CURRICULUM VITAE

Rajeev Ranjan, Ph.D.

Assistant Professor

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Ph.D. in Biotechnology (2009-2014) with fellowship, JRF-UGC-NET, 2009, under the supervision of Dr. M.S. Thakur, Chief Scientist (Retd.) and Former Head, Fermentation Technology and Bioengineering Department, CSIR-Central Food Technological Research Institute, Mysuru-570 020, India & Visiting Professor, UPE, M. Tech. in Material Science, Vijnana Bhavan, Mysore University, Mysuru

M.Sc. in Marine Biotechnology (2007-2009) with fellowship (Combined Entrance Examination for Biotechnology (CEEB) conducted by Jawaharlal Nehru University, sponsored by the Department of Biotechnology, New Delhi, India) from the Department of Biotechnology, Goa University, Taleigao Plateau, Goa, India with First Class grade (62.5%)

B.Sc. in Chemistry Honours (2001-2004) from Anugrah Narayan College, Patna affiliated to Magadh University, Bodh Gaya, Bihar, India with second Class grade (55.1%)

CORE RESEARCH AREAS

Bioluminescence, Enzymology, Biosensor, Cancer bio-diagnostics, Environmental Biotechnology

RESEARCH EXPERIENCE IN BRIEF

Positions held	Assistant Professor
Name of the Institute	Institute of Fundamental Biology and Biotechnology, Siberian Federal University, Russia
Period	18 December 2015 till date

Positions held	Senior Research Fellow (UGC)
Name of the Institute	CSIR-Central Food Technological Research Institute
Period	Up to August 17, 2014

Positions held	Junior Research Fellow (UGC)
Name of the Institute	CSIR-Central Food Technological Research Institute
Period	August 18, 2009 to August 17, 2011

December 18, 2015– till August 31, 2021

Position: Assistant Professor at the Siberian Federal University

Work profile: Pursuing research at the Laboratory of Bioluminescent Biotechnologies, Department of Biophysics, Institute of Fundamental Biology and Biotechnology. Key research findings include a) One-step method for stabilization of gold nanoparticles b) A novel apyrase-based assay for monitoring

Hsp90 activity and c) functionalization of gold nanoparticles for observing metal-enhanced bioluminescence. Lectures for M.Sc. degree courses (Biological Engineering, Bioluminescent Biotechnologies, Physics and Chemistry of Bioluminescence, Applied and Engineered Biophysics, Molecular Biology and Genetic Engineering) and guiding students for their dissertation work.

AUGUST 2011– AUGUST 2014

Position: Senior Research fellow-UGC at CSIR-CFTRI, Mysore, India

WORK DONE IN BRIEF Ph.D. thesis on the topic entitled **"**STUDIES ON LUCIFERASE ENZYMES FOR THEIR APPLICATION IN ASSESSING HYGIENE STATE OF SELECTED FOOD SAMPLES**"**

Purification of firefly luciferase from an entirely new genus (*A. humeralis walker*) of Indian origin

ATPase inhibitor based novel bioluminescence assays for evaluation of fish freshness

Formulation of a highly efficient and unique ATP extraction buffer containing ATPase inhibitors

Preparation of ATP-Staphylococcal enterotoxin B as bioluminescent probe for toxin monitoring using competitive immunoassay approach

Rapid enumeration of microbial load in real samples such as milk, flavoured milk and fruit juice

Ground studies on metal-enhanced bioluminescence

Fabrication of avalanche photodiode based luminometer

AUGUST 2009 – AUGUST 2011

Position: Junior Research Fellow-UGC at CSIR-CFTRI, Mysore, India.

WORK DONE IN BRIEF FOR Ph.D. thesis on the topic entitled **"**STUDIES ON LUCIFERASE ENZYMES FOR THEIR APPLICATION IN ASSESSING HYGIENE STATE OF SELECTED FOOD SAMPLES**"**

Isolation and characterization of a highly bioluminescent and stable strain of bacteria (*Photobacterium leiognathi*, (*P. leiognathi*) CFTRI-BIOPHOTO-1 GenBank accession no: KC617878) from marine mussels of Indian origin

Designing of a bioluminescent media for *P. leiognathi* using statistical method of response surface methodology [Central Composite Rotatable Design (CCRD)]

Immobilization studies of *P. leiognathi* (biophotonic beads) for whole cell biosensing application

Rapid prescreening of hazardous materials (Heavy metals and pesticides)

TECHNICAL EXPERTISE

Basic techniques related to immunology, microbiology, biochemistry, and biophysics

Immobilization of microorganisms and enzymes

Column chromatography

Luminescence assays

Fermentation and process optimization

SDS-PAGE, silver staining

Good English reading and writing skills and acquainted with basic computer knowledge

ORIGINAL RESEARCH

1. Pande, S., **Ranjan, R.**, Ryazanova, M., Shuvaev, A. N., Salmina, A. B., & Kratasyuk, V.A. (2021). Buckwheat-enriched diet alleviates bisphenol A mediated oxidative stress via modulation of sirtuin 1 and antioxidant status in experimental rats. Food Chemistry, 131507. **WoS: Q1, Impact Factor: 7.514.** https://doi.org/10.1016/j.foodchem.2021.131507.

