



UNIVERSITY OF CALCUTTA
ACADEMIC DEPARTMENT- ZOOLOGY
FACULTY ACADEMIC PROFILE/ CV

1. **Full name of the faculty member:** Prof. Ena Ray Banerjee
2. **Designation:** Professor & Head of the Department
3. **Specialization:** Immunobiology, Regenerative Medicine, and Translational Outcomes Research
4. **Passport size photograph :**



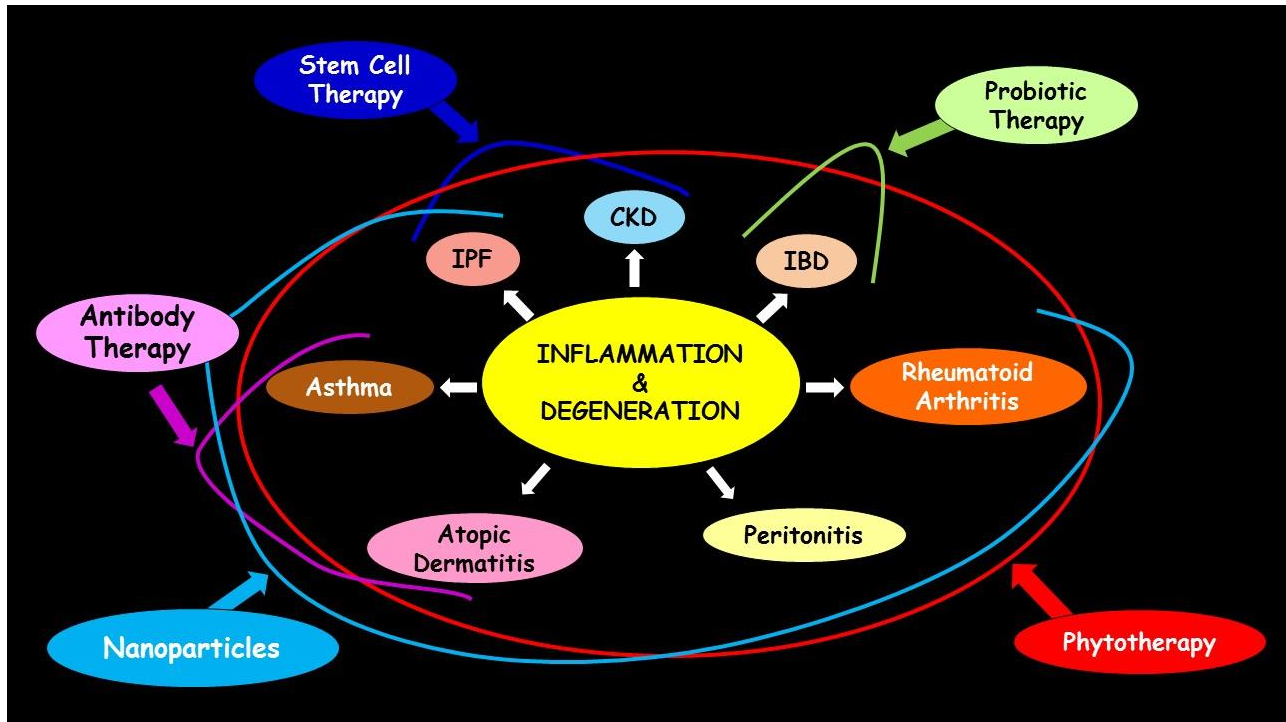
5. **Contact information :** Postal Address: Lab 214 and 251, Dept. of Zoology, University of Calcutta, 35, Ballygunge Circular Road, Kolkata 700019; e-mail address: erb@caluniv.ac.in, enaraybanerjee@gmail.com; Phone: 033-24615445 (Ext. 275)
Website: <http://www.zoologyhub.org/>

6. **Academic qualifications:**

Please mention here the degrees (Post graduation onward):

College/ university from which the degree was obtained	Abbreviation of the degree
University of Calcutta	M.Sc.
Jadavpur University	Ph.D.
University of Calcutta	D.Sc.

7. **Position holding:** Professor of Zoology
8. **Research interests:** *Translational studies in Inflammation & Degeneration using in vitro and in vivo approaches for validation:* The Immunology & Regenerative Medicine Research Unit in the Department of Zoology of the University of Calcutta focusses its research on inflammatory and degenerative diseases. We are involved in translational studies in inflammation and degeneration, using in vitro and in vivo approaches. Drug discovery studies are done using natural products and their extracts, using stem cells, using a novel technology of antibody therapy, and also using probiotics organisms. While these drug discovery studies are done on mice models, regenerative studies are also done on other organisms like *Drosophila* and *Planaria*.



A. *Drug discovery studies*

- Using small molecules
- Drug discovery studies using natural products from plants and animals
- Design and validation of nano-vehicles for delivery to specific cells, cells in tissues, extra-cellular receptors / targets and intracellular organelles
- Design and validation of nano-scaffolds for tissue engineering and regeneration.
 - Tissue engineering and cell based therapy-
- Tissue engineering of pluripotent cells of embryonic and fetal origin and adult tissue derived for the development of tissue lineage specific cells and
- Functional validation in preclinical injury and transplantation models.
 - Engineering of novel format antibodies-
- Camelid antibody; Chicken IgY; ScFv
 - Probiotics & prebiotics
- Study of mechanistic insights into using novel combinatorial probiotic cultures for their anti-inflammatory and pro-regenerative roles

B. *Basic biological studies*

- Lymphopoiesis
- Patterns of cell traffic and rate limiting factors in the pathophysiology of inflammatory cum degenerative diseases
- Mobilization and homing of intrinsic cells from site of poiesis versus extrinsically introduced cells via multi-route transplantation
- Quorum sensing by bacteria
- Paracrine factors with inductive powers

- Alteration of trans-epithelial resistance in pathophysiological manifestation
- Markers of pathophysiology in peritonitis, inflammatory bowel disease, acute and chronic allergic asthma, idiopathic lung fibrosis, arthritis, atopic dermatitis etc.
- Developmental studies using invertebrate models
- Mapping of stem cell niche in vertebrate and invertebrate models

9. Research guidance:

Number of researchers awarded M.Phil/ Ph.D: 3

Number of researchers pursuing M.Phil/ Ph.D: 5

10. Projects:

Completed projects: PI- Ena Ray Banerjee

SI. No.	Project	Funding agency
1.	Development of a novel format of stable single chain nanobodies for therapeutic and cosmetic use	Center for Research in Nanoscience and Nanotechnology
2.	Engineering of a camelid single chain antibodies for therapeutic, diagnostic and cosmetic use	University Grants Commission, New Delhi
3.	Development of a novel format single chain antibodies for identification of markers for inflammation for diagnostic use	Science and Engineering Research Board, Department of Science and Technology, Govt of India
4.	Rescue Mission of the sick Heritage Museum of the Dept. of Zoology, University of Calcutta	West Bengal Dept. Of Education lump grant
5.	Refurbishment of the Heritage Museum in Department of Zoology, University of Calcutta and upgradation to International Standards	Vice Chancellor's special grant from UPE-I
6.	Restoration of the Rare Faunal Collection of the Centenary Heritage Museum of the Department of Zoology, University of Calcutta and Upgradation as a National and International Biodiversity Resource'	Tata Education Trust
7.	Development of a novel format of single chain antibodies against Staphylococcus aureus and allergen specific IgE in allergic asthma	West Bengal Department of Biotechnology
8.	Novel Technology for Generation of Single Format Small Molecule Eco-compatible Targeted Nanobodies for the Diagnosis and Therapy of Allergic Asthma and Validation in Acute and Chronic Preclinical Disease Model	Indian Council of Medical Research

9.	Drug Discovery Studies with Novel Probiotics using <i>in vitro</i> and <i>in vivo</i> Models of Inflammatory Bowel Disease- Molecular Mechanisms and Translation for Prophylaxis and Therapy.	West Bengal Department of Science & Technology
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Current projects: PI- Ena Ray Banerjee

SI. No.	Project	Funding agency
1.	Development of novel single format camelid antibody against markers of stem cell differentiation into lung lineage specific cells and their functional validation	UGC-UPE-II






11. Membership of Learned Societies:

1. International Society of Experimental Hematology, USA
2. American Thoracic Society, USA
3. American Academy of Allergy, Asthma and Immunology, USA
4. American Society of Hematology, USA
5. Life member, Society of Biological Chemists, India
6. Indian Science News Association, India
7. Life member, Zoological Society of India, Calcutta Chapter, Kolkata, India
8. Life member, Indian Science Congress Association, India
9. Member. Planning & Programming Committee, Birla Industrial & Technological Museum under National Council for Science Museums, Govt. of India
10. Executive committee member of West Bengal Council of Science & Technology (WBCST)
11. Post Graduate Board of Studies (PGBOS) Chairwoman

12. Tie - ups and collaborations:

- Professor Serge Myuldarmans, Dr. Dirk Saerens, VIB, Vrije Universiteit Brussels, Belgium, Europe
- Professor William R. Henderson, Jr, University of Washington, Seattle, USA
- Dr. Nikhil R. Jana, IACS, Kolkata, India
- Dr. N. V. Patil, National Research Center for Camels, Bikaner, Rajasthan, India
- Professor A. K. Kataria, Dept. of Biotechnology, RAJUVAS, Bikaner, Rajasthan, India
- Prof. Arup Mukherjee, Dept. of Polymer Sciences, University of Calcutta, India
- Dr. Umesh P. Singh, IICB, Kolkata

13. **Current Research group:**

	Name	Position	Works on
	Ranita Dutta	Research Fellow	<ul style="list-style-type: none"> • Exploration of bioactive principles and anti-oxidative-inflammatory activities of plant extracts
	Payal Pal	Senior Research Fellow	<ul style="list-style-type: none"> • Development of animal models of regeneration using Planaria among others • Engineering of various novel formats of naturally occurring antibodies
	Saheli Biswas	Junior Research Fellow	<ul style="list-style-type: none"> • Identification & characterization of commensals in inflammatory bowel disease • Tracing of macrophage polarization
	Akashlina Marik	Junior Research Fellow	<ul style="list-style-type: none"> • Tripartite relationship amongst gut microbes, hormones and immune network in some metabolic and inflammatory diseases
	Bejoy Biswas	Junior Research Fellow	<ul style="list-style-type: none"> • Wound healing and repair of epithelial tissue in multi-organ inflammatory & degenerative diseases

14. **Select list of publications:**

a. Research Articles:

- 1) Pal P, **Banerjee ER**. *DNA barcoding-technological advancement to bridge taxonomic identification and molecular systematics in species delineation of Indian spider*. International Journal of Fauna and Biological Studies. 2023. 10 (2): 13- 30.
- 2) Mitra S, **Banerjee ER**. *Hyperoxia-preconditioned human ESC line KIND1, predominantly differentiated into SP-C+ type-II alveolar epithelial cells, reduces idiopathic pulmonary fibrosis in mice*. Proc. Zool. Soc. 2023. <https://doi.org/10.1007/s12595-023-00475-4>.
- 3) Mitra S, **Banerjee ER**. *Pre-Differentiation of KIND1 Human Embryonic Stem Cell Line into Type I Alveolar Epithelial Cells Alleviates Symptoms of Idiopathic Pulmonary Fibrosis in Mice*. Proc. Zool. Soc. 2023. <https://doi.org/10.1007/s12595-023-00469-2>.
- 4) Dutta R, **Banerjee ER**. *A comparative study on anti-oxidative properties of different cultivars of Piper betle collected from Howrah district (West Bengal)*. IJSR. 2023. 12 (3).
- 5) Ghosh N, Mitra S, **Banerjee ER**. *Guar gum nanoparticles ameliorate inflammatory damage in a preclinical mouse model of collagen II-induced arthritis*. Bio Med Res Ther. 2022. 9 (8): 5241-5259.
- 6) Biswas S, **Banerjee ER**. *Probiotic treatment of Inflammatory Bowel Disease: Its extent and intensity*. World J Immunol. 2022. 12 (2): 15- 24.
- 7) Mitra S, **Banerjee ER**. *Novel 3-strain Combinatorial Probiotics Alleviates Symptoms of Inflammatory Bowel Disease in Mice*. Acta Scientific Microbiology. 2022. 5 (7): 2- 14.
- 8) Mitra S, Ghosh N, Paul P, **Banerjee ER**. *Orally-Administered Fisetin Reduces the Symptoms of Acute Allergic Asthma in a Preclinical Mouse Model*. Bio Med Res Ther. 2022. 9 (3): 4953- 4970.
- 9) Paul P, Pal P, **Banerjee ER**. *Genetic variation of Indian Camel (*Camelus dromedarius*) breeds using mitochondrion COI gene analysis*. J Bio Med Open Access. 2020. 1 (2): 112.
- 10) Paul P, Majhi S, Mitra S, **Banerjee ER**. *Orally administered fisetin as an immunomodulatory and therapeutic agent in a mouse model of chronic allergic airway disease*. Biomed. Res. Ther. 2019. 6 (7): 3262- 3273.
- 11) Mitra S, Dave A, **Banerjee ER**. *Different Strategies to Combat Inflammatory Diseases*. EC Gynaecology. 2019. 8 (6): 425-429.
- 12) Paul P, Majhi S, Mitra S, **Banerjee ER**. *Immuno-modulatory and Therapeutic Effect of Curcumin in an Allergen-sensitized Murine Model of Chronic Asthma*. J Clin Cell Immunol. 2018. 9: 551.
- 13) Ghosh N, Mitra S, Biswas S, **Banerjee ER**. *Mannose-Rich Guar Gum Nanoparticle as a Novel Therapeutic Drug against Inflammatory Diseases*. Journal of Molecular Biochemistry. 2018. 7: 14-27.
- 14) Ghosh N, Mitra S, **Banerjee ER**. *Therapeutic effects of topically- administered guar gum nanoparticles in oxazolone- induced atopic dermatitis in mice*. Biomedical Research and Therapy. 2018. 5 (5): 2305- 2325.
- 15) Dave A, Kar S, **Banerjee ER**. *Effect of CoCl₂ or H₂O₂ pre- conditioned mesenchymal stem cells in a mouse model of pulmonary fibrosis*. Biomedical Research and Therapy. 2018. 5 (4): 2208-2222.
- 16) Mitra S, Dave A, **Banerjee ER**. *Current Trends in Therapeutic Uses of Pluripotent Stem Cells from*

- Various Sources. *J Stem Cell Res Ther.* 2018. 8 (1): 410.
- 17) Mitra S, Ghosh N, **Banerjee ER.** Carboxymethyl Guar Gum Nanoscaffold as Matrix for Cell Growth in vitro. *J Lung Pulm Respir Res.* 2018. 5 (1): 00156.
 - 18) Biswas S, Das R, **Banerjee ER.** Role of free radicals in human inflammatory diseases. *AIMS Biophysics.* 2017. 4 (4): 596- 614.
 - 19) **Ray Banerjee, E.** Book released on 23-10-2017 “Perspectives in Translational Research in Life Sciences and Biomedicine- Volume II” by Springer International.
 - 20) Das, R., Biswas, S., and **Ray Banerjee E.** 2017. Therapeutic effect of combinatorial probiotics to protect intestinal barrier function. *EC Microbiology.* 9(2) (2017): 84-95.
 - 21) Invited article: Ghosh, N. and **Ray Banerjee, E.** 2017. A review on various tissue engineering techniques to induce differentiation of pluripotent stem cells. *Medical Glory (Journal of the West Bengal Medical Council)* Vol. 1, no. 2 (April-June 2017): 130-149.
 - 22) Dave, A., Kar, S. and **Ray Banerjee, E.** 2017. Therapeutic potential of umbilical cord derived mesenchymal stem cells in bleomycin-induced idiopathic pulmonary fibrosis in BALB/c mice. *EC Pulmonology & Respiratory Medicine,* 4(5):146-159.
 - 23) Basu S, Barawkar DA, Ramdas V, Patel M, Waman Y, Panmand A, Kumar S, Thorat S, Naykodi M, Goswami A, Reddy BS, Prasad V, Chaturvedi S, Quraishi A, Menon S, Paliwal S, Kulkarni A, Karande V, Ghosh I, Mustafa S, De S, Jain V, **Banerjee ER,** Rouduri SR, Palle VP, Chugh A, Mookhtiar KA. Design and synthesis of novel xanthine derivatives as potent and selective A2B adenosine receptor antagonists for the treatment of chronic inflammatory airway diseases. *Eur J Med Chem.* 2017. 134: 218- 229.
 - 24) **Ray Banerjee, E.** *Bioresource Directory* published by Lambert Academic Publishing. ISBN-13: 978-3-330-02894-4, ISBN-10: 3330028947, EAN: 9783330028944 (date of publication and online availability 26-1-2017).
 - 25) **Ray Banerjee, E.** Book released on 14-6-2016 “Perspectives in Translational Research in Life Sciences and Biomedicine- Volume I” by Springer International.
 - 26) Kar, S., Biswas, S. and **Ray Banerjee, E.** Evaluating the ameliorative potential of plant flavonoids and their nanocomposites in bleomycin induced idiopathic pulmonary fibrosis. (2016) *Biomedical Research and Therapy,* 3(7): 707-722.
 - 27) Kar, S., Mitra, S. and **Ray Banerjee, E.** Culture method and choice of cells makes a difference in the outcome of tissue engineering- a perspective. (2016) *Biological System: Open Access.* 5:1.
 - 28) Das, R., Biswas, S. and **Ray Banerjee. E.** Nutraceutical - Prophylactic and Therapeutic Role of Functional Food in Health and Disease. (2016) *Journal of Nutrition and Food Sciences,* 6:4.
 - 29) Paul, P. Biswas, S. and **Ray Banerjee, E.** Development of a Novel Format of Stable Single Chain Antibodies against Alkaline Phosphatase as Therapeutic Agents against Immune Diseases (2016) *J. Nanomedicine and Biotherapeutic Discovery,* 6:2. <http://dx.doi.org/10.4172/2155-983X.1000144>
 - 30) **Ray Banerjee, E.** Revival plan of the century old zoological museum of Calcutta University. (2016) *Science and Culture,* 82(7-8): 221-230.
 - 31) **Ray Banerjee, E.** “A Review on Various Tissue Engineering Techniques to Induce Differentiation of Pluripotent Stem Cells.” Book chapter in a book published by Springer Verlag titled “Human fetal Growth and Development – First and Second Trimesters” edited by Stubblefield, P. and Bhattacharya, N. (2016).
 - 32) Mitra, S., Kar, S, Konsam, S., and **Ray Banerjee, E.** Screening of novel natural product derived compounds for drug discovery in inflammation. *Journal of Plant Biochemistry and Physiology* (2016) doi:10.4172/2329-9029.1000159.

- 33) Kar, S., Mitra, S. and **Ray Banerjee, E.** Isolation and culture of embryonic stem cells, mesenchymal stem cells and dendritic cells from humans and mice. *Methods in Molecular Biology* (2016) doi. 10.1007/7651_2015_315
- 34) Mitra, S., Biswas, S., Sinha, A.B., Jana, N.R., and **Ray Banerjee, E.** Therapeutic use of fisetin and fisetin loaded on mesoporous carbon nanoparticle (MCN) in thioglycollate-induced peritonitis. *Nanomedicine and Nanotechnology* (2015) 6:6 <http://dx.doi.org/10.4172/2157-7439.1000332>
- 35) **Ray Banerjee, E.** and Henderson, J., W.R. Role of Progenitor Cells in Pulmonary Fibrosis and Asthma (Chapter 5, pgs. 71-91) of book titled “Lung stem cells in the epithelium and vasculature” published by Springer (2015). Book title: *Lung Stem Cells in the Epithelium and Vasculature* (<http://www.springer.com/us/book/9783319162317#>). DOI. 10.1007/978-3-319-16232-4
- 36) Mitra, S., Mukherjee, K., Biswas, S., and **Ray Banerjee, E.** Prophylactic use of fisetin in thioglycollate-induced peritonitis in mice. *Biological Systems: Open Access*, 2015 (OMICS) 4:2 <http://dx.doi.org/10.4172/2329-6577.1000144>
- 37) **Ray Banerjee, E.** Specific spatio-temporal interplay of cell movement defines asthma pathogenesis. (2015) *OMICS Biological Sciences: open access*. 4:2. DOI: <http://dx.doi.org/10.4172/2329-6577.1000140>
- 38) Das, R., Mitra, S., Mukherjee, K., Paul, P., Singh, U.P., and **Ray Banerjee, E.** Anti-Oxidant and Anti-Inflammatory Activities of Different Varieties of Piper Leaf extracts (Piper betle L.) (2015) *OMICS Nutrition and Food Sciences*. 5:5. DOI: <http://dx.doi.org/10.4172/2155-9600.1000415>
- 39) Das, R., Tarafdar, B., Das, P., Kar, S., Mitra, S., Hore, G., Biswas, S., and **Ray Banerjee, E.** (2015) Anti-inflammatory and regenerative potential of probiotics to combat Inflammatory Bowel Disease (IBD). *OMICS Journal of Biotechnology and Biomaterials*. 5:2. DOI: <http://dx.doi.org/10.4172/2155-952X.1000181>
- 40) Das, R., Paul, P., Mukherjee, K., Mitra, S., Singh, U.P., and **Ray Banerjee, E.** Anti-Oxiflammatory profile of date extracts (phoenix sylvestris). (2015) *Biomedical Research and Therapy*. 2(6): 297-317. DOI: <http://dx.doi.org/10.15419/bmrat.v2i5.79> (ISSN: 2198-4093)
- 41) **Ray Banerjee, E.** Dissecting asthma pathogenesis through study of patterns of cellular traffic indicative of molecular switches operative in inflammation. (2015) *Progress in Stem Cell* (ISSN 2199-4633). 2(1):28-57 (in press) DOI: <http://dx.doi.org/10.15419/psc.v2i1.73>
- 42) Kar, S., Konsam, S., Hore, G., Mitra, S., Biswas, S., Sinha, A.B., Jana, N.R., and **Ray Banerjee, E.** Therapeutic use of fisetin, curcumin, and mesoporous carbon nanoparticle loaded fisetin in bleomycin-induced idiopathic pulmonary fibrosis. (2015) *Biomedical Research and Therapy*, 2(4):250-262. (ISSN: 2198-4093)
- 43) Mitra, S., Paul, P., Mukherjee, K., Biswas, S., Jain, M., Sinha, A.B., Jana, N.R. and **Ray Banerjee, E.** Mesoporous nano-carbon particle loaded fisetin has a positive therapeutic effect in a murine preclinical model of ovalbumin induced acute allergic asthma. *Journal of Nanomedicine & Biotherapeutic Discovery*. (2015) 5:2. <http://dx.doi.org/10.4172/2155-983X.1000132>
- 44) Kar, S., Konsam, S., and **Ray Banerjee, E.** Heterogeneity in Human Embryonic Stem Cells May Prevent Endodermal Guided Differentiation. *Stem Cell Research and Therapy*, 2014, 5:1, <http://dx.doi.org/10.4172/2157-7633.1000255>
- 45) Kar, S., Hore, G., Sanyal, N. and **Ray Banerjee, E.** Human Embryonic Stem Cell Lines BJNhem 19 and 20 Fail to Differentiate Into Lung Lineage Specific Cells despite Induction through Guided Endodermal Differentiation. *Journal of Tissue Science and Engineering*, 2014, 5:3, <http://dx.doi.org/10.4172/2157-7552.1000144>
- 46) Mukherjee, K., Paul, P., and **Ray Banerjee, E.** Free radical scavenging activities of date palm

