

DR. ANTARA BANERJEE, PhD

Assistant Professor (Senior-Scale), Faculty of Allied Health Sciences Chettinad Hospital & Research Institute Chettinad Academy of Research & Education Kelambakkam, Chennai 603103, India

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Qualifications:

- **M.Sc: 2004, University of Kalyani, India**
- **Ph.D.: 2008, University Of Kalyani, India**

Professional Summary

Stem cell Researcher seeking an opportunity to help people with medical conditions through basic and clinical stem cells research and therapy

Post-Doc / Work Experience:

1. **Assistant Professor (Sr Grade), CARE, FAHS, Chennai, 2016- till date.**
2. **Senior Post Doctoral Researcher, 2014-2015, Microbiology and Molecular Medicine, Department of Clinical and Experimental Medicine, Linköping University, Sweden.**
3. **Post-Doctoral Researcher, 2009–2011, Department of Gastroenterology and Surgical Sciences, University of Padova, Padova, Italy**
4. **Senior Post-Doctoral Researcher 2007-2008, Department of Zoology, University of Kalyani (Boiron”, Lyon, France sponsored Research Project).**

Summary of Research: (<https://www.ncbi.nlm.nih.gov/pubmed/?term=Antara+Banerjee>)
(<https://scholar.google.se/citations?user=THVjwpIAAAAJ&hl=en>)

Papers	49	Cites/paper	13.89	h-index	11
Citations	557	Cites/author	107.37	g-index	20
Cites/year	36.08	Authors/paper	4.26	hI-index	13

Extramural projects (Grants Received) ongoing/completed:

1. **PI- Dr. Antara Banerjee Awarded Young Scientist award by DST SERB, ECR award , Govt of India of 34 Lakhs, 2017-2020 in project entitled Role of human umbilical cord mesenchymal stem cells (UC-MSCs) and UC-MSC derived conditioned**

medium in regulation of colon cancer progression: An approach towards elucidating function of paracrine factors and epigenetic regulators”. – **ONGOING.**

2. **PI- Dr. Antara Banerjee**, Anti-inflammatory effects of combinational therapy of *Lycopodium clavatum* and Quercetin, against colon cancer: An *in vitro* study. **CARE-Completed.**

Research Guidance:

PhD: 2 (ongoing); M.Sc: 6 (completed).

TEACHING ACTIVITIES (20 HOURS/WEEK)

- M.Sc (TERM)–Stem cell Biology, Immunology (Theory and Practical)
- M.Sc- Stem cell Technology, Stem cell therapy (Theory and Practical)
- B.Sc-Medical Genetics, Biopharmaceuticals, Reproductive and Cancer Genetics (Theory), Developmental genetics.
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- M.Sc (MBT) -Immunology (Theory and Practical)
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List of Publications:

2019-2010

Antara Banerjee*, Yashna Chabria, NR Rajesh Kanna, Janani Gopi, Praveen Rawlo, Xiao-Feng Sun, Surajit Pathak, Role of Tumor specific niche in Colon Cancer Progression and emerging therapies by targeting tumor microenvironment. **Adv Exp Med Biol. 2019. doi: 10.1007/5584_2019_355.**

Contributed in the chapter titled “Oxidative stress and smoke related lung diseases tentative approaches”. Jaganath Arunachalam, Sudhir Adalti, Francesco Marotta, **Antara Banerjee**, Surajit Pathak. **2019, (Springer Book on Oxidative stress and Lung Disorder, In Press)**

Antara Banerjee*, Suhanya Veronica Prasad, Francesco Marotta, Ganesan Jothimani, Surajit Pathak Targeting Wnt Signaling through Small Molecules in Governing Stem Cell Fate and Diseases. **Endocrine, Metabolic & Immune Disorders - Drug Targets Bentham Sciences, 2019 doi: 10.2174/1871530319666190118103907.**

Ganesan J, Sushmitha S, Yashna C, **Antara Banerjee***, Surajit Pathak. A review on theragnostic applications of microRNAs and long non-coding RNAs in colorectal cancer. **Current Topics in Medicinal Chemistry, 2019, doi: 10.2174/1568026619666181221165344.**

Sushmitha Sriramulu, Murugesan Ramachandran, Saraswathi Subramanian, Rathiusha Kannan, Ganesan Jothimani, Madhumala Gopinath, Jose Sollano, Laura Bissi, **Antara Banerjee**, Francesco Marotta, Pathak S. A review on role of ATM gene in hereditary transfer of colorectal cancer. **Acta Biomed.** 2019. Vol **89** (4):463-469.

