

Bio-data of Dr. Rakesh Kundu

Name: **Dr. Rakesh Kundu**

Designation: **Assistant Professor**

Department/Institute/University:

Cell Signaling Laboratory

Department of Zoology

Visva-Bharati (A Central University)

Santiniketan – 731 235

Birbhum, West Bengal, INDIA

Date of Birth: **26.09.1978**

Sex (M/F): **Male**

Education (Post-Graduate onwards & Professional Career)

Sl. No.	Institution Place	Degree Awarded	Year	Field of Study
1.	Banaras Hindu University	M.Sc.	2003	Zoology (Spl. Biochemistry)
2.	Visva-Bharati	Ph.D.	2009	Hepatobiology, Cell Signaling

A. Position

- Joined as Assistant Professor, Visva-Bharati since 21.12.2012-till date
- Dr. D.S. Kothari Post-doctoral Fellow at Visva-Bharati from 07.07.2012-20.12.2012
- Post-doctoral fellow, CSIR-Research Associate at Visva-Bharati from 01.04.2011-30.06.2012
- Joined as Project Assistant level-I, CSIR-North East Institute of Science & Technology, Jorhat from 09.12.2010-31.03.2011
- Assistant Professor (temporary), Guru Ghasidas University, Bilaspur from 10.08.2009-30.06.2010
- Junior Research Fellow at Bose Institute, Kolkata from 23.09.2003-30.08.2004

Honors/Awards:

- ISE Travel Fellowship Award from International Society of Endocrinology (ISE) to attend ICE-SEMDSA 2018 conference at Cape Town, South Africa, 2018.
- Early Career Research Award, SERB, Govt. of India, 2017
- UGC-BSR Research Start-up-Grant, UGC, Govt. of India, 2014
- Dr. D.S. Kothari Post-doctoral Fellowship from UGC, 2012
- CSIR-Research Associateship from CSIR, Govt. of India 2011
- Best poster award in the international symposium of Asia & Oceania Society for Comparative Endocrinology (AOSCE) held in North Bengal University, Siliguri during Dec' 2007.
- Junior and Senior Research Fellowship for joint CSIR-UGC NET, 2003
- ICMR- JRF (from Indian Council of Medical Research), 2003
- Graduate Aptitude Test for Engineering (GATE, Per. 87.96), 2003
- Mira Roychoudhury Prize for securing 1st position in B.Sc., J.K. College, Burdwan University.

Professional experience and training relevant to the area of Type 2 diabetes

Dr. Rakesh Kundu is presently working in the line of Type 2 diabetes for several years. During his doctoral studies he has worked on the bilirubin metabolizing enzymes in the liver; their activities, expression, signaling and importance in liver ailments (J Ethnopharmacol, 2008; Biochem Pharmacol, 2011). After his doctoral degree his focus was turned in the direction of fatty acid mediated insulin signaling defects in skeletal muscle and liver (**BBA, 2009**). He worked in a group to screen compounds from plant sources and successfully isolated potential anti-diabetic agents (MCB, 2010), few of which were submitted for US patents. Since last few years he has been engaged in a joint investigation to explore the role of fetuin-A in lipid mediated inflammation in adipose tissue (**Nature Medicine, 2012; JBC, 2013**). The outcome of this investigation made a breakthrough in the line of type 2 diabetes and helps to understand the role of fetuin-A in lipid induced inflammation. His group is now engaged in understanding the role of fetuin-A in pancreatic beta-cell dysfunction during chronic hyperlipidemic condition. His team has recently reported FFA mediated expression of fetuin-A from MIN6 cells (mouse insulinoma cells), its role in promoting inflammation and impairing insulin secretion (**BBRC, 2017**). These findings are interesting and will surely explore the area of obesity induced beta-cell dysfunction and loss of functional mass of the pancreas.

Ph.D. students – 4 (3 JRFs and 1 thesis submitted);

Post-graduate student projects guided - 22

Foreign Fellow Training - **Ms. Ejelounu O. Cecilia**, Research Scientist/Senior Technologist, NIGERIA worked under RTF-DCS scheme of NAM S&T, New Delhi, Govt. of India during June 2016 to November 2016.