- (Phoenix sylvestris) fruit extracts. (2014) *Natural Products Chemistry & Research*. 2:151. Doi:10.4172/2329-6836.1000151
- 47) Mukherjee, K., Paul, P., and **Ray Banerjee, E.** Evaluation of date palm (*Phoenix sylvestris*) fruit extracts as functional food. (2014) *International Journal of Science, Engineering and Technology*. 3(11): 1-8. ISSN : 2277-1581
- 48) **Ray Banerjee, Ena.** Looking for the elusive lung stem cell niche- A perspective. (2014) *Translational Respiratory Medicine*, 2:7-31
- 49) **Ray Banerjee, Ena.** Role of T cells in a gp91phox knockout murine model of acute allergic asthma. (2013) *Allergy, Asthma and Clinical Immunology*, 9(1):6-12.
- 50) **Ray Banerjee, Ena.** *Perspectives in Inflammation Biology* (published by Springer, e-book published on 29-10-2013, hard copy released on 6-10-2013).
- 51) **Ray Banerjee, Ena.** *Perspectives in Regenerative Medicine* (published by Springer, publishing agreement signed in March, 2014, e-book published 11-11-2014, hard copy released 25-11-2014).
- 52) **Ray Banerjee, Ena** and Henderson W.R. Jr. Characterization of lung stem cell niches in a mouse model of bleomycin-induced fibrosis. (2012). *Stem Cell research and Therapy*. 3(3):21-42.
- 53) **Ray Banerjee, Ena, LaFlamme M.A., Papayannopoulou, T., Kahn, M., Murry, C.E. and Henderson, W.R. Jr.** Human Embryonic Stem Cells Differentiated to Lung Lineage-Specific Cells Ameliorate Pulmonary Fibrosis in a Xenograft Transplant Mouse Model (2012). *PLoS One*. 7(3), e33165: 1-15.
- 54) **Ray Banerjee, Ena** and Henderson W.R. Jr. Defining the molecular role of gp91phox in the manifestation of acute allergic asthma using a preclinical murine model. (2012) *Clinical and Molecular Allergy*. 10(1):2-16.
- 55) **Ray Banerjee, Ena.** Triple selectin knockout (ELP-/-) mice fail to develop OVA-induced acute asthma phenotype. (2011) *Journal of Inflammation* 8:19 doi: 10.1186/1476-9255-8-19.
- 56) **Ray Banerjee, Ena** and Henderson, W.R. Jr. NADPH oxidase has a regulatory role in acute allergic asthma. (2011) *Journal of Advanced Laboratory Research in Biology* (ISSN 0976-7614) 2(3): 103-120.
- 57) **Ray Banerjee, Ena, Jiang, Y., Henderson WR, Jr., Latchman, Y.L. and Papayannopoulou, T.** Absence of $\alpha 4$ but not $\beta 2$ integrins restrains the development of chronic allergic asthma using mouse genetic models. (2009) *Exp Hematol* 2009; 37:715–727.
- 58) **Ray Banerjee, Ena, Latchman, Y.L., Jiang, Y., Priestley G.V., and Papayannopoulou, T.** Distinct changes in adult lymphopoiesis in Rag2^{-/-} mice fully reconstituted by $\alpha 4$ -deficient adult bone marrow cells. (2008) *Exp Hematol*, 36(8):1004-13.
- 59) Ulyanova, T., **Ray Banerjee, Ena, Priestley, G.V., Scott, L.M., and Papayannopoulou, T.** Unique and redundant roles of alpha4 and beta2 integrins in kinetics of recruitment of lymphoid vs myeloid cell subsets to the inflamed peritoneum revealed by studies of genetically deficient mice. (2007) *Exp hematol*. 35(8): 1256-65.
- 60) **Ray Banerjee, Ena.** Jiang, Y., Henderson, W. R. Jr., Scott, L. M., and Papayannopoulou, T. Alpha4 and beta2 integrins have non-overlapping roles in asthma development, but for optimal allergen sensitization only alpha4 is critical. (2007) *Exp. Hematol*, 35(4): 605-17.
- 61) William R. Henderson, **Ena Ray Banerjee**, and Emil Y. Chi. Differential Effects of (S)- and (R)-Enantiomers of Albuterol in Mouse Asthma Model. (2005) *Journal of Allergy and Clinical Immunology*, 116: 332-40.

- 62) **Ena Ray Banerjee.** (2005) Ligand-independent endocytosis down regulates PMA induced increase in interleukin-8 receptor expression on human polymorphonuclear neutrophils. *Indian Journal of Medical Sciences*, 59(3):117-125.
- 63) **Ena Ray Banerjee.** (2005) Interleukin – 8: The omnipresent cytokine. (review) *Proceedings of Indian National Science Academy*, 76(1&2): 109-98.
- 64) **Ena Ray Banerjee.** (2002) Biological warfare – myth or reality. *Science & culture*, 68(5-6):121-127.
- 65) **Ena Ray Banerjee.** (2001). The role of polymorphonuclear neutrophils and chemokines in inflammation. *Science and culture*, 67(5-6):145-148.
- 66) **Ena Ray Banerjee.** (2001) Effect of a phorbol ester on receptor expression of an inflammatory cytokine – Interleukin-8 of human polymorphonuclear neutrophils. *Proceedings of the Zoological Society Calcutta*, 54(2): 25-41.
- 67) **Ena Ray** and Ajoy K. Samanta. (1997) Receptor-mediated endocytosis of IL-8: A fluorescent microscopic evidence and implication of the process in ligand induced biological response in human neutrophils. *Cytokine*, 9(8): 587-596.
- 68) **Ena Ray** and Ajoy K. Samanta. (1996) Dansyl cadaverine regulates ligand induced endocytosis of interleukin-8 receptor in human polymorphonuclear neutrophils. *FEBS Letts*, 378: 235-239.

15. **Sole authorship books/ book chapters/ edited volumes:**

- 1) Mitra S, Ghosh N, Paul P, Pal P, Bose R, Sengupta AS and **Banerjee ER** (2021). Perspectives on Translational Outcomes Research Using Nanobiotechnological Agents in Rajendran R, Maria HJ, Thomas S, Kalarikkal N (eds) *Handbook of Research on Nano-Drug Delivery and Tissue Engineering: Guide to Strengthening Healthcare Systems*, Part II, Chapter 18. Apple Academic Press.
- 2) Mandal A and **Banerjee ER** (2020). Introduction to Nanoscience, Nanotechnology and Nanoparticles in *Nanomaterials and Biomedicine- Therapeutic and Diagnostic Approach*, pp. 1-39. Springer.
- 3) Bose R and **Banerjee ER** (2020). Nanoscience and Bioprospecting in *Nanomaterials and Biomedicine- Therapeutic and Diagnostic Approach*, pp. 41- 49. Springer.
- 4) Ghosh N and **Banerjee ER** (2020). Nanomaterials and Their Use in Biomedicine in *Nanomaterials and Biomedicine- Therapeutic and Diagnostic Approach*, pp. 51- 56. Springer.
- 5) Ghosh N and **Banerjee ER** (2020). Nanoscaffolds in Tissue Engineering in *Nanomaterials and Biomedicine- Therapeutic and Diagnostic Approach*, pp. 57- 66. Springer.
- 6) Mitra S, Pal P and **Banerjee ER** (2020). Nanoscience Research in Regenerative Medicine in *Nanomaterials and Biomedicine- Therapeutic and Diagnostic Approach*, pp. 67- 84. Springer.
- 7) Mandal A and **Banerjee ER** (2020). Nanotechnology and Functional Food in *Nanomaterials and Biomedicine- Therapeutic and Diagnostic Approach*, pp. 85- 112. Springer.
- 8) Paul P and **Banerjee ER** (2020). Eco-compatible Single Format Nanoantibody in *Nanomaterials and Biomedicine- Therapeutic and Diagnostic Approach*, pp. 113- 125. Springer.
- 9) Pal P and **Banerjee ER** (2020). Nanoscience and DNA Barcoding in *Nanomaterials and Biomedicine- Therapeutic and Diagnostic Approach*, pp. 127- 134. Springer.
- 10) *Perspectives in Translational research in Life Sciences* in two volumes (published by Springer, 25-10-2017, volume II (hard copy release in January 2018). ISBN 978-981-10-5869-1
- 11) *Bioresource Directory* (sole author) published by Lambert Academic Publishing. ISBN-13: 978-3-330-02894-4, ISBN-10: 3330028947, EAN: 9783330028944 (date of publication and online

availability 26-1-2017.

- 12) *Perspectives in Translational research in Life Sciences* in two volumes (to be published by Springer, 2015, publishing agreement signed on 31-12-2015), volume I (hard copy released on 14-6-2016), ISBN 978-981-10-0988-4.
- 13) Chapter entitled “*Isolation and culture of embryonic stem cells, mesenchymal stem cells and dendritic cells from humans and mice.*” In volume titled “*Stem Cell Dynamics and Heterogeneity: Methods and Protocols*”, Methods and Protocols to be published as part of Springer’s Methods in Molecular Biology series, [<http://www.springer.com/series/7651?detailsPage=titles>] (Accepted 4-8-2015) epub ahead of print (14-2-2016), pp. 1-8. DOI 10.1007/7651_2015_315
- 14) *Perspectives in Regenerative Medicine* (published by Springer, publishing agreement signed in March, 2014, e-book published 11-11-2014, hard copy released 25-11-2014). ISBN 978-81-322-2052-7.
- 15) “*Role of Progenitor Cells in Pulmonary Fibrosis and Asthma*” (Chapter 5, pgs. 71-91) of book titled “*Lung stem cells in the epithelium and vasculature*” published by Springer (2015). Book title: Lung Stem Cells in the Epithelium and Vasculature (<http://www.springer.com/us/book/9783319162317#>). DOI. 10.1007/978-3-319-16232-4
- 16) “*A Review on Various Tissue Engineering Techniques to Induce Differentiation of Pluripotent Stem Cells.*” Ray Banerjee, E. Book chapter in a book to be published by Springer Barlag titled “*Human fetal Growth and Development – First and Second Trimesters*” edited by Stubblefield, P. and Bhattacharya, N. (In Press. 2015).
- 17) *Perspectives in Inflammation Biology* (published by Springer, e-book published on 29-10-2013, hard copy released on 6-10-2013). ISBN 978-81-322-1577-6.
- 18) “*Reorganization of departmental Zoological Museum, University of Calcutta*” Ray Banerjee, E. Sanskriti Vichitra – Essence of Art and Archaeology Museums, Museology, and Heritage Management”, published by Kaveri Books, New Delhi. This is the Felicitation volume for Dr. S.S. Biswas, former DG National Museum and a reputed scholar of Museology, Art History and Heritage Management., Editors: S.N. Bhattacharya, R.K. Chattopadhyay, and G. Bhattacharya, Vol. 2 Chapter 21, pg. 146-163 (2015). ISBN 978-81-7479-185-6.
- 19) *EZO 02* (Molecular Biology), *EZO 11* (Parasitology-Immunology), *EZO 13* (Cell Biology) published by Netaji Subhas Open University, India. Educator-contributor by special invitation to study section of Zoology curriculum of correspondence courses (for award of BSc honours degree) by Netaji Subhas Open University, India, 2000-till date. Authored course text published by Netaji Subhas Open University, University Press. Kolkata, West Bengal, India.