Vimala Devi S, Ramachandran Murugesan, Francesco Marotta, **Antara Banerjee**, Xiao Feng Sun, Surajit Pathak, Comparative study on anti-proliferative potentials of zinc oxide and aluminium oxide nanoparticles in colon cancer cells. **Acta Biomed** 2019; Vol. 89, N. 0: 000-000.

Contributed in the chapter titled “Occupational stress related - adrenal fatigue, hormonal imbalance and prevention through bio-identical hormones approach” **for publication in eBook edited by Nova publishing house New York.** Surajit Pathak, Yashna Chabria, Ram Murugesan, **Antara Banerjee**, Francesco Marotta, **2019 (In Press).**

Contributed in the chapter titled “Environmental- and dietary-metabolic stress in workers: Novel avenues in oral heavy metal chelation and fatty liver aids” **for publication in eBook edited by Nova publishing house New York.** Surajit Pathak, Sruthi K.H, Ram Murugesan, **Antara Banerjee**, Francesco Marotta, **2019 (In Press).**

Surajit Pathak, Roberto Catanzaro, Dharani Vasani, Francesco Marotta, Yashna Chabria, Ganesan Jothimani, Rama Shanker Verma, Anisur, Ramachandran Murugesan, Rahman Khuda-Bukhsh, **Antara Banerjee***. Benefits of Aged Garlic Extract in Modulating Toxicity Biomarkers against P-dimethylaminoazobenzene and Phenobarbital Induced Liver Damage in *Rattus norvegicus*. **Drug and Chemical Toxicology.** 2018; **12: 1-14.**

Sushmitha Sriramulu, Surajit Pathak, Ganesan Jothimani, Madhumala Gopinath, Ramachandran Murugesan, **Antara Banerjee**. A review on clinical applications of conditioned medium derived from Human Umbilical Cord-Mesenchymal Stem Cells (UC-MSCs) **Int J of Oncol Hematol and Stem Cell Res.** 2018. **12(3); 229-233.**

Pragyan Paramita, Ramachandran Murugesan, Vimala Subramaniam, Madhumala G, Satish Ramalingam, Ilangovan Ramachandran, **Banerjee A**, Xiao Feng Sun, Surajit Pathak* Role of liposomal nanoformulated lycopodium clavatum in reducing cellular proliferation and apoptosis in human colon cancer cells HCT15 **IET Nanobiotechnology (2018).** DOI: **10.1049/iet-nbt.2017.0106**, Online ISSN **1751-875X**

Vimala Devi Pathak S. S, Suhanya P, **Banerjee Antara**, Madhumala, Murugesan Ramachandran, Marotta, Francesco, Health hazards of Nanoparticles: Understanding the toxicity mechanism of Nanosized ZnO in Cosmetic products. **Drug and Chemical Toxicology**, **2018: 1-10. doi: 10.1080/01480545.2018.1491987**

Pathak S, Sushmitha Sriramulu, Sathya Priya Thandavan, **Antara Banerjee***, Francesco Marotta. Enhancement of shelf life of the climacteric fruits: A review on application of CRISPRi Technology. **Trends in Technical and Scientific Research 2018; 1(2)**

Surajit Pathak, Madhumala Gopinath, Ramachandran Murugesan, Francesco Marotta, Rosa Di Liddo, **Antara Banerjee**, Sushmitha Sriramulu, Ganesan Jothimani, Vimala Devi Subramaniam, Srinivasan Narasimhan, Swarna Priya K, Xiao-Feng Sun. Role of Hippo pathway effector Tafazzin protein in maintaining stemness of Umbilical cord derived mesenchymal stem cells (UC-MSC), **Int J of Oncol Hematol and Stem Cell Res. 2018; Vol 12, No.2.**

Pathak S, Sushmitha S, **Banerjee A**, Murugesan R, Zhang H, Girigoswami A, Bhavani B, Marotta F, Sun XF. A review on comparative efficacy of Cetuximab, Panitumumab and Bevacizumab antibody therapy with combination of FOLFOX-4 in K-RAS mutated colorectal cancer patients. **Oncotarget 2018, Vol 9 (7): 7739-7748.**

