, 2025</li> <li>3. "Spatiotemporal variation of oxidative stress physiology and nutritional values in tissues of <i>Pila globosa</i>". Falguni Panda, Ravenshaw University, 2024</li> <li>4. "Biophysical and Biochemical Characterisation of PKM2 and HIF-1a in Breast Cancer". Mamali Priyadarshinee, Ravenshaw University, 2024.</li> <li>5. "Factors affecting germ cell proliferation and maturation in fish" Bibekananda Panda, Ravenshaw University, 2023</li> <li>6. "Redox regulation of sperm function", Jasmine Nayak, Ravenshaw University, 2022</li> <li>7. " Role of Seminal Extracellular Vesicles on sperm function", Soumya Ranjan Jena, Ravenshaw University, 2021</li> <li>8. "Reactive oxygen species and autophagy in cancer: Role of tunnelling nano tubes", Pragya Paramita Sahu, Biotechnology, Ravenshaw University, 2020</li> <li>9. "Oxidative stress and sperm function: Role of TRP channels.", Nirlipta Swain, Zoology, Ravenshaw University, 2020</li> <li>10. "Toll like receptors in spermatozoa of men undergoing fertility evaluation", Rajeshwari Parida, Zoology, Ravenshaw University, 2019.</li> <li>11. "Antioxidant defence system in fish <i>Notopterus notopterus</i>: Effect of metal toxicity", Deepali Mohanty, Zoology, Ravenshaw University, 2018.</li> <li>12. "Effect of Dietary seaweed supplementation on experimentally induced oxidative stress in rat", by Ms Priyadarshini Rautray, Utkal University, 2018.</li> <li>13. "Isolation, characterization and evaluation of antioxidant and antidiabetic potentials of <i>Xylocarpus granatum</i> and <i>Bruguiera sexangulata</i> plant extracts". Swagat Kumar Das, Biotechnology, Ravenshaw University, 2018.</li> <li>14. Phytochemical analysis and characterization of antioxidant potential of <i>Abutilon indicum</i> L. And</li> </ol>			

*Paederia foetida* L. Rajalaxmi Nayak, Botany, Utkal University, 2016.

15. "Defective Packaging of Sperm DNA, Protein Profiling, Thiol redox Status and carbonylation Stress in Recurrent Pregnancy Loss Patients", Gayatri Mohanty, Zoology, Ravenshaw University 2016.
16. "Effect of Thyroid Hormone on Rat Cardiac Antioxidant Defence System and its Modulation by Antioxidants", Ms. Pallavi Mishra, Zoology, Utkal University, 2013.
17. "Screening, isolation and characterization of antioxidant compounds from seaweeds of Chilika lake." Jyotsnarani Pradhan, Biotechnology, Utkal University, Bhubaneswar, 2012.
18. "Antioxidant status in tasar silkworm, *Antheraea mylita*", Ms. Alpana Sahoo, Biotechnology, North Orissa University, Baripada. 2011.

### **Honors / Awards and Administrative Assignments**

#### **1. Awards**

- Fellow, National Academy of Sciences India, (FNASc) 2023
- Dr. Mridula Kamboj Award 2022 for outstanding research in Reproductive Sciences, Indian Society for Study of Reproduction & Fertility, (ISSRF).
- Samanta Chandra Sekhar award 2020 for outstanding research contribution in Life Sciences, Science & Technology Department, Government of Odisha.
- Asian Journal of Andrology Outstanding Paper Award 2018
- ISCA Young Scientist Award 2003, Indian Science Congress Association in the section Animal, Veterinary & Fisheries Sciences.
- K.K. Nair Prize for outstanding Research Publications for the year 1999, University of Kerala.
- Young Scientist Award for the year 1997, Science and Technology Department, Government of Orissa.

#### **2. Honors**

- Elsevier and Stanford University's Top 2% Listed Scientist (2025) in Clinical Medicine (Obstetrics & Reproductive Medicine).
- Shakti Samman, 2025, IWN, Confederation of Indian Industries, Odisha.
- Dr. Mahamaya Pattanaik Smruti Samman, 2018, Bigyan Prachar Samiti, Cuttack.