16. **Seminars & Conferences organized:**

Name of meeting	Details	Held on	Held at
Spring Talks	One day Intra departmental colloquium Spring Talks @CU Zoology 2013	23 rd March 2013	Department of Zoology, University of Calcutta
MAHD	One day national Seminar on Molecular Aspects Of Human Diseases	31 st January 2015	Department of Zoology, University of Calcutta
CTICS	One day International Seminar on Current thought in Cell Sciences	8 th November 2015	CRNN, University of Calcutta
DBC	Two day National Workshop & Seminar on DNA Bar Coding : Its Power & Practice For Biodiversity Studies	5 th - 6 th December 2015	CRNN, University of Calcutta
FTRB	One day International Seminar on Frontiers in Translation on Regenerative Biology	31 st January 2016	CRNN, University of Calcutta
STC	Two Day National Seminar and Workshop on Scientific Devices, Technological Applications, and Community Linkages	18 th - 19 th March 2017	CRNN, University of Calcutta
PPB	Webinar Series on Progress & Prospects in Biology	5 th June 2020- 31 st January 2021	Online
& Biology	Webinar Series on interconnectedness of Biology with other fields of Science	2021	Online
IYM 2022	Annual Departmental Colloquium on Igniting Young Minds	15 th March 2022	Kennedy Hall, University of Calcutta
ZooSpectra 2022	Two day international conference	5 th - 6 th December 2022	Ramkrishna Mission Institute of Culture, Kolkata
BBH	One day seminar on Biology for Better Health	10 th January 2023	Department of Zoology, University of Calcutta
a2i 2023	Three day Academia to Industry Interface Conclave	11 th - 13 th March 2023	Kennedy Hall, University of Calcutta

17. Skill development program for students:

- a) An online webinar titled “Value enabled Education: Are we ready for it?” was organized by Department of Zoology, University of Calcutta on 26th March of 2022.
- b) A program titled “Stress and being: expressions, encounters and ways of living though it” was presented by Manosparsa: Mental health volunteers, organized by Department of Zoology, University of Calcutta on 25th November of 2022.
- c) A program titled “How an idea can be formed as an interesting venture” was organized by Department of Zoology, University of Calcutta on 6th January of 2023.
- d) A program titled “Culture of higher education in Public institution in U.S.A” was organized by Department of Zoology, University of Calcutta on 16th January of 2023.
- e) A program titled “Leaders Meetup” was organized by Department of Zoology, University of Calcutta on 2nd February of 2023.

18. Honors and awards- Academic/Professional:

National

- 2022 Sikkharatna Sanmanana, 2022, awarded by Government of West Bengal.
- 2022 Sikkha Samman 2022, awarded by Anusandhan Kolkata.
- 2018 Distinguished Woman in Science, conferred by Venus International Women’s Award on 11-1-2018 (VIWA-2018) by Venus International Foundation
- 2017 Anupama Ullas Somman for valuable contributions to Women’s Empowerment (By Calcutta University BCW cell and Turnstone Global)
- 1998 R.K. Sur Memorial medal, The Zoological Society of India.
- 1996 Senior Research fellowship, awarded by the Council of Scientific and Industrial Research (India).
- 1994 Junior Research fellowship, awarded by the Council of Scientific and Industrial Research (India).
- 1991 Subodh Chandra Memorial Medal, awarded for securing highest marks among all B.A. and B.Sc. candidates, Lady Brabourne College, Calcutta, India.
- 1991 Departmental Medal, awarded by Dept of Zoology, for securing first class marks in B.Sc Examination, Lady Brabourne College, Calcutta, India.
- 1991 Hasina Murshed Medal, for securing first position among all B.A. and B.Sc. candidates in Lady Brabourne College, Calcutta, India.
- 1991 Honor Certificate of merit, awarded by the University of Calcutta for securing 2nd position in the B.Sc (Zoology Honors) examination, University of Calcutta, Kolkata, West Bengal, India.
- 1991 Scholarship for post graduate studies, awarded by Ministry of Human Resource Development (Govt. of India).

International fellowship

Awarded fellowship for pursuing post-doctoral research in University of Washington School of Medicine by NIH (2003-2005)

International travel awards

1. Invited speaker for NUEPA's international conference on "Governance Issues in Universities" 2017
2. Vice Chancellor's nominee to attend specialized course in SPPU organized by NUEPA (Equity, privatization and internationalization in Higher Education) 2016
3. OMICS group funded as chair and invited speaker in World Congress of Cell Sciences and Stem Cells research, Valencia, Spain in June, 2015
4. SERB funded as chair and invited speaker in World Congress of Regenerative Medicine and Stem Cells, Dalian, China in October, 2014
5. CSIR and UPE funded as chair and invited speaker in Translational and Personalized Medicine, Chicago, USA in August, 2013
6. Awarded international travel grant by ICMR to attend ASEAI meeting in Bangkok (2013)
7. Awarded international travel grant by UPE and CSIR to attend OMICS meeting on Translational Medicine and Personalized Medicine in Chiacgo (2013)
8. Awarded international travel grant by SERB to attend World Congress on Regenerative Medicine and Stem Cells meeting in Dalian, China (2013)
9. ICMR funded as chair and invited speaker in ASEAI, Bangkok, Thailand in July 2013
10. CSIR funded as speaker in 38th Annual Scientific meeting of International Society of Experimental Hematology, Athens, Greece in September, 2009.
11. UPE funded as speaker in Annual meeting of American Thoracic Society, San Diego, California in May, 2009
12. University of Washington and Advinus Therapeutic Pvt. Ltd. funded as speaker in Annual meeting of American Thoracic Society, San Francisco, California in May 2007
13. Travel grant from American Society of Hematology for poster presentation in Annual meeting of American Society of Hematology in San Diego, California in December 2005

19. Honours and Awards by fellows of ERB lab:

Name	Conference/Funding Agency	Topic of Research	Poster/ Oral	Award Received
Akashlina Marik	One-day national workshop on 'Bioactive Glass, Ceramics & Composites in Healthcare: Current Technological Trends, 2022', organized by the Bioceramics & Coating Division, CSIR-Central Glass & Ceramic Research Institute, Kolkata, on 20 th of December 2022	"Extraction and characterization of ethanolic and aqueous extracts of <i>Withania coagulans</i> "	Poster	Received outstanding poster award

Shinjini Mitra	International Conference on Drug Discovery, organized by Schrodinger in collaboration with BITS Pilani, Hyderabad, from 29 th February to 2 nd March 2020, held at BITS Pilani, Hyderabad, India	Human Embryonic Stem Cells Induced to Differentiate into Type-I Alveolar Epithelial Cells Can Alleviate Symptoms of Idiopathic Pulmonary Fibrosis in Mice	Poster	One of five 3rd prizes out of 450+ posters
Nandita Ghosh	4 th Regional Science and Technology Congress (Southern Region), organized by Department of Science & Technology, Government of West Bengal, on 23 rd & 24 th December 2019, held at Haringhata, West Bengal.	Antiarthritic Potential of Hadjod in Mouse Model of Rheumatoid Arthritis	Poster	1st position among best 5 presentations (Zoology section)
Shinjini Mitra	24 th World Congress on Nanomaterials and Nanotechnology on 12 th & 13 th of July 2018, held at Bangkok, Thailand.	Use of Guar Gum Nanoparticle as a Therapeutic Agent in Peritonitis	Poster	2nd position for Poster Presentation
Nandita Ghosh	National Conference on Innovations and Future Challenges in Biotechnology (NCIFCB 2018) on 26 th - 28 th of March 2018, held at Tirupathi, India.	Wound Healing Effect of Fisetin In Oxazolone Induced Atopic Dermatitis	Poster	Best Poster Award
Rintu Das	23 rd West Bengal State Science & Technology Congress 2016, at Presidency University, Kolkata.	Effect of combinatorial Probiotics on Inflammatory Bowel Diseases in Preclinical Model	Poster	Best Poster Award (Physiology Section)
Srabani Kar	Frontiers in Translational and Regenerative Biology, organized by Immunology & Regenerative Medicine Research Unit, University of Calcutta, on 31 st January 2016.	Reversal of inflammatory and fibrotic changes in lung tissue in Bleomycin induced IPF by using plant flavonoids and their nanocomposites	Poster	1st position for Poster Presentation

	1 st Regional Science and Technology Congress (Presidency Division), organized by Department of Science & Technology, Government of West Bengal, on 13 th & 14 th November 2016.	Therapeutic Potential of umbilical Cord Derived Mesenchymal Stem Cells in Bleomycin- induced Idiopathic pulmonary Fibrosis in BALB/C MICE	Oral	Outstanding Paper Award for Oral Presentation (Zoology Section)
Pramathadhip Paul	Current Thoughts in Cell Sciences, organized by Immunology & Regenerative Medicine Research Unit, University of Calcutta, on 8 th November 2015.	Development of a novel format of stable single chain antibodies against alkaline phosphatase and alfa amylase as therapeutic molecules	Poster	2nd position for Poster Presentation
Konsam Surajlata	Current Thoughts in Cell Sciences, organized by Immunology & Regenerative Medicine Research Unit, University of Calcutta, on 8 th November 2015.	Localization of lung stem cell niches in therapeutic treated bleomycin induced fibrosis in mice model	Poster	3rd position for Poster Presentation

20. Abstracts in Proceedings of National and International Meetings

1. Dutta R and **Banerjee ER** presented the idea “Paan, the ‘Neglected Green Gold’ of West Bengal” in the Idea Hunt in three-day Academia to Industry Interface Conclave (a2i 2023) from 11th to 13th of March 2023, organized by the Department of Zoology, University of Calcutta, at Kennedy Hall, Institute of Jute & Fibre Technology, University of Calcutta, Kolkata, published in the Proceedings (Page 39).
2. Paul P and **Banerjee ER** presented oral presentation titled “Therapeutic Antibody Engineering- Past, Present and Future” at ISAICON 2023, organized by Indian Society for adult immunization, on 5th February of 2023, held at Science City Auditorium, Kolkata.
3. Dutta R and **Banerjee ER** presented oral presentation titled “A Comparative Study on Anti-oxidative Properties of Different Cultivars of *Piper betle* Collected from Howrah Districts (West Bengal)” at the 5th Regional Science and Technology Congress (Southern Region), organized by Department of Science & Technology, Government of West Bengal, on 4th & 5th January 2023, held at Kolkata, India, published in the abstract volume (Page 245; Zoology Section).
4. Biswas S, Mitra S and **Banerjee ER** presented oral presentation titled “Prophylactic Activity of the Novel Combinatorial Probiotics against Inflammatory Bowel Disease” at the 5th Regional Science and Technology Congress (Southern Region), organized by Department of Science & Technology, Government of West Bengal, on 4th & 5th January 2023, held at Kolkata, India, published in the abstract volume (Page 241; Zoology Section).
5. Biswas B, Ghosh N and **Banerjee ER** presented poster titled “Therapeutic intervention in oxazolone induced atopic dermatitis using fisetin in pre-clinical mouse model” at one-day national workshop on ‘Bioactive Glass, Ceramics & Composites in Healthcare: Current Technological Trends, 2022’, organized by the Bioceramics & Coating Division, CSIR-Central Glass & Ceramic Research Institute, Kolkata, on 20th of December 2022.