Banerjee Antara; Surajit Pathak; Vimala Devi S; Ramachandran Murugesan; Rama Shanker Verma. Strategies for targeted drug delivery in treatment of colon cancer- current trends and future perspectives **Drug Discovery Today, 2017, 22(8):1224-1232.**

S. Pathak, P. Suhanya, S. Sushmitha, R. Murugesan, Fang He, F. Marotta and **A. Banerjee**. Coping with stress related effects on the brain – role of neuro-nutraceuticals and gut microbes. **International Journal of Probiotics and Prebiotics Vol. 12, No. 4, pp. xxx-xxx, 2017. ISSN 1555-1431**

Jagadeesan AJ, Murugesan R, Vimala Devi S, Meera M, Vishwanathan Padmaja M, Ramesh A, **Banerjee A**, Sushmitha S, Khokhlov AN, Marotta F, Pathak S*. Current trends in etiology, prognosis and therapeutic aspects of Parkinson's disease: a review. **Acta Biomed 2017; Vol. 88, N. 3: 249-262**

Surajit Pathak, **Antara Banerjee**, Wen-Jian Meng, Suman Kumar Nandy, Madhumala G, Xiao-Feng Sun. TAZ (WWTR1) oncoprotein overexpression in colon cancer cells and its downregulation by radiation. **International J of Radiation Biology 2017:1-26. doi: 10.1080/09553002.2018.1400191.**

Contributed in the ebook chapter titled “**Urinary tract infections & Treatment**” for publication in **eBook** edited by Justin Prince (Published). Pathak S, Sushmitha S, Ganesan J, Murugesan R, **Banerjee A**, Bissi L, Marotta F, Open Aces e books (2017). ISBN: 978-81-935757-6-5

Pathak S, Sushmitha S, Ganesan J, Murugesan R, Marotta F, Bissi L, **Banerjee A**. Antimicrobial Research. Novel bioknowledge and programs. Educational programs. **Antimicrobial: research, bioknowledge, education chapter on biofilm, Biofilms. (A. Méndez-Vilas, Ed), Formatex Research Center, ISBN: 978-84-947512-0-22017: 273-279**

Metabolism of Dietary Polyphenols by Human Gut Microbiota and Their Health Benefits, Surajit Pathak*, Pallavi Kesavan, Anushka Banerjee, **Antara Banerjee**, Gulcin Sagdicoglu Celep, Laura Bissi, and Francesco Marotta, **Polyphenols Book, Elsevier, B978-0-12-813006-3.00025-8, 00025**

Contributed in the chapter titled “An insight into the link between Oral health and Neurological diseases” for publication in eBook edited by Caister Academic Press. Surajit Pathak, Suhanya Veronica Prasad, Sushmitha S, Ganesan J, Ram Murugesan, **Antara Banerjee***, Francesco Marotta. **Book on Microbiota: Caister Academy Press, 2018. Page 87-98. DOI: <https://doi.org/10.21775/9781910190937.06>**

Contributed in the chapter titled “Gut Microbiome: the role in neuro development” for publication in eBook edited by Caister Academic Press. Surajit Pathak, Suhanya Veronica Prasad, Ram Murugesan, **Antara Banerjee**, Francesco Marotta. **Book on Microbiota: Caister Academy Press, 2018. Page 69-86. DOI: <https://doi.org/10.21775/9781910190937.05>**

Antara Banerjee, Debora Bizzaro, Patrizia Burra, Rosa Di Liddo, Surajit Pathak, Diletta Arcidiacono, Andrea Cappon, Patrizio Bo, Maria Teresa Conconi, Marika Crescenzi, Claudia, Maria Assunta Pinna, Pier Paolo Parnigotto, Malcom R Alison, Giacomo Carlo Sturniolo, Renata D'Inca and Francesco Paolo Russo. Umbilical cord mesenchymal stem cells modulate dextran sulphate sodium induced acute colitis in immunodeficient mice. **Stem Cell Research & Therapy. 2015; 6(1):79.**