#### **3. Research Fellowships**

- Research Associate (2000-2004), Council of Scientific and Industrial Research, India.
- Senior Research Fellowship (Extended) (1999-2000), Council of Scientific and Industrial Research, India.
- Senior Research Fellowship (1996-1998), Council of Scientific and Industrial Research, India.
- Junior Research Fellowship (1992-95), University Grants Commission, India.

#### **4. International Fellowships Awarded**

- Department of Health Research, Ministry of Health & Family Welfare, Govt. of India Short Term Fellowship 2025-26, Department of Urology, Tulane University Medical School, New Orleans, USA.
- Raman Post-doctoral Fellowship to USA 2014-15, American Center for Reproductive Medicine, Glickman Urological & Kidney Institute, Cleveland Clinic Foundation, Cleveland, Ohio, USA
- Commonwealth Academic Staff Fellowship 2012, Commonwealth Scholarship Commission, United Kingdom at Department of Molecular Endocrinology, Institute of Reproductive and Developmental Biology, Imperial College, London.

#### **5. Visiting/Adjunct Faculty**

- Honorary Research Scientist & Consultant in Andrology" in the Department of Urology at Tulane University School of Medicine, New Orleans, LA, 2025 onwards.

• Visiting Faculty, American Center for Reproductive Medicine, Glickman Urological & Kidney Institute, Cleveland Clinic Foundation, Cleveland, Ohio, USA, 2016 - 2019.

**PATENTS AND PUBLICATIONS**

**Patents: 09**

S. N	Invention	Country	File no/ Date	Status	Validity
1	A Method for isolating bioactive fraction from mangrove Plant <i>Bruguiera sexangular</i>	Australia	2021106724 24.08.2021	Granted	23.08.2029 Technology transferred
2	A Method to Detect Paternal Contributors Present in Seminal Extracellular Vesicles (SEVs) in Case of Recurrent Pregnancy Loss	Australia	2021103325 13.06.2021	Granted	12.06.2029
3	Process for developing seaweed extract and composition useful against UV-radiation, oxidative damage and skin cancer	Australia	2021104442 22.07.2021	Granted	21.07.2029
4	Process for developing seaweed extract and composition useful against UV-radiation, oxidative damage and skin cancer	India	2021310319 82 15.07.2021	Granted (Grant #560356)	14.02.2025
5	A Method for isolating bioactive fraction from mangrove Plant <i>Bruguiera sexangula</i>	India	2021310379 62 21.08.2021	In order for grant under Section 43, awaiting NBA approval.	
6	Innovative Portable Diagnostic Device for early cancer detection using microfluidics and biosensors technology	India	Design No 403252-001 27.12.2023	Granted	
7	Comprehensive portable breast cancer detection device: AI, realtime analysis, intuitive interface, data management.	India	Design No 404431-001 22.03.2024	Granted	
8	Device to Identify Paternal Factors in Recurrent Pregnancy Loss	India	Design No 413211-001 10.04.2024	Granted	
9	PORTABLE CERVICAL CANCER SCREENING DEVICE	India	Design No. 419458-001 10/06/2024	Granted	