2. Kratasyuk, V.A., Stepanova, L.V., Ranjan, R., Sutormin, O.S., Pande, S., Zhukova, G.V., Miller, O.M., Maznyak, N.V. & Kolenchukova, O.A. (2021). A noninvasive and qualitative bioluminescent assay for express diagnostics of athletes' responses to physical exertion. *Luminescence*, 36(2), 384-390. **WoS: Q2, Impact Factor: 2.464.** https://doi.org/10.1002/bio.3954.

3. **Ranjan, R.**, Kirillova, M.A., & Kratasyuk, V.A. (2020). Ethylene Diamine Functionalized Citrate-Capped Gold Nanoparticles for Metal-Enhanced Bioluminescence. *Journal of Siberian Federal University: Biology*, 13(3), 322-330. **Impact Factor: None.** https://doi.org/10.17516/1997-1389-0330. Listed in Russian Science Citation Index.

4. Pande, S., Ranjan, R., Shuvaev, A.N., Malinovskaya, N.A., Ryazanova, M., Salmina, A.B., Kolenchukova, O.A. and Kratasyuk, V.A. (2020). Dietary buckwheat enhances sirtuin1 without calorie restriction. *Journal of Cereal Science*, 103004. **WoS: Q1, Impact Factor: 3.616**. https://doi.org/10.1016/j.jcs.2020.103004

5. Kirillova, M.A., ***Ranjan, R.**, Esimbekova, E.N., & Kratasyuk, V.A. (2019). Role of Hsp90 and ATP in modulating apyrase activity and firefly luciferase kinetics. *International Journal of Biological Macromolecules*, 131, 691-696. **WoS: Q1, Impact Factor: 6.953 (*Corresponding Author).** https://doi.org/10.1016/j.ijbiomac.2019.03.110

6. Pande, S., **Ranjan, R.**, & Kratasyuk, V. A. (2019). Is Body Mass Index a potential biomarker for anemia in obese adolescents?. *Journal of Nutrition & Intermediary Metabolism*, 15, 1-2. **WoS: Q3, Impact Factor: None. Cite Score: 2.5.** https://doi.org/10.1016/j.jnim.2018.11.001.

7. Kirillova, M.A., Esimbekova, E.N., **Ranjan, R.**, Torgashina, I.G., & Kratasyuk, V.A. (2018). Bioluminescent System of luminous bacteria for detection of microbial contamination, *Journal of Siberian Federal University: Biology*, 11, 2. **Impact Factor: None.** Listed in Russian Science Citation Index. http://elib.sfu-kras.ru/handle/2311/71720

8. **Ranjan, R.**, Kirillova, M.A., Esimbekova, E.N., Zharkov, S.M., & Kratasyuk, V.A. (2018). Agglomeration behavior of lipid-capped gold nanoparticles. *Journal of Nanoparticle Research*, 20(4), 107. **WoS: Q2, Impact Factor: 2.253.** https://doi.org/10.1007/s11051-018-4215-5

9. **Ranjan, R.**, Esimbekova, E.N., & Kratasyuk, V.A. (2017). Rapid biosensing tools for cancer biomarkers. *Biosensors and Bioelectronics*, 87, 918-930. **WoS: Q1, Impact Factor: 10.618.** https://doi.org/10.1016/j.bios.2016.09.061

10. **Ranjan, R.**, Esimbekova, E.N., Kirillova, M.A., & Kratasyuk, V.A. (2017). Metal-enhanced luminescence: current trend and future perspectives-a review. *Analytica Chimica Acta*, 971, 1-13. **WoS: Q1, Impact Factor: 6.558.** https://doi.org/10.1016/j.aca.2017.03.051

11. **Ranjan, R.**, Rastogi, N.K., & Thakur, M.S. (2012). Development of immobilized biophotonic beads consisting of *Photobacterium leiognathi* for the detection of heavy metals and pesticide. *Journal of hazardous materials*, 225, 114-123. **WoS: Q1, Impact Factor: 10.588.** https://doi.org/10.1016/j.jhazmat.2012.04.076