Pathak Surajit, Grillo Alessia, Scarpa Melania, Brun Paola, D'Inca Renata, Nai Laura, **Banerjee Antara**, Cavallo Donatella, Barzon Luisa, Palù Giorgio, Sturniolo Giacomo Carlo, Buda Andrea; Castagliuolo Ignazio. MiR-155 modulates the inflammatory phenotype of intestinal myofibroblasts by targeting SOCS1 in ulcerative colitis **Experimental & Molecular Medicine Experimental & Molecular Medicine (2015) 47, e164; doi:10.1038/emm.2015.21 (Nature Publishing Group).**

Antara Banerjee, Surajit Pathak, Wen-Jian Meng and Anisur Rahman Khuda-Bukhsh, Is chronic feeding of low dose alcohol hepatotoxic or genotoxic? A time course study in mice. **Nucleus 2014. DOI 10.1007/s13237-014-0120-1.**

Michielan A, Basso D, Martinato M, Pathak S, **Banerjee A**, Oliva L, Mario P, Sturniolo GC, D'Inca R. Increased antibody response to microbial antigens in patients with Crohn's disease and their unaffected first-degree relatives. **Dig Liver Dis. 2013. S 1590-8658, (13): 19-24.**

Burra P, Arcidiacono D, Bizzaro D, Chioato T, Di Liddo R, **Banerjee A**, Cappon A, Bo P, Conconi MT, Parnigotto PP, Mirandola S, Gringeri E, Carraro A, Cillo U, Russo FP. Systemic administration of a novel human umbilical cord mesenchymal stem cells population accelerates the resolution of acute liver injury. **BMC, Gastroenterology. 2012; 12: 88.**

Khuda-Bukhsh AR, Roy Karmakar S, **Banerjee A**, Banerjee P, Pathak S, Biswas SJ, Haque S, Das D, Boujedaini N, Belon P. A follow-up study on the efficacy of the homeopathic remedy *Arsenicum Album* in volunteers living in high risk arsenic contaminated areas. **Evid Based Complement Alternat Med; 2011:129214.**

Barollo M, Medici V, D'Inca R, **Banerjee A**, Ingravallo G, Scarpa M, Patak S, Ruffolo C, Cardin R, Sturniolo GC. Antioxidative potential of a combined therapy of anti TNF α and Zn acetate in experimental colitis, **World J Gastroenterol**. 2011; 17(36):4099-103.

Khuda-Bukhsh AR, **Banerjee A**, Biswas SJ, Karmakar SR, Banerjee P, Pathak S, Guha B, Haque S, Das D, De A, Das D, Boujedaini N. An initial report on the efficacy of a millesimal potency Arsenicum Album LM 0/3 in ameliorating arsenic toxicity in humans living in a high-risk arsenic village. **Zhong Xi Yi Jie He Xue Bao**. 2011; 9(6):596-604.

Banerjee A, Pathak S, Biswas SJ, Roy Karmakar S, Naoual B, Belon P, Khuda-Bukhsh AR (2010). Comparative efficacy of two homeopathic potencies, Chelidonium Majus 30C and 200C, in amelioration of induced hepato-toxicity in rats. **Homeopathy** 2010; 99(3): 167-76.

Pathak S, **Banerjee A**, Khuda-Bukhsh AR. Efficacy of Lycopodium Clavatum in reducing induced hepatotoxicity and genotoxicity in mice. **Int Journal of Biological and Chemical Science** 4(3): 770-781, 2010.

Antara Banerjee, Roy Karmakar S, Saili Paul, Saiful Hoque, Debarshi Das, Anisur Rahman Khuda-Bukhsh. Efficacy of some homeopathic drugs in modulating different blood parameters in thalassemic patients: A short-term study. **Clinical and Experimental Homeopathy**. 2010. 2:1. 1-4.

Pathak S, **Banerjee A**, Paul S, Khuda-Bukhsh AR (2009). Protective potentials of a plant extract (Lycopodium clavatum) on mice chronically fed Hepato-carcinogens. **Indian Journal of Experimental Biology** 2009, 47, 602-607.

Bhattacharyya SS, Paul S, Mandal SK, **Banerjee A**, Boujedaini N, Khuda-Bukhsh AR (2009). A synthetic coumarin (4-methyl-7 hydroxy coumarin) has anti-cancer potentials against DMBA-induced skin cancer in mice. **Eur J Pharmacol**. 2009; 614(1-3): 128-36.