## Publications

### In indexed journals

1. Jena SR, Das S, Pradhan A, Samal A, Sahoo S, Dalei G, Samanta L. Orange Peel Pectin-Functionalized Schiff Base Hydrogel Ameliorates Wound Healing via Regulating M2 Macrophage-Polarization: Insights from In Vitro and Zebrafish Model Studies. *ACS Appl Bio Mater.* 2026 Feb 2;9(3):1606-1621. doi: 10.1021/acsabm.5c02130. **IF: 4.7**
2. Patel, R. K., Thathachari, T. K. S., Sura, S., Acharya, S., Mohapatra, S. K., Samanta, L., Seth, J. K., Mishra, S. S., & Mohapatra, A. (2026). Unveiling the identity of three Parapsilorhynchus species from the Eastern Ghats: an integrative taxonomic approach. *Journal of Fisheries*, 14(1), 141212. <https://doi.org/10.17017/j.fish.835>. **IF:1.0**
3. Anbalagan K, Jena A, Samanta L, Changanath A, Pradhan A, Shashirekha G, Shivagnage V. Efficacy of Continuous Chelation With Etidronate And Sequential Chelation With Chitosan On Bacterial Reduction In Teeth With Pulp Necrosis: A Double-Blind, Randomized Clinical Trial. *Eur Endod J.* 2025 Dec;10(6):506-513. doi: 10.14744/eej.2025.49368. **IF: 2.0.**
4. Goutami L, Pradhan A, Moharana AK, Jena SR, Panner Selvam MK, Sikka SC, **Samanta L.** Spermatozoa Proteins Involved in ROS Generation and Antioxidant Defense Are Differentially Acetylated in Idiopathic Infertility. *Antioxidants (Basel).* 2025 Nov 26;14(12):1410. doi: 10.3390/antiox14121410. **IF: 6.6**
5. Swain A, Jena SR, **Samanta L\*** (2025) Smart Nanocarriers for Cancer: Harnessing Exosomes and Lipid Systems in Photodynamic and Immunotherapy. *Frontiers in Immunology (Sec. Cancer Immunity and Immunotherapy) Volume 16 - 2025* | doi: 10.3389/fimmu.2025.1687953. **IF:5.9.**
6. Biswa Ranjan Swain, Subhadeep Acharya, Soumya Ranjan Jena, Chandra Sekhara Mahanta, Bibhuti Bhusan Jena, Luna Samanta, Barada Prasanna Dash, Rashmirekha Satapathy Carborane-Functionalized Thiocarbohydrazones: Synthesis, Computational, and Anticancer Evaluation. *Organometallics* 2025, 44, 21, 2528–2549 <https://doi.org/10.1021/acs.organomet.5c00295>. **IF:2.9**
7. Moharana A., Panner Selvam MK, Jena SR, Chandra, PK, Busija DW, **Samanta L\***, Sikka SC (2025) Comparative Proteomics of Seminal Exosomes Reveals Size-Exclusion Chromatography Outperforms Ultracentrifugation. *Biomedicines* 2025, 13, 2459. <https://doi.org/10.3390/biomedicines13102459>. **IF:3.9**
8. Sahoo B, Guru D, Pradhan A, Jena SR, Goutami L, Nayak J, Sahu A, **Samanta L\***, (2025) Is Ferroptosis a cause for concern in Male Infertility, *Reproductive Toxicology*, 2025, 109022, ISSN 0890-6238, <https://doi.org/10.1016/j.reprotox.2025.109022>. **IF: 2.8**
9. Goutami L, Jena SR, Moharana AK, Pradhan A, Kar S, **Samanta L\***. HSPA2 Emerges as a Key Biomarker: Insights from Global Lysine Acetylproteomic Profiling in Idiopathic Male Infertility. *Cell Stress and Chaperones.* 2025 Jul 9:100090. doi:10.1016/j.cstres.2025.100090. Epub ahead of print. **IF: 3.2**
10. Soumya Ranjan Jena, Ganeswar Dalei, Subhraseema Das, Anwasha Pradhan, Sajan Sahoo, Darshni Mohanty, Swagatika Biswal, Debasis Jena, **Luna Samanta \***(2025) Green synthesized gum Arabic nano-biopolymer encapsulating Saraca asoca leaf essential oil accelerates wound healing. *Sustainable Materials and Technologies*, Volume 45, 2025, e01532, <https://doi.org/10.1016/j.susmat.2025.e01532>. **IF: 9.2**
11. Mohapatra S, Pradhan A, Parida SP, Behera T, Sahoo S, Mohapatra S, Nayak S, **Samanta L\***, Design, Microwave Synthesis, Antibacterial Activity, ADMET, and Photo Physical Analysis of 3-Styryl-2H-Chromene-Fused Maleimide Derivatives as Potential DNA Gyrase Inhibitors. *ChemistrySelect* 2025, 10, e03303. <https://doi.org/10.1002/slct.202503303>