6. Marik A, Bose R and **Banerjee ER** presented poster titled “Extraction and characterization of ethanolic and aqueous extracts of *Withania coagulans*” at one-day national workshop on ‘Bioactive Glass, Ceramics & Composites in Healthcare: Current Technological Trends, 2022’, organized by the Bioceramics & Coating Division, CSIR-Central Glass & Ceramic Research Institute, Kolkata, on 20th of December 2022. Received outstanding poster award.
7. Pal P and **Banerjee ER** presented poster titled “The Potential Preventive Effects of Phytochemical Extract (*Benincasa sp.*) on Chronic Kidney Disease-Induced Mineral Bone Disorder in Pre-clinical Mouse Model” at two-day international seminar ZooSpectra 2022, organized by the Department of Zoology, University of Calcutta, on 5th & 6th of December 2022.
8. Dutta R and **Banerjee ER** presented oral presentation titled “Translational outcomes research in inflammatory and degenerative diseases” at Annual Departmental Colloquium on Igniting Young Minds, organized by the Department of Zoology, University of Calcutta, on 15th March, 2022.
9. Mitra S and **Banerjee ER** presented oral paper titled “Novel 3-strain Combinatorial Probiotics Alleviates Symptoms of Inflammatory Bowel Disease in Mice” at the The International e-Symposium on Probiotics, Prebiotics & Gut Microbiome: Key Regulators for Human and Animal Health, organized by the Department of Dairy Microbiology, Guru Angad Dev Veterinary & Animal Sciences University, under the aegis of the Probiotic Association of India, on 11th November 2021.
10. Pal P and **Banerjee ER** presented poster titled “Phytochemicals- a new promising therapeutic approach to combat chronic nephrotoxicity” under the theme frontiers area of research – life science in the young scientists’ conference organized during 22.12.2020 to 24.12.2020 as a part of India International Science Festival- 2020 by the Ministry of Science and Technology, Ministry of Earth Science, and Ministry of Health and Family Welfare, Govt. of India in collaboration with Vijnana Bharati (VIBHA).
11. Mitra S and **Banerjee ER** presented poster titled “Human Embryonic Stem Cells Induced to Differentiate into Type-I Alveolar Epithelial Cells Can Alleviate Symptoms of Idiopathic Pulmonary Fibrosis in Mice” at the International Conference on Drug Discovery (ICDD), organized by Schrodinger in collaboration with BITS Pilani, Hyderabad, from 29th February to 2nd March 2020, held at BITS Pilani, Hyderabad, India, published online in the proceedings of ICDD 2020 (SSRN Elsevier, Abstract ID 3529020). Received one of five 3rd prizes out of 450+ posters.
12. Ghosh N, Mitra S and **Banerjee ER** presented poster titled “Oral Administration of Guar Gum Nanoparticles in Ameliorating Collagen II Induced Arthritis in Preclinical Mice Model” at the International Conference on Drug Discovery (ICDD), organized by Schrodinger in collaboration with BITS Pilani, Hyderabad, from 29th February to 2nd March 2020, held at BITS Pilani, Hyderabad, India, published online in the proceedings of ICDD 2020 (SSRN Elsevier, Abstract ID 3529053).
13. Mitra S and **Banerjee ER** presented poster titled “Embryonic Stem Cells Differentiate into Type-II Alveolar Epithelial Cells under Hyperoxic Conditions” at the 4th Regional Science and Technology Congress (Southern Region), organized by Department of Science & Technology, Government of West Bengal, on 23rd & 24th December 2019, held at Haringhata, West Bengal, India, published in the abstract volume (Page 420; Zoology Section).
14. Ghosh N, Mitra S and **Banerjee ER** presented poster titled “Antiarthritic Potential of Hadjod in Mouse Model of Rheumatoid Arthritis” at the 4th Regional Science and Technology Congress (Southern Region), organized by Department of Science & Technology, Government of West Bengal, on 23rd & 24th December 2019, held at Haringhata, West Bengal, India, published in the abstract volume (Page 419; Zoology Section). Placed 1st among best 5 presentations in Zoology section.
15. Mitra S, Ghosh N, Paul P and **Banerjee ER** presented oral paper titled “Fisetin reduces the symptoms of acute asthma in a murine preclinical model” at the Annual Conference on Frontiers in Biological

Chemistry, organized by Society of Biological Chemists, Kolkata Chapter, on 18th to 21st April 2019, held at Puri, India, published in the abstract book.

16. Paul P, Ghorui SK and **Banerjee ER** presented oral paper titled “Immunosuppressive/Therapeutic Effects of Fisetin, Curcumin and Camelid format anti-IgE in Ovalbumin-induced Lung inflammation” at the Annual Conference on Frontiers in Biological Chemistry, organized by Society of Biological Chemists, Kolkata Chapter, on 18th to 21st April 2019, held at Puri, India, published in the abstract book.
17. Ghosh N, Mitra S and **Banerjee ER** presented oral paper titled “Topical and Oral Administration of Fisetin to Ameliorate Atopic dermatitis in Preclinical Mice Model” at the Young Scientists’ Colloquium 2019, organized by the Department of Zoology, University of Calcutta, on 13th March December 2019, held at Kolkata, India.
18. Pal P, Biswas S and **Banerjee ER** presented oral paper titled “Identification of New Spider Species using Mitochondrial COI Gene” at the 3rd Regional Science and Technology Congress (Southern Region), organized by Department of Science & Technology, Government of West Bengal, on 18th & 19th December 2018, held at Kolkata, India, published in the abstract volume (Page 474; Zoology Section).
19. Sengupta AM and **Banerjee ER** presented oral paper titled “Identification, Characterization and Validation of Tissue Engineering Strategies For Directed Induced Differentiation Of Pluripotent Stem Cells From Multiple Sources Into Renal Lineage Specific Cells For Use In Therapy For Injured Renal Tissue” at the 3rd Regional Science and Technology Congress (Southern Region), organized by Department of Science & Technology, Government of West Bengal, on 18th & 19th December 2018, held at Kolkata, India, published in the abstract volume (Page 481; Zoology Section). Placed 1st among best 5 presentations in Zoology section.
20. Mitra S, Ghosh N, Paul P and **Banerjee ER** presented oral paper titled “Effect of fisetin on a mouse model of acute asthma” at the 3rd Regional Science and Technology Congress (Southern Region), organized by Department of Science & Technology, Government of West Bengal, on 18th & 19th December 2018, held at Kolkata, India, published in the abstract volume (Page 469; Zoology Section).
21. Ghosh N, Mitra S and **Banerjee ER** presented oral paper titled “Topical and Oral Administration of Fisetin to Ameliorate Atopic dermatitis in Preclinical Mice Model” at the 3rd Regional Science and Technology Congress (Southern Region), organized by Department of Science & Technology, Government of West Bengal, on 18th & 19th December 2018, held at Kolkata, India, published in the abstract volume (Page 470; Zoology Section).
22. Paul P and **Banerjee ER** presented oral paper titled “Drug Discovery Studies Using Phytochemicals And Natural Products In In-Vitro, In-Vivo Model” at the 3rd Regional Science and Technology Congress (Southern Region), organized by Department of Science & Technology, Government of West Bengal, on 18th & 19th December 2018, held at Kolkata, India, published in the abstract volume (Page 259; Medical Science Section).
23. Mitra S, Ghosh N, and **Banerjee ER** presented poster titled “Use of Guar Gum Nanoparticle as a Therapeutic Agent in Peritonitis” at 24th World Congress on Nanomaterials and Nanotechnology on 12th & 13th of July 2018, held at Bangkok, Thailand, published in the seminar proceedings (Page 22). Placed 2nd in poster presentation.
24. Paul P, Ghorui SK and **Banerjee ER** presented a video presentation titled “Proof of concept and validation of a novel format of stable single chain antibodies for the drug discovery studies in pre-clinical models” at the 9th European Immunology Conference Associated with Antibody Engineering Meeting on 14th- 16th June 2018, held at Rome, Italy, published in the seminar proceedings (Page 50).

25. Ghosh N, Mitra S and **Banerjee ER** presented poster titled “Wound Healing Effect of Fisetin In Oxazolone Induced Atopic Dermatitis” at three- day National Conference on Innovations and Future Challenges in Biotechnology (NCIFCB 2018) on 26th- 28th of March 2018, held at Tirupathi, India, published in the conference proceedings (Page 80). Received Best Poster Award.
26. Sarkar S and **Banerjee ER** presented poster titled “Crosstalk between Paneth cell and Microfold cell in response to Dextran Sulfate Sodium (DSS)- induced Colitis” at 3rd International Conference on Translational Research (ICTR 2017) on 23rd- 25th of September 2017, held at Kolkata, India, published in the Programme & Abstract Book (Page 97).
27. Mitra S, Ghosh N, and **Banerjee ER** presented poster titled “Effect of Hadjod on Rheumatoid Arthritis” at 3rd International Conference on Translational Research (ICTR 2017) on 23rd- 25th of September 2017, held at Kolkata, India, published in the Programme & Abstract Book (Page 82).
28. Ghosh N, Mitra S, and **Banerjee ER** presented poster titled “Effect of Fisetin in Oxazolone induced Atopic Dermatitis” at 3rd International Conference on Translational Research (ICTR 2017) on 23rd- 25th of September 2017, held at Kolkata, India, published in the Programme & Abstract Book (Page 89).
29. Paul P, Ghorui SK and **Banerjee ER** presented poster titled “Development of Camelid format anti- IgE antibody targeting Ovalbumin- induced Lung Inflammation in C57BL/6J mice” at 3rd International Conference on Translational Research (ICTR 2017) on 23rd- 25th of September 2017, held at Kolkata, India, published in the Programme & Abstract Book (Page 77).
30. Biswas S and **Banerjee ER** presented poster titled “Application of DNA Barcoding to Identify Unknown Tarantula Species causing Severe Allergic Reactions in West Midnapur, India” at 3rd International Conference on Translational Research (ICTR 2017) on 23rd- 25th of September 2017, held at Kolkata, India, published in the Programme & Abstract Book (Page 83).
31. Dave A, Kar S and **Banerjee ER** presented poster titled “Effect of Pre- Conditioned Mesenchymal Stem Cells in Pulmonary Fibrosis” at 3rd International Conference on Translational Research (ICTR 2017) on 23rd- 25th of September 2017, held at Kolkata, India, published in the Programme & Abstract Book (Page 67).
32. Mitra S, Ghosh N, Kundu S, Mukherjee A and **Banerjee ER** presented poster titled “Potential use of a guar gum- derived nanoscaffold in tissue engineering & regenerative medicine” at two- day national seminar & workshop Scientific Devices, Technology Applications & Community Linkage (STC 2017) on 18th & 19th of March 2017, held at Kolkata, India, published in the seminar proceedings (Page 60).
33. Ghosh N, Mitra S, Ghosh SK, Mukherjee A and **Banerjee ER** presented poster titled “Effect of Guar gum Nanoparticles on Oxazolone induced Atopic Dermatitis” at two- day national seminar & workshop Scientific Devices, Technology Applications & Community Linkage (STC 2017) on 18th & 19th of March 2017, held at Kolkata, India, published in the seminar proceedings (Page 59).
34. Paul P, Majhi S, Ghorui SK and **Banerjee ER** presented poster titled “Allergic Lung inflammation and its potential therapeutic application” at two- day national seminar & workshop Scientific Devices, Technology Applications & Community Linkage (STC 2017) on 18th & 19th of March 2017, held at Kolkata, India, published in the seminar proceedings (Page 62).
35. Biswas S and **Banerjee ER** presented poster titled “Ecosystem-Based Translational Studies in Indian Sundarbans for Sustainable Alternative Livelihoods” at two- day national seminar & workshop Scientific Devices, Technology Applications & Community Linkage (STC 2017) on 18th & 19th of March 2017, held at Kolkata, India, published in the seminar proceedings (Page 61).
36. Dave A and **Banerjee ER** presented poster titled “Effect of environmental factors on stem cells” at two- day national seminar & workshop Scientific Devices, Technology Applications & Community

Linkage (STC 2017) on 18th & 19th of March 2017, held at Kolkata, India, published in the seminar proceedings (Page 58).