Pathak S, Roy Karmakar S, **Banerjee A**, Dutta S, Khuda-Bukhsh AR (2009). Combinational homeopathic therapy reduces genotoxicity and cytotoxicity in mice fed carcinogens. **Clinical and Experimental Homeopathy**.1:17.

Anisur Rahman Khuda-Bukhsh, Susanta Roy-Karmakar, **Antara Banerjee**, Pathikrit Banerjee, Surajit Pathak, Surjyo Jyoti Biswas, Saiful Haque, Debarshi Das, Naoual Boujedaini, Philippe Belon. A follow-up study on the efficacy of the homeopathic remedy Arsenicum album in volunteers living in high risk arsenic contaminated areas. **Indian Journal of Research in Homoeopathy**. 2009; 3(2): 43.

Banerjee A, Biswas R, Pathak S, Naoual B, Belon P, Khuda-Bukhsh AR (2008). Crude extract of turmeric reduces hepato-toxicity and oxidative stress in rats chronically fed carcinogens. **Journal of Complementary and Integrative Medicine**, Vol. 5: 1, Article 34.

Belon P, **Banerjee A**, Roy Karmakar S, Biswas SJ, Chaki Choudhury S, Banerjee P, Das JK, Pathak S, Guha B, Paul S, Bhattacharjee N, Khuda-Bukhsh AR (2007). Homeopathic remedy for arsenic toxicity? Evidence-based findings from a randomized placebo controlled double blind human trial. **Science of the Total Environment 384: 141–150.**

Banerjee A, Basu Chakrabarty S, Roy-Karmakar S, Chakrabarty A, Biswas SJ, Haque S, Das D, Paul S, Mandal B, Naoual B, Belon P, Khuda-Bukhsh AR (2007). Can Homeopathy Bring Additional Benefits to Thalassaemic Patients on Hydroxyurea Therapy? Encouraging Results of a Preliminary Study. **Evidence-Based Complementary and Alternative Medicine. Doi: 10.1093/ecam/nem161.**

Pathak S, Bhattacharjee N, Das JK, Choudhury SC, Roy-Karmakar S, Banerjee P, Paul S, **Banerjee A**, Khuda-Bukhsh AR (2007). Supportive evidences for anti-cancerous potential of an alternative medicine in hepatocarcinogenesis of mice. **Forsch Komplementarmed 14: 148-156.**

Anisur R Khuda-Bukhsh, Philippe Belon, Surjyo Jyoti Biswas, Susanta Roy Karmakar, Pathikrit Banerjee, **Antara Banerjee**, Bibhas Guha, Jayanta Kumar Das, Surajit Pathak, Sandipan Chaki Choudhury, Nandini Bhattacharjee. Is an elevated antinuclear antibody titer in subjects living in two groundwater arsenic contaminated villages indicative of a time-dependent effect of arsenic exposure. *Journal of Environmental Science: An Indian Journal*, 2007. **Volume 2, Issue 1.010-016.**

Belon P, Banerjee P, Chaki Choudhury S, **Banerjee A**, Biswas SJ, Roy Karmakar S, Pathak S, Guha B, Chatterjee S, Bhattacharjee N, Das JK and Khuda-Bukhsh AR (2006). Can administration of potentized homeopathic remedy, Arsenicum Album, alter anti-nuclear antibody (ANA) titer in people living in high risk arsenic contaminated areas? : I. A correlation with certain hematological parameters. **Evidence-Based Complementary and Alternative Medicine 3(1): 99–107.**

Khuda-Bukhsh AR, Pathak S, Guha B, Roy-Karmakar S Das JK, Banerjee P, Biswas SJ, Mukherjee P, Bhattacharjee N, Choudhury SC, **Banerjee A**, Bhadra S, Mallick P, Chakraborti Mallick J, Mondal B (2005). Can homeopathic arsenic remedy combat arsenic poisoning in human exposed to groundwater arsenic contamination? a preliminary report on first human trial. **Evidence-Based Complementary and Alternative Medicine 2 (4): 537–548.**

Complete Patent Applied (2017-2018):

Patent Applied (2017-2018)	Patent application Number	Applicant
Methods and process to derive conditioned medium	R20184000140	Dr. Antara Banerjee
Methods, effects and application of inhibition of wnt/b catenin signalling pathway in mesenchymal stem cells	R20184000131	Dr. Antara Banerjee