12. Tribikram Debata, Amrita Swain, Soumya Ranjan Jena, Surya Narayan Das, Niranjana Mishra and **Luna Samanta\*** (2025) Vitamin D Receptor Gene Polymorphism in Oral Cancer as a function of tobacco consumption: An Evidence based Systematic Review and Meta-analysis. *Frontiers in Oral Health-Oral Cancers*, 2025 Apr 28;6:1550683. doi:10.3389/froh.2025.1550683. **IF:3.0**
13. Sahoo, M., **Samanta, L\***, atpathy, R. Exploring the role of toxic and therapeutic compounds in aryl hydrocarbon receptor (AhR) modulation: insights from molecular modeling study. *Discov. Chem.* **2**, 140 (2025). <https://doi.org/10.1007/s44371-025-00221-z>.
14. Bindhani, P. K., Reddy, G. J., Sethi, B., Patra, N., **Samanta, L.**, & Banerjee, K. (2025). Ecotoxicological impact of trace metal pollution in selected fish species of Brahmani–Baitarani estuary. *Toxicological & Environmental Chemistry*, 107(5), 646–675. <https://doi.org/10.1080/02772248.2025.2498373>. **IF: 1.1**
15. Kuldeep, Jena SR; **Samanta Luna**; Usharani S (2025) Anthracene Conjugated Steroidal Amphiphiles: Soft Functional Materials Exhibiting Supramolecular Aggregation Induced Enhanced Emission with Potential Applications as Drug Carriers and Fluorescent Bioprobes. *Langmuir* Jan 2. doi: 10.1021/acs.langmuir.4c04502. Epub ahead of print. **IF: 3.7**
16. Nayak L, Routray S, Acharya S, Pradhan A, Sahoo S, **Samanta L**, Rout S, Satapathy R (2025) Triazine-Cored BODIPY Trimers: Synthesis, Properties, and Anticancer Activity. *Applied Organometallic Chemistry*, 2025, 39(1), e7915. doi: <https://doi.org/10.1002/aoc.7915>. **IF 3.7**.
17. Mishra, P., Sahoo, D.K., Mohanty, C., **Samanta, L\***. (2024) Curcumin-loaded nanoparticles effectively prevent T4-induced oxidative stress in rat heart. *Cell Biochemistry and Function*, 2024, 42(4), e4070. **IF 2.8**.
18. Panda, B., Krishna, O.G., Verma, D.K., **Samanta, L.**, Routray, P. (2024) Effect of Clomid and Hormonal Priming on Maturation and Spawning of *Labeo rohita* and *Oreochromis niloticus*. *Aquaculture Studies*. 24(5), AQUAST1403.
19. Sahoo DK, **Samanta L**, Kesari KK, Mukherjee S. Editorial: Hormonal imbalance-associated oxidative stress and protective benefits of nutritional antioxidants. *Front Endocrinol (Lausanne)*. 2024 Feb 9;15:1368580. doi: 10.3389/fendo.2024.1368580. **IF: 5.2**.
20. Panda BS, Samanta B, Ambadipudi S, Nayak S, Nayak S L, Ramakrishna S, Mohapatra S, Behera P M, **Samanta L**. (2024) New 2H-Chromene-Based Hydrazone Derivatives as Promising Anti-Breast Cancer Agents: Efficient Synthesis, Spectral Characterization, Molecular Docking, and ADMET Studies. *ChemistrySelect*, 9(15): e202400115. Doi: 10.1002/slct.202400115. **IF:2.1**.
21. Priyadarshinee M, Dehury B, Mishra S, Jena C, Patra M, Mishra NK, **Samanta L**, Mallick BC. Spectroscopic insights with molecular docking and molecular dynamic simulation studies of anticancer drug 5-Fluorouracil targeting human pyruvate kinase m2. *J Biomol Struct Dyn*. 2024 Feb 12:1-13. doi:10.1080/07391102.2024.2313158. Epub ahead of print. **IF: 2.7**.
22. Jasmine Nayak, Ganeswar Dalei, Soumya Ranjan Jena, Subhraseema Das, Ritiparna Sahoo, Debosmita Dash, Purnendu Parhi, **Luna Samanta\*** (2023) Facile microwave-assisted synthesis of Dialdehyde- $\beta$ -Cyclodextrin for evaluation of angiogenesis in wound healing. *Sustainable Chemistry and Pharmacy*, 33 (2023) 101074, <https://doi.org/10.1016/j.scp.2023.101074>. **IF:5.5**.
23. Pradhan, A., Behera, D., Jena, S.R., Soren S, Parhi, P., **Samanta, L\*** (2023) NIR-Triggered SrSnO<sub>3</sub>-photosynthesized nanocatalyst: A potent anticancer agent against triple negative breast cancer cells. *Journal of Molecular Structure*, 1294: 136513. <https://doi.org/10.1016/j.molstruc.2023.136513> **IF: 4.0**.
24. Jena SR, Mohanty G, Kesari KK, Durairajanayagam D, **Samanta L**. Editorial: Omics for infertility and contraception: two sides of same coin. *Frontiers in Cell and Developmental Biology* (Section: Molecular Reproduction). 2023 Sep 26;11:1293677. doi:

- 10.3389/fcell.2023.1293677. . **IF:5.5**
25. Nayak J, Jena SR, Kumar S, Kar S, Dixit A, **Samanta L\***. Human sperm proteome reveals the effect of environmental borne seminal polyaromatic hydrocarbons exposome in etiology of idiopathic male factor infertility. *Frontiers in Cell and Developmental Biology (Section: Molecular Reproduction)*. 2023 May 16;11:1117155. doi: 10.3389/fcell.2023.1117155. **IF: 4.6**.
26. Ganeswar Dalei, Subhraseema Das, Soumya Ranjan Jena, Debasis Jena, Jasmine Nayak, **Luna Samanta\*** (2023) In situ crosslinked dialdehyde guar gum-chitosan Schiff-base hydrogels for dual drug release in colorectal cancer therapy. *Chemical Engineering Science*, 269 (2023) 118482. <https://doi.org/10.1016/j.ces.2023.118482> . **IF: 4.1**.
27. Mohanty, S., Tirkey, B., Jena, S.R., **Samanta, L.**, Subuddhi, U. (2023) Exploring Steroidal Surfactants as Potential Drug Carriers for an Anticancer Drug Curcumin: An Insight into the Effect of Surfactants' Structure on the Photophysical Properties, Stability, and Activity of Curcumin. *Langmuir*, 39(5): 1852–1869. **IF:3.7**.
28. Swain BR, Jena SR, Beriha SK, Mahanta CS, Jena BB, Prasanth T, **Samanta L**, Satapathy R, and Dash B P (2023) Synthesis and anticancer properties of dendritic glycoconjugates containing multiple o-carborane clusters. *New J. Chem.*, 2023,47, 10296-10308. **IF: 3.3**.
29. Panda, F., Pati, S.G., Bal, A., **Samanta, L.**, Paital, B. (2023) Effect in Semi-Sessile Amphibious Indian Apple Snail *Pila Globosa* for Future Ecotoxic Studies. *Proceedings of the National Academy of Sciences India Section B - Biological Sciences*, 2023, 93(2), pp. 443–450.
30. Pati SG, Panda F, **Samanta L**, Paital B. Spatio-temporal changes in oxidative stress physiology parameters in apple snail *Pila globosa* as a function of soil Mg, Ca, organic carbon and aquatic physico-chemical factors. *Environmental Geochemistry and Health*. 2023 May;45(5):2591-2610. doi: 10.1007/s10653-022-01376-9. Epub 2022 Sep 5. **IF:4.2**.
31. Swain N, **Samanta L\***, Goswami C, Kar S, Majhi RK, Kumar S, Dixit A. (2022) TRPV1 channel in spermatozoa is a molecular target for ROS mediated sperm dysfunction and differentially expressed in both natural and ART pregnancy failure. *Frontiers in Cell and Developmental Biology (Section: Molecular Reproduction)* DOI: 10.3389/fcell.2022.867057. **IF: 5.5**.
32. Jena SR, Nayak J, Kumar S, Kar S, **Samanta L\*** (2022) Comparative proteome profiling of seminal components reveal impaired immune cell signaling as paternal contributors in recurrent pregnancy loss patients. *American Journal of Reproductive Immunology*: DOI: 10.1111/aji.13613. **IF: 3.6**.
33. Jena, S.R., Dalei, G., Das, S., ...Pradhan, M., **Samanta, L.\*** (2022) Harnessing the potential of dialdehyde alginate-xanthan gum hydrogels as niche bioscaffolds for tissue engineering. *International Journal of Biological Macromolecules* , 207: 493–506. **IF: 8.2**.
34. Mohanty G, Jena SR, Kar S, **Samanta L.\*** (2022) Paternal factors in recurrent pregnancy loss: an insight through analysis of non-synonymous single-nucleotide polymorphism in human testis-specific chaperone HSPA2 gene. *Environmental Science and Pollution Research*. 2021 Nov 30. doi: 10.1007/s11356-021-17799-3. Epub ahead of print. PMID: 34845642. **IF: 5.8**.
35. Panda F, Pati S G, Bal A, Das K, **Samanta L**, Paital B. (2022) Control of invasive apple snails and their use as pollutant ecotoxic indicators: a review. *Environmental Chemistry Letters* 2021, 19(6), pp. 4627–4653. DOI: [10.1007/s10311-021-01305-9](https://doi.org/10.1007/s10311-021-01305-9) **IF: 15.0**.
36. Mishra P, Tandon G, Kumar M, Paital B, Swain SS, Kumar S, **Samanta L\***. (2021) Promoter sequence interaction and structure based multi-targeted (redox regulatory genes) molecular docking analysis of vitamin E and curcumin in T4 induced oxidative stress model using H9C2 cardiac cell line. *Journal of Biomolecular Structure and Dynamics*. 2021 Aug 31:1-20. doi: <https://doi.org/10.1080/07391102.2021.1970624>. Epub ahead of print. PMID:34463220. **IF: 4.4**
37. Jena SR, Nayak J, Kumar S, Kar S, Dixit A, **Samanta L.\*** Paternal contributors in recurrent pregnancy loss: Cues from comparative proteome profiling of seminal extracellular vesicles.