37. **Ena Ray Banerjee**. Invited lecture at Immunocon-2017 titled “Strategies for developing anti-inflammatory and pro-regenerative therapeutics and validation in preclinical disease models” presented at Nirma University organized by Indian Immunological Society Dec 14-16, 2017 published in Book of Abstracts ILThb2, pp. 24
38. **Ray Banerjee, E.** “Perspectives in Translational Research in Life Sciences” (Invited talk) at Kolkata, Amity University in the two day International Conference on Translational Research (September 23-25, 2017).
39. **Ray Banerjee, E.** “Nanobiotechnology in Diagnostics and Therapeutics” (Invited talk) at Chettinad University by the organizers of “Nanotechnology in Medicine” a two day national level conference supported by SERB. September 8, 2017 at Chettinad, Tamil Nadu, India.
40. **Ray Banerjee, E.** “Lack of vision and obsolete governance compromises academic productivity in science, and technology innovation in the life sciences- a case study in University of Calcutta.” International Conference 'Governance of Universities: Issues and Challenges' held at NUEPA, March 23- 24, 2017. Also session chair of valedictory session – national chapter.
41. Mitra S, Ghosh N and **Banerjee ER** presented poster titled Effect of Fisetin on Oxazolone- induced Atopic Dermatitis at the 1st Regional Science and Technology Congress (Presidency Division), organized by Department of Science & Technology, Government of West Bengal, on 13th & 14th November 2016, held at Kolkata, India, published in the abstract volume (Page 424; Physiology Section).
42. Kar S and **Banerjee ER** presented oral paper titled Therapeutic Potential of umbilical Cord Derived Mesenchymal Stem Cells in Bleomycin- induced Idiopathic pulmonary Fibrosis in BALB/C MICE at the 1st Regional Science and Technology Congress (Presidency Division), organized by Department of Science & Technology, Government of West Bengal, on 13th & 14th November 2016, held at Kolkata, India, published in the abstract volume (Page 466; Zoology Section). Received Outstanding Paper Award for Oral Presentation (Zoology Section).
43. Ghosh N, Mitra S and **Banerjee ER** presented oral paper titled Quercetin loaded Guar Gum Polymeric Nanoparticles as a Therapeutic Tool Against Inflammation for Drug Discovery at the 1st Regional Science and Technology Congress (Presidency Division), organized by Department of Science & Technology, Government of West Bengal, on 13th & 14th November 2016, held at Kolkata, India, published in the abstract volume (Page 61; Botany Section).
44. Das R and **Banerjee ER** presented oral paper titled Intestinal barrier function- target to ameliorate inflammatory bowel disorder by novel combinatorial probiotics at the 1st Regional Science and Technology Congress (Presidency Division), organized by Department of Science & Technology, Government of West Bengal, on 13th & 14th November 2016, held at Kolkata, India, published in the abstract volume (Page 404; Physiology Section).
45. Paul P, Ghorui SK and **Banerjee ER** presented oral paper titled Development of a novel format stable single chain antibody for therapeutic applications at the 1st Regional Science and Technology Congress (Presidency Division), organized by Department of Science & Technology, Government of West Bengal, on 13th & 14th November 2016, held at Kolkata, India, published in the abstract volume (Page 401; Physiology Section).
46. Das R and **Banerjee ER** presented poster titled Effect of combinatorial Probiotics on Inflammatory Bowel Diseases in Preclinical Model at the 23rd West Bengal Science and Technology Congress, organized by Presidency University and Department of Science & Technology, Government of West

Bengal & West Bengal Science and Technology Council, on 28th & 29th February 2016, held at Kolkata, India, published in the abstract volume (Page 404; Physiology Section). Received Best Poster Award.

47. Mitra S, Kar S and **Banerjee ER** presented poster titled In vitro Screening of Pure Compounds Derived from Natural Products for Drug Discovery in Inflammation at one- day international seminar Frontiers in Translational and Regenerative Biology (FTRB 2016) on 31st January 2016, held at Kolkata, India, published in the seminar compendium (Page 56).
48. Kar S and **Banerjee ER** presented poster titled Reversal of inflammatory and fibrotic changes in lung tissue in Bleomycin induced IPF by using plant flavonoids and their nanocomposites at one- day international seminar Frontiers in Translational and Regenerative Biology (FTRB 2016) on 31st January 2016, held at Kolkata, India, published in the seminar compendium (Page 58). Placed 1st in poster presentation.
49. Ghosh N, Mitra S and **Banerjee ER** presented poster titled Surface Functionalized Natural Polymer Nanoparticles as a Therapeutic Tool against Inflammation at one- day international seminar Frontiers in Translational and Regenerative Biology (FTRB 2016) on 31st January 2016, held at Kolkata, India, published in the seminar compendium (Page 55).
50. Surajlata K, Kar S and **Banerjee ER** presented poster titled In-vitro response of macrophage cell line and bone marrow derived mesenchymal stem cells on guar gum derived nano-scaffold: a Potential Application for Tissue Engineering and Regenerative Medicine at one- day international seminar Frontiers in Translational and Regenerative Biology (FTRB 2016) on 31st January 2016, held at Kolkata, India, published in the seminar compendium (Page 54).
51. Das R, Mitra S, Paul P, Singh UP and **Banerjee ER** presented poster titled Evaluation of Several Varieties of Piper Leaf Extracts (Piper betel L.) As Anti-Oxidative Functional Food at one- day international seminar Frontiers in Translational and Regenerative Biology (FTRB 2016) on 31st January 2016, held at Kolkata, India, published in the seminar compendium (Page 57).
52. Paul P, Ghorui SK and **Banerjee ER** presented poster titled Isolation of highly thermo-stable single domain antibody specific for Alpha Amylase Enzyme at one- day international seminar Frontiers in Translational and Regenerative Biology (FTRB 2016) on 31st January 2016, held at Kolkata, India, published in the seminar compendium (Page 59).
53. Mitra S and **Banerjee ER** presented poster titled Fisetin plays a positive anti- inflammatory role in thioglycollate- induced peritonitis, when administered prophylactically at one- day international seminar Current Thoughts in Cell Sciences (CTiCS 2015) on 8th November 2015, held at Kolkata, India, published in the seminar proceedings (Page 39).
54. Kar S, Surajlata K and **Banerjee ER** presented poster titled Heterogeneity May Be a Limiting Factor for Induced Tissue Engineering of Human Embryonic Stem Cells at one- day international seminar Current Thoughts in Cell Sciences (CTiCS 2015) on 8th November 2015, held at Kolkata, India, published in the seminar proceedings (Page 36).
55. Ghosh N and **Banerjee ER** presented poster titled Comparative Analysis of Pro- inflammatory and Pro-fibrotic Cytokine Vis- a-vis Cell Trafficking and Structural Changes in Acute Asthma and IPF Using Preclinical Mouse Model at one- day international seminar Current Thoughts in Cell Sciences (CTiCS 2015) on 8th November 2015, held at Kolkata, India, published in the seminar proceedings (Page 43).
56. Surajlata K, Kar S and **Banerjee ER** presented poster titled Localization of lung stem cell niches in therapeutic treated bleomycin induced fibrosis in mice model at one- day international seminar Current Thoughts in Cell Sciences (CTiCS 2015) on 8th November 2015, held at Kolkata, India, published in the seminar proceedings (Page 42). Placed 3rd in poster presentation.

57. Das R, Ghosh N, Mitra S and **Banerjee ER** presented poster titled Therapeutic effects of combinatorial probiotics, Fisetin and Mesoporous Carbon Nanoparticles tagged Fisetin on Inflammatory Bowel Disease in mice at one- day international seminar Current Thoughts in Cell Sciences (CTiCS 2015) on 8th November 2015, held at Kolkata, India, published in the seminar proceedings (Page 40).
58. Paul P, Ghorui SK and **Banerjee ER** presented poster titled Development of a novel format of stable single chain antibodies against alkaline phosphatase and alfa amylase as therapeutic molecules at one- day international seminar Current Thoughts in Cell Sciences (CTiCS 2015) on 8th November 2015, held at Kolkata, India, published in the seminar proceedings (Page 41). Placed 2nd in poster presentation.
59. Mitra S, Sinha A, Jana NR and **Banerjee ER** presented poster titled Therapeutic Use of Fisetin and Fisetin Loaded on Mesoporous Carbon Nanoparticle (MCN) in Thioglycollate-Induced Peritonitis at one- day international seminar Molecular Aspects of Human Diseases (MAHD 2015) on 31st January 2015, held at Kolkata, India, published in the seminar proceedings (Page 28).
60. Kar S, Hore G, Sinha A, Jana NR and **Banerjee ER** presented poster titled Effect of fisetin, mesoporous carbon nano particle loaded fisetin and curcumin in bleomycin- induced idiopathic pulmonary fibrosis in Balb/c mice at one- day international seminar Molecular Aspects of Human Diseases (MAHD 2015) on 31st January 2015, held at Kolkata, India, published in the seminar proceedings (Page 44).
61. Hore G and **Banerjee ER** presented poster titled New insights into inflammatory diseases from emerging vertebrate pre-clinical disease models at one- day international seminar Molecular Aspects of Human Diseases (MAHD 2015) on 31st January 2015, held at Kolkata, India, published in the seminar proceedings (Page 41).
62. Das R, Hore G, Kar S, Mitra S and **Banerjee ER** presented poster titled Anti- inflammatory and Regenerative Potential of Probiotics to Combat Inflammatory Bowel Disease (IBD) at one- day international seminar Molecular Aspects of Human Diseases (MAHD 2015) on 31st January 2015, held at Kolkata, India, published in the seminar proceedings (Page 43).
63. Paul P, Mitra S, Das R, Sinha A, Jana NR and **Banerjee ER** presented poster titled Role of Fisetin Loaded Mesoporous Carbon Nano Particles on Ovalbumin Induced Acute Asthma in BALB/c Mice at one- day international seminar Molecular Aspects of Human Diseases (MAHD 2015) on 31st January 2015, held at Kolkata, India, published in the seminar proceedings (Page 26).
64. **Ena Ray Banerjee**. Study of patterns of cellular traffic indicative of molecular switches operative in inflammation. 2014. Journal of Cell Science and Therapy. doi: 10.4172/2157-7013.S1.028.Oral presentation at the OMICS groups' 4th World Congress of Cell science & Stem cells Research to be held at Valencia, Spain, June 25-26, 2014 and chair of session titled "To Explore & Exploit Cell Science and Stem Cell Research" and judge of poster session.
65. **Ena Ray Banerjee**. Translational medicine using clean green approach. 2014. Translational Medicine. doi: 10.4172/2161-1025.S1.008.Oral presentation of talk entitled "Translational medicine using clean, green technology" presented and chaired session 11 "Advances in translational medicine" at the 2nd International Conference on Translational and Personalized Medicine during August 5-7, 2013, at North Shore, Chiacgo, IL, USA.
66. **Ena Ray Banerjee**. Looking for the elusive lung stem cell niche. 2013. Proceedings of BIT's 6th Annual World Congress of Regenerative Medicine and Stem Cells 6(4): 711 in Dalian, China during Oct 12-14, 2013.