B. Publications:

1. A. Mukhuty. Fetuin-A secreted from pancreatic beta cells plays significant role in macrophage accumulation and inflammation in the islets during hyperlipidemic condition. *J. Endo. Soc.* 3 (Supplement 1), SAT-160, 2019
2. D. Roy, C. Fouzder, A. Mukhuty, S. Pal, M. K. Mondal, R. Kundu, P. Chowdhury. Designed synthesis of dual emitting silicon quantum dot for cell imaging: Direct labeling of Alpha 2-HS-Glycoprotein. *Bioconjugate Chemistry (ACS online)*, 2019.
3. Karmakar, A., Mallick, T., Fouzder, C., Mukhuty A., Kundu, R., Begum, N.A. Antioxidant flavone functionalized fluorescent and biocompatible metal nanoparticles: Exploring their efficacy as cell imaging agents. *Nano-Structures and Nano-Objects* (In press), 2019.
4. R. Kundu, A. Mukhuty. Fetuin A—A Major Player in Lipid-Induced Islet Dysfunction and β -Cell Apoptosis. *Diabetes* 67 (Supplement 1), 2466-PUB, 2018.
5. C. Malick, S.K. Chatterjee, S. Bhattacharya, V. R. Suresh, R. Kundu and S.K. Saikia. Structural organization of the olfactory organ in an amphihaline migratory fish Hilsa, *Tenualosa ilisha*. *Microscopy Research and Technique* 81(5), 2018.
6. Malick, S.K. Chatterjee, S. Bhattacharya, V.R. Suresh, R. Kundu, S.K. Saikia. Evidence of putative sensory receptors from snout and tongue in an upstream amphihaline migratory fish hilsa *Tenualosa ilisha*. *Ichthyological Research* 65:42-55, 2017.
7. Mukhuty, C. Fouzder, S. Mukherjee, C. Malick, S. Mukhopadhyay, S. Bhattacharya, R. Kundu. Palmitate induced Fetuin-A secretion from pancreatic β -cells adversely affects its function and elicits inflammation. *Biochem. Biophys. Res. Commun.*, 491: 1118-1124, 2017.
8. S. Das, Md. N. Alam, S. Batuta, G. Ahamed, C. Fouzder, R. Kundu, D. Mandal, N. A. Begum. Exploring the efficacy of *Basella alba* mucilage towards the encapsulation of the hydrophobic antioxidants for their better performance. *Process Biochemistry* 61C: 178-188, 2017.
9. S. Das, S. Batuta, Md. N. Alam, C. Fouzder, R. Kundu, D. Mandal, N. A. Begum. Antioxidant flavone analog functionalized fluorescent silica nanoparticles: Synthesis and exploration of their possible use as biomolecule sensor. *Colloids and Surfaces B.* 157: 286-296, 2017.
10. P. Chatterjee, S. Seal, S. Mukherjee, R. Kundu, M. Bhuyan, N. C. Barua, P. K. Baruah, S. P. Sinha Babu and S. Bhattacharya. A carbazole alkaloid deactivates mTOR through the suppression of rictor and that induces apoptosis in lung cancer cells. *Mol. Cell Biochem.* 405: 149-158, 2015.