- Mol Reprod Dev. 2021 Jan;88(1):96-112. doi:10.1002/mrd.23445. Epub 2020 Dec 20. **IF: 2.7.**
38. Dalei, G., Das, S., Jena, S.R. Nayak J, **Samanta L**, Das S (2021) Improved Chemosensitization Activity of Carboxymethyl Chitosan/PVA Hydrogels by Plasma Surface Modification. *Journal of Polymers and the Environment* (2021). <https://doi.org/10.1007/s10924-020-02007-z>. **IF: 4.7.**
  39. Jarvis S, Gethings L, **Samanta L**, Pedroni S, Withers D, Gray N, Plumb R, Winston R, Williamson C, and Bevan C (2020) High fat diet causes distinct aberrations in the testicular proteome. *International Journal of Obesity*. 44(9): 1958–1969. **IF 4.9.**
  40. Jena B, Jena S, Swain Biswa, Mahanta C, **Samanta L**, Dash B, Satapathy R (2020) Triazine-cored dendritic molecules containing multiple o-carborane clusters. *Applied Organometallic Chemistry*, 34(9): e5754. <https://doi.org/10.1002/aoc.5754>. **IF: 3.9.**
  41. Panner Selvam MK, \***Samanta L**, Agarwal A, Functional Analysis of Differentially Expressed Acetylated Spermatozoal Proteins in Infertile Men with Unilateral and Bilateral Varicocele. *International Journal of Molecular Sciences* 2020, 21, 3155; doi:10.3390/ijms21093155. (\*Equal contribution as first author) **IF: 5.4.**
  42. Swain N, **Samanta L\***, Agarwal A, Kumar S, Dixit A, Gopalan B, Durairajanayagam D, Sharma R, Puspharaj PN, Baskaran S. Aberrant upregulation of compensatory redox molecular machines may contribute to sperm dysfunction in infertile men with unilateral varicocele: A proteomic insight. *Antioxidants and Redox Signaling*. 2019; 10;32(8):504-521.doi: 10.1089/ars.2019.7828. **IF 5.9.**
  43. Mohanty G, Jena SR, Nayak J, Kar S, **Samanta L**. (2020) Quantitative proteomics decodes clusterin as a critical regulator of paternal factors responsible for impaired compensatory metabolic reprogramming in recurrent pregnancy loss. *Andrologia*. 2020; 52(2):e13498. doi:10.1111/and.13498. **IF 2.4.**
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#### **Books Edited**

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### **Conference Presentations (Last five years)**