67. **Ena Ray Banerjee**. Tissue engineering of human embryonic stem cells into tissue specific cells for use in regenerative therapy. Proceedings of ASEAI-2013. 2(1):17 and Proceedings of ISBENS-2013. 4(1): 65 presented at ASEAI held at Bangkok, Thailand during July 25-27, 2013.
68. Kaustab Mukherjee and **Ena Ray Banerjee**. Poster presented at 6th Bangalore India Nano on 4-6 Dec, 2013 titled “Anti-inflammatory activities of a novel drug molecule and its delivery into the cell using mesoporous carbon nanoparticles”.
69. **Ena Ray Banerjee**. Abstract invited and accepted for oral presentation titled “Overcoming limitations to identify the dynamic cells of the lung stem cell niche” at ISRD-ATS- 9th INT’L symposium on respiratory diseases and arts in china forum 2013, Shanghai, China organized by Chinese Alliance against lung cancer (CAALC) & shanghai Respiratory research institute& Dept of Pulmonary Medicine, Zhongshan Hospital, Fudan univ during Nov 7-10 2013
70. **Ena Ray Banerjee**. Abstract invited and accepted for oral presentation titled “Role of differentiated HUESC in a xenograft Tx Mouse model of Bleomycin induced IPF” at the 2013 Hongkong Int’l Conference on engineering and applied sciences, Hongkong, China organized by Higher education forum, Taipei, Taiwan during Dec 19-, 2013
71. **Ena Ray Banerjee**. Oral presentation titled “Drug discovery using alternatives to synthetic chemical moieties” in TM’s 3rd world drug discovery conference organized by Target Meeting (Online conference organizer) published in the online conference handbook and proceedings for world wide open access to scholars. Event to be held during Oct 15-17, 2013
72. **Ena Ray Banerjee**. Oral presentation entitled “Looking for the elusive lung stem cell niche” and chair of Track 4-4. Digestive, Respiratory and Urologic Disorders and Tissue Regeneration” BIT’s 6th Annual World Congress of regenerative Medicine and Stem Cells, Dalian, China organized by BIT (Information Research Center for International Talents, SAFEA) during Oct 12-14, 2013
73. **Ena Ray Banerjee**. Abstract invited and accepted for oral presentation titled “E-compatible targeted nanobody (ETN) technology for therapeutic diagnostic and clinical use” published in the proceedings of International research conference on engineering and technology, Singapore S213:452 organized by Asia –Pacific education and research Association (AERA) during Sept 14-16, 2013
74. **Ena Ray Banerjee**. Abstract invited speaker for oral presentation titled “Differentiation of into lung lineage specific cells” published in Proceedings of the 3rd Euro-India Int’l conference on nanomedicine & tissue engineering, Kottayam, Kerala, India organized by Centre for Nanoscience & Nanotech, MG university Kottayam, Kerala during Aug 9-11, 2013. <http://www.nanomedicine.macromol.in/speakers.html>
75. **Ena Ray Banerjee**. Abstract invited and accepted for oral presentation titled “Signature pattern in inflammatory cellular traffic” published in the Proceedings of International congress on natural sciences & Engineering, Bali, Indonesia, 3(4):12, organized by Higher education forum Taiwan during Aug 7-9, 2013
76. **Ena Ray Banerjee**. Abstract invited and accepted for oral presentation titled “Differentiation of HUESC into lung lineage specific cells” published in the Proceedings of Shanghai international conference on applied science and engineering(SICASE) 2013 Shanghai, China organized by Asia – Pacific education and research Association (AERA) during July12-14, 2013
77. **Ena Ray Banerjee**. Oral presentation of talk entitled “Looking for the elusive lung stem cell niche” presented at 6th BIT’s World Congress on Regenerative Medicine and Stem Cells in Dalian, China during Oct 12-14, 2013 published in the Proceedings of the BIT’s 6th World Congress on Regenerative Medicine and Stem Cells, 6(4): 129. Meeting was organized by Aseai 2013, Bangkok, Thailand. Travel grant from ICMR

78. **Ena Ray Banerjee**. Oral presentation of talk entitled “Translational medicine using clean, green technology” presented and chaired session 11 “Advances in translational medicine” at the 2nd International Conference on Translational and Personalized Medicine during August 5-7, 2013, at North Shore, Chicago, IL, USA published in Proceedings of the 2nd International Conference on Translational and Personalized Medicine, 3(2): 97. Meeting was organized by OMICS groups, travel funded by UPE & partially by CSIR, registration waived by organizers as special invitee.
79. **Ena Ray Banerjee**. Oral presentation of talk entitled “Tissue engineering of human embryonic stem cells into tissue specific cells for use in regenerative therapy” presented at ASEAI held at Bangkok, Thailand during July 25-27, 2013, published in the proceedings of ASEAI and ISBENS, 4 (1):. 65
80. Pramathadhip Paul, Mayank Jain and **Ena Ray Banerjee**. Poster no. P15 titled “Technology innovation for development of novel format antibody for engineered biomedical use.” presented at the one day colloquium titled Spring talks @ CU Zoology 2013 organized by Dept of Zoology, University of Calcutta on 23-3-2013.
81. Prosenjit Das and **Ena Ray Banerjee**. Poster no. 7 titled “Probiotics and Inflammatory Bowel Disease” presented at the one day colloquium titled Spring talks @ CU Zoology 2013 organized by Dept of Zoology, University of Calcutta on 23-3-2013.
82. Kaustab Mukherjee and **Ena Ray Banerjee**. Oral presentation no. O1.3 titled “Study of pattern of cell traffic and its functional significance using a cholera LPS induced peritonitis model in male Swiss albino mice in the presence of a novel drug.” Presented at the one day colloquium titled Spring talks @ CU Zoology 2013 organized by Dept of Zoology, University of Calcutta on 23-3-2013.
83. **Ena Ray Banerjee**. Oral presentation of mentor talk and current lab focus titled “Inflammation Immunobiology and Regenerative Medicine- Translational Outcomes Research” presented at the one day colloquium titled Spring talks @ CU Zoology 2013 organized by Dept of Zoology, University of Calcutta on 23-3-2013.
84. Mukherjee, Kaustab and **Ray Banerjee, Ena**. Poster titled “Study of pattern of cell traffic in cholera LPS induced peritonitis model in male Swiss albino mice in the presence and absence of novel drug entities” in the 100th Annual Meeting of the Indian National Science Congress Association held in Kolkata, India Dec 3-8 Jan, 2013.
85. Mukhopadhyay, Debalina, and **Ray Banerjee, Ena**. Poster titled “Tissue engineering of Embryonic Stem Cell into lung lineage specific cells” in the 100th Annual Meeting of the Indian National Science Congress Association held in Kolkata, India Dec 3-8 Jan, 2013.
86. Das, Prosenjit, and **Ray Banerjee, Ena**. Poster titled “Probiotics and Inflammatory Bowel Disease” in the 100th Annual Meeting of the Indian National Science Congress Association held in Kolkata, India Dec 3-8 Jan, 2013.
87. Chatterjee, S.S., and **Ray Banerjee, Ena**. Poster titled “Proof of concept generation for a novel single format antibody technology” in the 100th Annual Meeting of the Indian National Science Congress Association held in Kolkata, India Dec 3-8 Jan, 2013.
88. Datta, Gayatri and **Ray Banerjee, Ena**. Poster titled “Development of Camelid antibodies against Staphylococcus toxin” in the 100th Annual Meeting of the Indian National Science Congress Association held in Kolkata, India Dec 3-8 Jan, 2013.
89. Anupam Das, Dipankar Mondal, Dushyant Kr Srivastava, Garima Hore, Iftikar Rehman, Monalisa Naskar, Rajrupa Mukherjee, Tamal Mazumdar and **Ray Banerjee, Ena**. Poster titled “Kidney Regeneration- bench to bedside” in the 100th Annual Meeting of the Indian National Science Congress Association held in Kolkata, India Dec 3-8 Jan, 2013.




90. Sumit Das, Ankita Mitra, Annesha Chatterjee, Dalia Mondal, Gunjan Mandal, Sarbajit Basu, Sayani Chakraborty, Soumita Biswas, **Ray Banerjee, Ena**. Poster titled “Understanding Multidrug Resistance in Bacteria- Causes, Mechanistic Insights and Strategies to Combat” in the 100th Annual Meeting of the Indian National Science Congress Association held in Kolkata, India Dec 3-8 Jan, 2013.
91. Biswajit Patra¹, Debanjan Seal¹, Gouranga Saha¹, Pamela Rayl¹,Priyanka Guha¹, Purabi Mahato¹, Sanjeev Saren¹, Subhasree Mitra¹, Sukanta Bhattacharya, Surupa Das and **Ray Banerjee, Ena**. Poster entitled ‘An Overview of Commensals of Human Sensory Orifices and Innovative Application of Probiotic Technology” at the 100th Annual Meeting of the Indian National Science Congress Association held in Kolkata, India Dec 3-8 Jan, 2013.
92. Susanta Sadhukhan¹,Puja Sen¹,Koninika De¹, Swagata Podder¹,Joyshree Maji¹,Tanwyee Ray¹,Madhurima Biswas¹,Debharghya Dutta Banik¹,Aditi Naskar¹,Rupsa Acharya¹, Uma Mondal¹,Aditi Chandra¹,Iftikar Rahman¹,Ayana Baidya¹,Sreeradha Basu¹,Pooja Kayal¹,Paradha Biswas¹,Subhradip Naskar¹ Sumit Das¹ and **Ray Banerjee, Ena**. Poster entitled “Understanding the role of commensal microbes present in the gut and urinogenital tract” at the 100th Annual Meeting of the Indian National Science Congress Association held in Kolkata, India Dec 3-8 Jan, 2013.
93. **Ray Banerjee, Ena**. Oral presentation under session ‘Medical Sciences’ titled “Using two genetic knockout mice in a preclinical disease model template to explore the role of NADPH oxidase in acute allergic asthma” in the 100th Annual Meeting of the Indian National Science Congress Association held in Kolkata, India Dec 3-8 Jan, 2013.
94. **Ena Ray Banerjee**. Oral presentation of mentor talk and current lab focus titled “Inflammation Immunobiology and Regenerative Medicine- Translational Outcomes Research” presented at the one day colloquium titled Spring talks @ CU Zoology 2013 organized by Dept of Zoology, University of Calcutta on 23-3-2013: pp.11
95. **Ray Banerjee, Ena**, and Henderson, W.R.Jr (2009) “Characterization of Lung Stem Cell Niches in a Mouse Model of Bleomycin-induced Fibrosis” (short term study) Abstract published in Experimental Hematology, 2009, 37(9)Suppl 1:S61.
96. **Ray Banerjee, Ena**, and Henderson, W.R.Jr (2009) “Characterization of Lung Stem Cell Niches in a Mouse Model of Bleomycin-induced Fibrosis” (long term study) Abstract published in Proceedings of the American Thoracic Society, Am J Respir Crit Care Med 179:A1991.
97. **Ray Banerjee, Ena**, Y. Latchman, Y. Jiang, G.V. Priestley, and T. Papayannopoulou. Poster presentation in 36th Annual Scientific Meeting for ISEH (Society for Hematology and Stem Cells), Hamburg, September 28-30, 2007. “Distinct changes in adult lymphopoiesis in Rag2-- mice fully reconstituted by a4 deficient bone marrow cells” (P208). Published in Experimental Hematology, 2007, 35(9):111.
98. **Ray Banerjee, Ena**, and Henderson, W. R. Jr.. Oral presentation “Role of gp91phox subunit of NADPH oxidase in allergen-induced airway inflammation and hyperreactivity in a mouse asthma model” in Annual meeting of American Thoracic Society, in San Francisco May 18-23, 2007. Published in American Journal Respiratory Critical Care medicine, 2007, 175: A503.
99. **Ray Banerjee, Ena**, Henderson, W. R. Jr., and Papayannopoulou, T. Poster discussion: Regulation of Inflammation in airway disease at the International Conference of American Thoracic Society at San Diego, CA, USA 19-24 May, 2006. Published in the proceedings of the American Thoracic Society, 2006, 3: pp. A235
100. **Ray Banerjee, Ena**, Henderson, W. R. Jr., and Papayannopoulou, T. Oral presentation: Both a4 and b2 integrins regulate acute allergic asthma but by different pathways. American Academy of

Allergy, Asthma, and Immunology, March 3-7, 2006 at Miami Beach, Fl, USA. Publishes in The Journal of Allergy and Clinical Immunology, 2006, 117 (2 Supplement1): pp. S266

101. **Ray Banerjee, Ena**, Priestley, G.V., Scott, L.M., Henderson, Jr., W.R., and Papayannopoulou, T. Dissection of molecular pathology of asthma through the use of genetic mouse models: Role of a4 and b2 integrins. 46th American Society of Hematology Annual Meeting, San Diego, Dec. 4-7, 2004. Published in Blood, 2004, 104(11): pp. 726a
102. Ulyanova, T., **Ray Banerjee, Ena**, Priestley, G.V., Scott, L.M., and Papayannopoulou, T. Migration defects of leukocytes from a4 or b2 integrin-deficient mice during aseptic peritonitis. 46th American Society of Hematology Annual Meeting, San Diego, Dec. 4-7, 2004. Published in Blood, 2004, 104(11)656a
103. **Ena Ray** and A.K. Samanta. Oral presentation of paper titled “Dansyl cadaverine controls the receptor mediated endocytosis of Interleukin-8, an inflammatory cytokine, in human neutrophils “in XIX All India Cell Biology Conference held at Indian Institute of Chemical Biology during Feb 23-25, 1996.
104. **Ena Ray** and Ajoy Samanta. Presentation of paper titled “PMA induced modulation of interleukin-8 receptor expression in human polymorphonuclear neutrophils.” In Indo-French symposium on immunomodulation – tribute to Louis Pasteur held at National Institute of Immunology, New Delhi, during Dec 10-13, 1995.