11. S. Chatterjee, A. Ray, S. Mukherjee, S. Agarwal, R. Kundu, S. Bhattacharya. Low concentration of mercury induces autophagic cell death in rat hepatocytes. *Toxicology Industrial Health* 30(7): 611-620, 2014
12. P. Chatterjee, S. Seal, S. Mukherjee, R. Kundu, S. Mukherjee, S. Ray, S. Mukhopadhyay, S.S. Majumdar and S. Bhattacharya. Adipocyte fetuin-A contributes to and their polarization macrophage migration into adipose tissue. *J. Biol. Chem.* 288: 28324-28330, 2013.
13. S. Seal, P. Chatterjee, S. Bhattacharya, D. Pal, S. Dasgupta, R. Kundu, S. Bhattacharya, M. Bhuyan, P. R. Bhattacharyya, G. Baishya, N. C. Barua, P. K. Barua, P. G. Rao and S. Bhattacharya. Vapor of volatile oils from *Litsea cubeba* seed induces apoptosis and causes cell cycle arrest in lung cancer cells. *PLoS One* 7(10):e47014, 2012.
14. Pal, S. Dasgupta, R. Kundu, S. Maitra, S. S. Majumder, S. Mukhopadhyay, S. Ray, G. Das, S. Bhattacharya. Fetuin-A opens toll gate for lipid induced insulin resistance. *Nature Medicine* 18(8): 1279-1285, 2012.
15. S. Bhattacharya, R. Kundu, S. Dasgupta, S. Bhattacharya. Mechanism of lipid induced insulin resistance: An overview. *Endocrinol Metab* 27(1):12-19, 2012.
16. R. Kundu, S. Dasgupta, A. Biswas, S. Bhattacharya, B.C. Pal, Sh. Bhattacharya, P.G. Rao, N.C. Barua and S. Bhattacharya. Carlinoside decreases liver bilirubin accumulation by augmenting UGT1A1 expression by inducing Nrf2 gene expression. *Biochem. Pharmacol.* 82:1186-1197, 2011.
17. Biswas, S. Bhattacharya, S. Dasgupta, R. Kundu, S.S. Roy, B.C. Pal and S. Bhattacharya. Insulin resistance due to lipid induced signaling defects could be prevented by mahanine. *Mol Cell Biochem* 336: 97-107, 2010.
18. P. Burma, S. Bhattacharya, A. Bhattacharya, R. Kundu, S. Dasgupta, A. Biswas, S.S. Roy, Sh. Bhattacharya and S. Bhattacharya. FFA induced overexpression of NF- κ B in skeletal muscle cells is linked to insulin resistance. *Biochim. Biophys. Acta-Mol Basis Disease (BBA)* 1792:190-200, 2009.
19. R. Kundu, S. Dasgupta, A. Biswas, A. Bhattacharya, B.C. Pal, D. Bandyopadhyay, Sh. Bhattacharya and S. Bhattacharya. *Cajanus cajan* Linn. (Leguminosae) prevents alcohol induced rat liver damage and augments cytoprotective function. *J. Ethnopharmacol* 118: 440-447, 2008.

Projects (Sanctioned/Ongoing):

Title of the project and Reference number	Duration	Cost (lakhs)	Funding Agency	Remarks
PI: Dr. Rakesh Kundu, “To investigate the role of Fetuin-A in lipotoxicity induced beta-cell dysfunction and inflammatory injury to the pancreatic islets”, DST-SERB, Govt. of INDIA, Ref. No. ECR/2017/001028	Approved on 29.05.2017	Rs. 42.10186	DST-SERB	Ongoing
PI: Dr. Rakesh Kundu, “Understanding the role of Nrf2-Keap1 pathway in developing drug resistance in lung cancer cells” Ref. UGC-FRPS Research Start-Up-Grant	2014-2016	Rs. 6.0	UGC	Completed
Co-Investigator in the project entitled, “To investigate whether lipid induced fetuin-A from adipocytes could link insulin resistance and immunity”, DST-SERB, Ref. No. SB/SO/AS-064/2013	2013-2017	Rs. 32.00	DST-SERB	Completed
Co-Investigator in the project entitled, “Stock Characterization, captive breeding, seed production and culture of Hilsa (<i>Tenualosa ilisha</i>)”, ICAR, Govt. of INDIA, Ref. No. NFBSFARA/3021/2012-13	2012-2017	Rs. 159.00	ICAR	Completed

Detail of patents:

1. Synergistic pharmaceutical composition useful for the treatment of lung cancer. M. Bhuyan, P. R. Bhattacharyya, P. K. Baruah, N. C. Barua, P. G. Rao, S. Bhattacharya, **R. Kundu**, P. Chatterjee, S. Seal, S. Mukharjee, S. Dasgupta, S. Maitra, S. Bhattacharya, S. Bhattacharya. 9622987, Application No. 14/410,844, Award date 18/04/2017, US Patent.
2. UDP-Glucuronosyl transferase (UGT) expression stimulant to reduce bilirubin accumulation in liver and pharmaceutical compositions thereof. **R. Kundu**, S. Dasgupta, A. Biswas, B. C. Pal, S. Bhattacharya, S. Bhattacharya, N. C. Barua, P. G. Rao. (0136DEL2010, 2010), INDIA.