1. "Semen Exosomes: Molecular Regulators of Male Fertility and Emerging Therapeutic Frontiers", 51<sup>st</sup> Annual Conference, American Society of Andrology, Scottsdale, Arizona, USA, 17-21 April, 2026.
2. "From Silent Sperm to Failed Pregnancy: The Lysine Acetylation Axis" at "Global Summit on Innovations in Reproductive Biology: Emerging Frontiers and Discoveries" and 36th Annual Meeting of the Indian Society for the Study of Reproduction and Fertility (ISSRF 2026) at the Department of Zoology, Institute of Science, Banaras Hindu University (BHU), Varanasi, 20th – 22nd February, 2026.
3. "Breaking Exosome-Fueled Nanotube Networks: Targeting Redox Adaptation in Therapy-Resistant Breast Cancer" at ANRF-PAIR 2026 Conference on Cancer Genomics, Diagnostics and Therapeutics, IIT-Kanpur, 28th-30th January, 2026.
4. "Seaweed Science for Skin Defense: Innovation Against UV Damage and Skin Cancer" International Symposium on Tropical Seaweeds: Platform for Exchange and Advancements in Knowledge on Seaweeds (PEAKS-2025), BRIC-Institute of Life Sciences, Bhubaneswar, March 24-25, 2025.
5. "Is reductive stress a cause for concern in sperm biology?", Dr. Mridula Kamboj Memorial Oration at International Conference on "Reproductive Health with Emphasis on Innovations in Reproductive Sciences and Technologies: Hope, Risk and Responsibilities" and the 33<sup>rd</sup> Annual Meeting of the Indian Society for the Study of Reproduction and Fertility (ISSRF-2023), Ravenshaw University, Cuttack, Odisha-753003, 24<sup>th</sup> -26<sup>th</sup> February, 2023.
6. "The daddy issues in recurrent pregnancy loss: The other side of the story", Plenary lecture at 108<sup>th</sup> Indian Science Congress in the Plenary session on Recent Advances In Male Fertility Research, 3<sup>rd</sup>-7<sup>th</sup> January, 2023, Rashtrasant Tukadoji Maharaj Nagpur University, Maharashtra.
7. "Seminal exosomes proteome profiling reveals impaired cell signaling and defects in chromatin remodeling as paternal contributors in recurrent pregnancy loss patients", 75<sup>th</sup> Annual Congress of American Society of Reproductive Medicine (ASRM), held at Philadelphia Convention Center, Philadelphia, USA from 12 – 16<sup>th</sup> October, 2019. Oral Presentation
8. "Proteomic signatures of epigenetic and transcription regulators are pivotal in controlling paternal factors in recurrent pregnancy loss", 75<sup>th</sup> Annual Congress of American Society of Reproductive Medicine (ASRM), held at Philadelphia Convention Center, Philadelphia, USA from 12 – 16<sup>th</sup> October, 2019. Poster presentation.
3. "Comparative proteomic analysis reveals differential regulation of redox homeostasis and perturbed oxidative phosphorylation pathway in unilateral compared to bilateral varicocele", 75<sup>th</sup> Annual Congress of American Society of Reproductive Medicine (ASRM), held at Philadelphia Convention Center, Philadelphia, USA from 12 – 16<sup>th</sup> October, 2019. Poster
4. "Comparative proteomic analysis of seminal plasma proteins from fertile men with normal or high levels of reactive oxygen species". 34th Annual Meeting of the European Society of Human Reproduction and Embryology (ESHRE-2018), held at the Centre de Convencions Internacional de Barcelona (CCIB) in Barcelona, Spain from 1 to 4 July 2018. Oral Presentation
5. "Paternal factors in recurrent pregnancy loss: a proteomic insight"; Reproductive

(epi)genetics (incl. (epi)genetic causes of infertility, PGD, PGS, prenatal diagnosis), 34<sup>th</sup> Annual Meeting of the European Society of Human Reproduction and Embryology, held at the Centre de Convencions Internacional de Barcelona (CCIB) in Barcelona, Spain from 1 to 4 July 2018. Poster

6. "Identification of seminal plasma proteins as potential biomarkers for men with primary infertility". 34<sup>th</sup> Annual Meeting of the European Society of Human Reproduction and Embryology, held at the Centre de Convencions Internacional de Barcelona (CCIB) in Barcelona, Spain from 1 to 4 July 2018. Poster.
7. "Differential expression of exosome-associated proteins in seminal plasma of infertile men with unilateral varicocele";  
34<sup>th</sup> Annual Meeting of the European Society of Human Reproduction and Embryology, held at the Centre de Convencions Internacional de Barcelona (CCIB) in Barcelona, Spain from 1 to 4 July 2018. Poster.