21. **Past students:**

- a. Students who have completed Ph.D.:

	Name	Thesis Title
	Dr. Pramathadhip Paul	Proof Of Concept And Validation Of A Novel Format Of Stable Single Chain Antibodies And Drug Discovery Studies In Pre-Clinical Models Of Diseases Of Inflammation And Degeneration
	Nandita Ghosh	Development Of Therapeutic And Prophylactic Agents Using Natural Compounds, Antibody Therapy And Other Bioagents Against Inflammatory Disease
	Dr. Shinjini Mitra	Translational Outcome Research In Preclinical Models Of Inflammation & Degeneration, Using Phytochemicals, Small Molecules And Cell- Based Strategies.

b. M.Sc. students from Department of Zoology, University of Calcutta

Sl. No.	Name of Intern	Title of Dissertation	Year
1	Ritipriya Biswas	In-Vitro Screening of Phytochemical Compounds for Anti-Inflammatory Properties	2016
2	Swarupa Sarkar	In vitro assessment of the effect of fisetin in oxazolone induced atopic dermatitis	2016
3	Ankita Das	Effect of Hadjod on LPS- Treated RAW 264.7 Macrophage Cells and NIH3T3 Fibroblast Cells.	2017
4	Sharmistha Chatterjee	Effect of Hadjod on LPS- induced Inflammation.	2017
5	Ayantika Sengupta	Effect of Extract of Sipunculus on LPS- Treated RAW 264.7 Macrophage Cells.	2017
6	Rupa Pal	Proteomic analysis of asthmatic lung	2017
7	Oishika Das	Effect of orally given fisetin on atopic dermatitis in mouse model	2017
8	Purbita Banerjee	Effect of topically given fisetin on atopic dermatitis in a mouse model	2017
9	Risha Jana	Effect of guar gum nanoparticles (GN) in a mouse model of oxazolone induced atopic dermatitis	2017
10	Swarnali Dey	Effect of hadjod in rheumatoid arthritis in a mouse model	2017
11	Subhra Mondal	Whey water preparation using probiotics	2017
12	Ipsita Mondal	Anaerobic culture of bacteria	2017
13	Anamika Manna	Effect of hypoxia & hyperoxia in cell based therapy in Idiopathic Pulmonary Fibrosis	2017
14	Nelofar Nargis	Establishment of Chronic Kidney Disease	2017
15	Suman Mukherjee	Regeneration in Planaria	2017
16	Noyel Ghosh	Isolation & PCR amplification of vertebrate DNA	2017
17	Madhuri Basak	Isolation & PCR amplicfication of invertebrate DNA	2017
18	Koyel Roy	Cutlture of probiotics	2017
19	Debanjali Bhattacharya	Comparison of DPPH Scavenging Activities of 3 compounds	2018
20	Rabia Tabassum	Comparison of Superoxide Radical Scavenging Activities of 3 compounds	2018
21	Ranit D'Rozario	Comparison of Lipid Peroxidation Activities of 3 compounds	2018
22	Rupsha Mondal	Comparison of Nitric Oxide Scavenging Activities of 3 compounds	2018
23	Moumita Sil	Comparison of Hydroxyl Radical Scavenging Activities of 3 compounds	2018
24	Sayantee Hazra	Comparison of Total Flavonoid Content of 3 compounds	2018
25	Abhishek Choudhury	Comparison of Total Phenolic Content of 3 compounds	2018
26	Priyanka Dey Talukdar	Development and characterization of single format VHH Ab in naïve jaisalmeri subspecies of <i>Camelus dromedarius</i>	2018
27	Sudatta Dey	Development of single format camelid Ab against ovalbumin challenged chronic asthmatic mouse lung extract.	2018
28	Anuran Bhattacharya	Development of nanobody against placebo treated mouse lung.	2018

29	Pranjali Shome	Generation and characterization of VHH Ab in murine placebo anti-IgE serum immunized camels.	2018
30	Suchismita Datta	Development of anti α -amylase Camelid Ab and validation of Ag binding properties.	2018
31	Priyanka Saha	Development of anti α -alkaline phosphatase Camelid Ab and validation of Ag binding properties.	2018
32	Ananya Banerjee	Generation and characterization of VHH Ab in murine allergic anti-IgE serum immunized camels.	2018
33	Swagata Sardar	Validation of Fisetin as a Therapeutic Agent in a Mouse Model of Acute Allergic Asthma	2018-19
34	Saheli Biswas	Investigative Studies of Quorum Sensing in Amelioration of Inflammatory Bowel Disease by Combinatorial Probiotics e-Bugs	2018-19
35	Shalmolee Das	Molecular Characterization of the Role of Combinatorial Probiotic e-Bugs in Innate Immunity of the Intestine	2018-19
36	Rickta Roy	Identification of Bioactive Compounds Potentially Regulatory for Molecular Therapeutic Pathways in Rheumatoid Arthritis	2018-19
37	Oishik Kar	Characterization and Validation of Novel Single Format Anti-OVA Specific IgE Camelid Antibody as Therapeutic in Asthma	2018-19
38	Arkapravo Motilal	Asthma: An insight into the disease and treatment regimes; validation of novel therapeutic nanobodies in the prospective treatment of the disease	2019-20
39	Durba Dasgupta	Anti-inflammatory and anti-oxidative actions of phytochemicals	2019-20
40	Arnob Chakrovorty	Characterization of Secretome of novel probiotic formulation: quantitative and qualitative estimation	2019-20
41	Suman Barua	Study Exploring the Effect of Phytochemical Extracts on Acute and Chronic Kidney Disease in Pre-clinical Mice Model	2019-20
42	Soham Samanta	Studies on the Regenerative Behaviour of Planarians under Mechanical and Chemical Stress	2019-20
43	Shristi Subba	Inflammatory status of intestinal tissue and remediation by novel combinatorial probiotics by histochemical analyses	2020-21
44	Megha Mishra	Analysis of expression of protein markers in the lung in acute allergic asthma model in mouse	2020-21
45	Alyepriya Sabui	Validation of camelid anti-alkaline phosphatase antibody in a mouse model of oxazolone induced atopic dermatitis	2020-21
46	Shreya Karmakar	Study of the Effects of Phytotherapy on the Expression of Inflammatory Genes in a Mouse Model of Acute Kidney Inflammation	2021-22
47	Sumana Das	Extraction and characterization of anti-oxidant properties of aqueous and ethanolic extracts of <i>Withania coagulans</i>	2021-22
48	Avishek Das	Anti-oxidative Activity of Extracts of <i>Piper betle</i> (Paan) Collected from Different Districts of West Bengal	2021-22
49	Ritam Paul	Study of the Effects of Phytotherapy on the Expression of Inflammatory Genes in a Mouse Model of Chronic Kidney Disease	2021-22
50	Subhadeep Mandal	Anti-microbial effect of novel combinatorial probiotics	2021-22
51	Nilima Das	Epithelial wound healing in planaria	
52	Aveepsa Mandal	Effect of abiotic soil conditions on variety of <i>Piper betle</i> from selected districts of West Bengal	

53	Deborshi Aditya	Establishment of streptozotocin-induced diabetes mellitus in mice	
54	Satarupa Upadhyay	Prophylactic effect of novel combinatorial probiotics in a mouse model of inflammatory bowel disease	

b. External students

Sl. No.	Name of Intern	Title of Dissertation	Year
1	Mehuli Chakraborty	Anti-inflammatory effects of date palm (khejur) via novel anti-oxidant pathways-validation as functional food	2014
2	Rishita Chakraborty	Effect of Guar Gum Nanoparticle on a Mouse Model of Atopic Dermatitis	2017
3	Swapnonil Banerjee	Treatment of Thioglycollate-Induced Peritonitis with Guar Gum Nanoparticle	2017
4	Sourav Majhi	Therapeutic effects of natural compounds in allergic asthma in a preclinical mouse model	2017
5	Sayan Chowdhury	Effect of hypoxia and hyperoxia on cell based therapy in bleomycin induced pulmonary fibrosis	2017
6	Puspita Saha	Development of novel format Camelid Ab as a therapeutic agent against chronic asthma.	2017
7	Ahana Ganguly	Development of novel format single domain Camelid Ab raised against ovalbumin challenged chronic asthmatic mouse lung extract.	2018
8	Arju Kumari Singh	Standardization of an Alternative Sensitization & Challenge Model for Murine Acute Allergic Asthma	2019
9	P. Karthikeyan	Optimization of histology of skin tissue in oxazolone induced atopic dermatitis model in mice for assessment of pathology	2019
10	Avipsa Dey	Standardization of histological procedure with connective tissue from collagen induced arthritis (CIA) model in mice for assessment of histology	2019
11	Spriha Ghosh	Protein expression of cloned camelid VHH gene in E. coli WK6 strain	2021
12	Priya Banthia	<i>In vitro</i> characterization of novel combinatorial probiotics	2022
13	Shabaz Quddus	Prophylactic effect of novel combinatorial probiotics in a mouse model of inflammatory bowel disease	2022
14	Supratim Pattanayak	Epithelial Wound Healing in Inflammation & Degeneration	2023

c. Past research fellows

Sl. No.	Name of Fellow
1	Kaustav Mukherjee
2	Prasenjit Das
3	Debolina Mukherjee

4	Mayank Jain
5	Bhaswati Tarafder
6	Akash Banerjee
7	Niladitya Sanyal
8	Garima Hore
9	Konsam Surajlata
10	Rintu Das
11	Srabani Kar

d. Past Post-doctoral fellows

Sl. No.	Name of Post-doctoral Fellow
1	Dr. Amar Kumar Singh
2	Dr. Alpana Dave
3	Dr. Silpak Biswas

22. Important links:

<https://www.youtube.com/channel/UCZd3TpZ4h9gjtFu6cZPIjww>

<https://youtu.be/PZ-15AmSRP4>

<https://youtu.be/ZIb8qnYAHIM>

<https://youtu.be/JYTI-H7B3ZA>

<https://youtu.be/vWDOeLjJRNQ>

<https://youtu.be/aeyXILQj8ag>

<https://youtu.be/Q70GRUEzSZE>

<https://youtu.be/3ooDASvliAw>

<https://youtu.be/NerkLGOyYSo>

<https://youtu.be/DDUbkKoadL8>

<https://youtu.be/Vno6BOlfrDg>

<https://youtu.be/N6D8YveIFgc>