12. **Ranjan, R.**, Priyanka, B.S., & Thakur, M.S. (2014). ATPase inhibitor based luciferase assay for prolonged and enhanced ATP pool measurement as an efficient fish freshness indicator. *Analytical and bioanalytical chemistry*, 406(18), 4541-4549. **WoS: Q1, Impact Factor: 4.142.**https://doi.org/10.1007/s00216-014-7840-6

13. Abhijith, K.S., Sharma, R., **Ranjan, R.**, & Thakur, M.S. (2014). Facile synthesis of gold–silver alloy nanoparticles for application in metal enhanced bioluminescence. *Photochemical & Photobiological Sciences*, 13(7), 986-991. **WoS: Q2, Impact Factor: 3.982.**https://doi.org/10.1039/C4PP00046C

BOOK CHAPTER/MONOGRAPH

1. Thakur, M. S., **Ranjan, R.**, Vinayaka, A. C., Abhijith, K. S., & Sharma, R. (2013). Nanoparticles and biophotonics as efficient tools in resonance energy transfer-based biosensing for monitoring food toxins and pesticides. In Advances in applied nanotechnology for agriculture (pp. 55-84). *American Chemical Society*. **WoS: Q4.** https://doi.org/10.1021/bk-2013-1143.ch004.

2. Thakur, M.S., Vinayaka A.C., Sagaya Selva Kumar, Abhijith K., **Ranjan, R.**, Akshath U.S. (2011) Monograph on biosensors, (ed.): Muralikrishna Reddy, L.V., National Design Research Forum, The Institution of Engineers, Bangalore, pp 1-56. (Monograph). **Impact Factor: None.**

GENBANK SUBMISSION (NCBI)

Ranjan, R. and Thakur, M.S., GenBank: KC617878.1: *Photobacterium leiognathi* strain CFTRI-BIOPHOTO-1 16S ribosomal RNA gene, partial Sequence.

INTERNATIONAL CONFERENCE/SYMPOSIUM/ WORKSHOP

Metal enhanced luminescence: current trends and future perspectives, Workshop, Laboratory of Non-Linear Optics and Spectroscopy, Siberian Federal University, Krasnoyarsk, Russia, August 30, 2016.

Nanomaterial assisted enhanced luminescent platform for biosensor application, Biotechnology of new materials–environment–quality of life (I), Siberian Federal University, Krasnoyarsk, Russia, October 10, 2016.

Sodium ions rapidly aggregate gold nanoparticles: mechanism, applications and constraints, Prospect Svobodny, Siberian Federal University, Krasnoyarsk, Russia, April 20, 2017.

Stabilization studies of citrate-capped gold nanoparticles for metal-enhanced bioluminescence, Biotechnology of new materials–environment–quality of life (II) Siberian Federal University, Krasnoyarsk, Russia, September 28, 2017.

Heat shock protein 90 as potential stress and cancer biomarker, Biotechnology of New Materials–Environment–Quality of Life (III), Siberian Federal University, Krasnoyarsk, Russia, October 01, 2018.

R. Ranjan, B.S. Priyanka, M.S. Thakur, ATPase Inhibitor based Firefly Luciferase Biosensing Assay Format as an Efficient Fish Freshness Indicator, 3rd International Bio-Sensing Technology Conference, May 12-15, 2013, Sitges, Spain.

Savita Kumari R., Preethi. C, Rajeev Ranjan, Prakash Halami, M.S. Thakur, Novel Biosensing Approach for Rapid Detection of Antibiotic Resistant Bacteria using Biophotonics, 7th International Food Convention (IFCON), December 18-21, 2013, Venue: CSIR-CFTRI Campus, Mysore, Karnataka, India.

Richa Sharma, Rajeev Ranjan, Abhijith K.S., M.S. Thakur (2012), Principle of energy transfer for enhancement of bioluminescence by gold nanoparticles, In 5th Bangalore Nano, December 5-7, Bangalore.

Abhijith K.S., Richa Sharma, Rajeev Ranjan, Plasmon enhanced bioluminescence phenomenon with gold-silver alloy nanoparticles for monitoring toxicants in food 7th International Food Convention (IFCON), December 18-21, 2013, Venue: CSIR-CFTRI Campus, Mysore, Karnataka, India.

Rajeev Ranjan, Sanjana Tomar, M.S. Thakur (2012), Can ATP Bioluminescence Technology Recommend a Sanitizing Formulation? International Conference on Industrial Biotechnology & IX Convention of The Biotech Research Society, India & Indo-Italian Workshop on Food Biotechnology: Industrial Processing, Safety & Health, November 21-23.