### Professional Societies Memberships

Life Memberships:

1. Indian Society for Study of Reproduction and Fertility (ISSRF)
2. Indian Society for Assisted Reproduction (ISAR)
3. Academy of Clinical Embryologists India (ACE)
4. Society for Advancement of Reproductive Medicine in Orissa (SARMO)
5. Society of Biological Chemists India (SBCI)
6. Association of Gerontology India (AGI)
7. Indian Science Congress Association (ISCA)
8. Zoological Society of Odisha (ZSO)

### Projects ( Major Grants / Collaborations)

**Completed:** 07 projects (Funded by UGC: 1 + Science & Technology Department, Government of Odisha: 2 + Collaborative projects by Cleveland Clinic Foundation, USA: 3).

**Projects in hand:** 01 collaborative project with Tulane University, USA), 01 Collaborative Project funded by Science & Technology Department, Government of Odisha. ANRF-ARG: 01

**Departmental/Institutional Projects as Coordinator:**

- Coordinator, ANRF-PAIR grant with IIT Kanpur.
- Coordinator, Odisha Higher Education Project for Excellence & Equity (OHEPEE), Ravenshaw University, Cuttack . Rs. 12.90 Crores
- Coordinator, DBT-STAR College-2022, Departments of Zoology, Botany, Chemistry & Physics, Ravenshaw University, Cuttack. Rs. 81.999 Lakhs
- Coordinator, DST-FIST-2011, Department of Zoology, Ravenshaw University, Cuttack. Rs 56.00 Lakh
- Coordinator, DST-FIST-2021, Department of Zoology, Ravenshaw University, Cuttack. Rs 29.00 Lakh.

**Extramural Projects as PI/CoPI**

1. "Structural and functional analysis of thermosensitive ion channels and microtubules in human sperm function: Implications for fertility, infertility and contraception (FRICTION)". ANRF-ARG, Govt. of India in association with IIT-Kanpur, IISER-Bhopal, Co-PI, ₹ 2, 20,00,000.00 (2026-2030)
2. Sustainability Grant to Centre of Excellence for Environment & Public Health, Higher Education Department, Govt. of Odisha, (PI) ₹ 32,40,000.00 (2026)
3. Odisha Higher Education Project for Excellence and Equity, Higher Education Department,

Government of Odisha (PI) ₹ 17,87,00,000.00 (Coordinator), (2018-2023)

4. Association of Vitamin-D receptor polymorphism (VDR) in Tobacco-associated oral cancer. Science and Technology Department, Govt. of Orissa. ₹ 10,00,000.00. (Co-PI) (2024-2027)
5. Role of Mitochondria in sperm dysfunction in infertile men with varicocele: A proteomic study in collaboration with American Center for Reproductive Medicine, Cleveland Clinic, Ohio, USA. ₹ 54,98,500.00. (PI) (2017-2019)
6. Comparative proteomic of spermatozoa from infertile men with primary and secondary infertility in collaboration with American Center for Reproductive Medicine, Cleveland Clinic, Ohio, USA, ₹ 79,92,000.00. (PI) (2016-2017)
7. Redox proteomic analysis of carbonylated and sumoylated proteins in human spermatozoa from infertile and normal donors. UGC (Raman-PDF to USA), ₹ 11,68,000.00. (PI)
8. Isolation and characterization of mycosporin like amino acid having UV-protective and anticancer potential. Science and Technology Department, Govt. of Orissa. ₹ 8,36,000.00 (PI)
9. Effect of industrialization of fish from Mahanadi River: A temporal study on Physiological stress response and oxidative stress biomarkers. University Grants Commission (Major Research Project). ₹ 8,34,300.00 (PI)
10. Screening, Isolation and characterization of commercially important antioxidant compounds and marketable agar from seaweeds of Chilika Lake, Science and Technology Department, Govt. of Orissa. ₹ 6,00,000.00. (PI)

Cover page published by international, indexed journals: 03



### Editorial Assignments

- Academic Editor, Andrologia, John Wiley & Sons Ltd
- Associate Editor, Frontiers in Cell & Developmental Biology (Section: Molecular and Cellular Reproduction)
- Guest Associate Editor, Cellular Endocrinology

*Luna Samanta*

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