3. Insulin mimetic active comprising oxodiperoxo vanadates and a pharmaceutical composition obtained thereof. M. K. Chaudhuri, S. Hussain, S. Bharadwaj, U. B. Sinha, D. Talukdar, U. Bora, S. S. Majumdar, S. Bhattacharya, S. Dasgupta, **R. Kundu**, S. Bhattacharya, S. Bhattacharya. Application No. 14/007506, Publication date 09/06/2011, with US Patent Office.
4. Mahanine arrests growth and induces apoptotic death of lung cancer cells by targeting mTORC1 and mTORC2 complexes. Bhuyan, M; Barua, NC; Baruah, PK and Rao, PG, Chatterjee, P; Seal, S; **Kundu, R**; Mukherjee, S; Bhattacharya, S. (0275NF2013, 2013), INDIA.

C. Member of Society and Reviewers:

1. Member of Endocrine Society (ENDO), USA
2. Indian Science Congress Association, Kolkata, India (ISCA)
3. Society of Biological Chemists, Bangalore, India (SBC)
4. Society for Reproductive Biology and Comparative Endocrinology, India (SRBCE)
5. Reviewer of the projects from DST-SERB, Govt. of INDIA
6. Reviewer of the Journal PLoS ONE, Cancer Biotherapy and Radiopharmaceuticals, Oncology Letters, PNAS India.

Seminar/Conference/Workshop attended:

1. Delivered short talk in the two days Workshop cum National Seminar on “Trends in modern biology: Techniques and applications” jointly organized by NIPER, Kolkata and Visva-Bharati, Santiniketan during March 23-24, 2019.
2. Delivered short talk on the topic “Fetuin-A secreted from pancreatic β -cells mediates islet inflammation and β -cells death in hyperlipidemic condition” in the International Conference of Endocrinology (ICE-SEMDSA 2018) held in Cape Town, South Africa during December 1-4, 2018.
3. Attended 5-day workshop entitled "National Workshop on Statistical Data Analysis in Multidisciplinary Research---Learning through software (WSDAMR)" held in the Department of Statistics, Visva-Bharati, Santiniketan from 27th August to 31st August, 2018.
4. Delivered short talk in the 6th International Conference on Molecular Signalling (ICMS-2018) organized by the University of Hyderabad and National Institute Animal Biotechnology, Hyderabad during February 8-10, 2018.
5. Invited talk in the National Conference on Advances of Life Science and Radiation Biology held on 17-18th February, 2017 in the Golapbag campus, The University of Burdwan.

6. Delivered short talk in the 5th International Conference on Molecular Signalling (ICMS-2017) organized by the AU-KBC Research Centre, Anna University in Chennai during February 10-12, 2017.
7. Delivered short talk in the 4th International Conference on Molecular Signalling: Recent Trends in Biomedical and Translational Research (ICMS: RTBTR-2014) organized by the IIT, Roorkee and Jawaharlal Nehru University, New Delhi during December 17-19, 2014.
8. Delivered lecture in the *Science Seminar Lecture Series (2014)* at the Dept. of Botany, Visva-Bharati, Santiniketan on March 27, 2014.
9. Acted as member in the “International Conference on Environmental Biology and Ecological Modeling” (ICEBEM-2014) held at Visva-Bharati, Santiniketan during February 24-26, 2014.
10. Acted as member in the “International Symposium on Molecular Signaling” held at Visva-Bharati, Santiniketan during February 18-21, 2013.
11. Presented poster in the INSA Platinum Jubilee International Symposium on Research in Molecular Medicine Based on Natural Resources and Traditional Knowledge held at the National Chemical Laboratory, Pune during November, 2009.
12. Presented poster in the international symposium on “Perspective of Cell Signaling and Molecular Medicine” held at Bose Institute, Kolkata during November 2008.
13. Presented poster in The 6th Congress of the Asia and Oceania Society for Comparative Endocrinology held at NBU, Siliguri, Darjeeling during December 2007.
14. Poster presented in the National Symposium on Comparative Endocrinology & Reproductive Physiology: Insight and Challenges (NSCERP) held at Visva-Bharati University, Santiniketan during November 2007.
15. National Science Day Celebration at Visva-Bharati University, Santiniketan during February 2006.
16. XXIII National Symposium on Reproductive Biology and Comparative Endocrinology (SRBCE) held at Visva-Bharati University, Santiniketan during February 2005.
17. Symposium on Bioinformatics for Genome Analysis held at Bose Institute, Kolkata during February 2004.