Rajeev Ranjan, Neeraj Katiyar, M.S. Thakur (2011), Bacteria as Biophotonic Sensor: A Promising Tool for Monitoring Environmental Pollutants, AMI-2011 conference, November 3–6, 2011 in Panjab University, Chandigarh.

Rajeev Ranjan and M.S. Thakur (2011) Biophotonics based biosensor as an efficient tool for monitoring food hygiene and sanitation Indo Swiss Collaboration in Biotechnology, ISCB (March 10-11).

Rajeev Ranjan, M.S. Thakur, L. Sagaya Selva Kumar (2010), Biophotonics and their applications in food and environmental monitoring, 16th International Symposium on Bioluminescence and chemiluminescence, ISBC-2010, April 19-23.

NATIONAL

Priyanka B.S., Rajeev Ranjan, M.S. Thakur (2012) Rapid detection of viable bacterial load in milk using ATP bioluminescence, XXII Indian Convention of Food Scientists & Technologists (ICFoST), December 6-7, 2012, Venue: CSIR-CFTRI Campus, Mysore, Karnataka, India

Rajeev Ranjan, M.S. Thakur, Jaivik Prakash (Biophotonics): A simple tool for detection of hazardous materials and sanitary condition at rural level, Gandhian Young Technological Innovation Award/Appreciation 2014, March 29, IIM-A, Ahmedabad.

AWARDS AND ACHIEVEMENTS

Recognition award (2017) from the Prof. Osamu Shimomura Foundation Fund at the Siberian Federal University for the research work on bioluminescence.

Awarded research grant for three years as Principal Investigator (January 2016-December 2018) from Russian Foundation for Basic Research (RFBR) for the project entitled "Functional nanomaterials: the scientific basis of new types of bioluminescent analysis for environmental monitoring and biomedicine" RFFI Project No. 16-34-60100.

(Competition Announcement: https://www.rfbr.ru/rffi/ru/contest/o_1939519)

Co-investigator for the project entitled "Organization of system conditions for the micro hydrodynamics development: the design and fabrication of microfluidic devices for educational and research aims" April-Nov. 2020, http://nrcki.ru/files/pdf/PAM_Diss.pdf

Co-investigator for the project entitled "Development of the scientific basis for a new rapid biotechnology biotesting for food safety and quality control of fruits and vegetables", RFFI Project No. 16-44-242126.

(Competition Announcement: https://www.rfbr.ru/rffi/ru/rffi_contest_announces/o_1956629)

Co-investigator for the project entitled "Construction of an enzymatic reagent for bioluminescent analysis: mechanisms for increasing sensitivity and accuracy" Project No. 18-44-242003.

(Competition Announcement: https://www.rfbr.ru/rffi/ru/contest/n_812/o_2061729)

Recipient of Prestigious Gandhian Young Technological Innovation Award- 2014, felicitated by Padma Vibhushan, Prof. Raghunath A. Mashelkar hosted by TECHPEDIA, SRISTI, India. (https://enarada.com/csir-junior-research-fellow-receives-award-from-dr-raghunath-anant-mashelkar/)

Shortlisted among top 16 young innovator in DuPont and ET Now Times sponsored power of Shunya contest after peer reviewing and interviewing process for the research on biosensor (https://www.youtube.com/watch?v=9AN_cGI3TTk)

Awarded Junior Research fellowship (JRF) under UGC scheme after qualifying National Eligibility Test (NET) of (CSIR-UGC), 2009

Upgraded to avail UGC-Senior Research fellowship (2011-2014)

Awarded travel grant from the Department of Biotechnology (DBT), Government of India to present my research doctoral research work at Sitges, Spain

Entitled merit scholarship/stipend from the Department of Biotechnology, while pursuing M.Sc. course (2007-2009) after qualifying Combined Entrance Examination for Biotechnology (CEEB), Jawaharlal Nehru University, New Delhi, INDIA

EXTRA CURRICULAR ACTIVITIES:

Awarded first position in Shuttle and Table Tennis at the Siberian Federal University in the Inter-Departmental competitions

Participation in musical events at CSIR-CFTRI

HOBBIES:

Creative arts, calligraphy, and cooking

Languages:	Hindi and English
Sports:	Table Tennis, Shuttle
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REFERENCES

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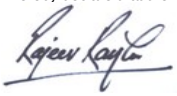
DECLARATION

I hereby declare that the information furnished above is true to best of my knowledge.



(RAJEEV RANJAN)