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Conference / Workshop / Invited Lecture/ Resource person / Seminar/:

International conference:

1. **Banerjee A**, Burra P, Di Liddo R, Arcidiacono D, Pathak S, Cappon A, Bo P, Conconi MT, Parnigotto PP, Russo FP, Sturniolo GC, D'Inca R. Ameliorative potentials of human umbilical cord derived mesenchymal stem cells in dextran sulphate sodium induced acute colitis in NOD.CB17-Prkdcscid/J mice. **Presented in Digestive Disease Week, USA, 2011.** Published in **Gastroenterology, Vol 142, Issue 5, Supplement 1, Page S-719 and Published Digestive Disease Week 2012, May 19-22, San Diego USA.**
2. **Banerjee A**, Scarpa M, Pathak S, Burra P, Russo FP, Sturniolo GC, D'Inca R. Inflammatory bowel disease therapies adversely affect fertility in men- A systematic review. **Presented in Digestive Disease Week, USA, 2011** and published in **Gastroenterology, vol 142, Issue 5, Supplement 1, Page S-259 and Published in Digestive Disease Week 2012, May 19-22, San Diego, USA.**
3. D Arcidiacono, D Bizzaro, T Chioato, R Di Liddo, **A Banerjee**, A Cappon, P Bo, MT Conconi, PP Parnigotto, S Mirandola, E Gringeri, A Carraro, U Cillo, FP Russo, P Burra. OC-5 Systemic administration of a novel human umbilical cord mesenchymal stem cells population accelerates the resolution of acute liver injury. **Italy, Digestive and Liver Disease. 44. S2-S3.**
4. Role of Wnt signaling in determination of differentiation potential and fate of mesenchymal stem cells: An *in vitro* approach. Ganesan Jothimani, Surajit Pathak, Sushmitha Sriramulu, Ram Murugesan, Madhumala Gopinath, **Antara Banerjee***. Novel Approaches on Cancer Research and Therapy (NACRAT 2K17). Chennai.
5. Antara Banerjee*, Surajit Pathak, Sushmitha Srimalu, Sruthi KH. **Umbilical cord mesenchymal stem cells suppresses genotoxic effects of dextran sulfate sodium (DSS) induced acute colitis in mice.** "Novel antibiotic resistance breakers and diagnostic biomarkers", (ICARB-2017), Chennai.

6. Surajit Pathak, **Antara Banerjee***. CD44 depletion allows for rapid enrichment of mesenchymal stem cells from human and mice. "**Novel antibiotic resistance breakers and diagnostic biomarkers**", (ICARB-2017). Chennai.
7. Surajit Pathak, Yashna Chabria, Anisur Rahman Khuda-Bukhsh, Francesco Moratta, **Antara Banerjee***. Favorable effects of Kyolic extract in pathophysiological profiles of p-DAB and phenobarbital induced chronic liver damage in Wister rats. "Novel antibiotic resistance breakers and diagnostic biomarkers", (ICARB-2017). Chennai.
8. Jagadeesan A J, Sathya Priya T, Suhanya P, Vimala Devi S, Meera M, **Banerjee A**, Pathak S. Is homeopathy more than just a placebo effect? A study on antibacterial properties of homeopathic drugs lycopodium clavatum. "Novel antibiotic resistance breakers and diagnostic biomarkers", (ICARB-2017). Chennai.

Seminars/ Symposium Attended (International, National):

1. Participated in congress "**Hematopoietic Stem Cell Transplantation for Severe Autoimmune Diseases**", organized by Istituto Degli Innocenti, Florence, Italy from 19-20 November 2009.
2. Participated in "**Gene Testing- A great Challenge in Genetic Health Care**", organized by **Thalassemia Foundation and Institute of Genetic Engineering** on 8th May, 2007.

Seminars/ Symposium Organized and Chaired (International, National):

1. Chairman of Regenerative biology Session of national 2 days Conference on Nanotechnology in Medicine sponsored by SERB, DST, CARE 2017
2. Organizer of Regenerative biology Session of national 2 days Conference on Nanotechnology in Medicine sponsored by SERB, DST, CARE 2017.
3. Chaired a session in "Novel antibiotic resistance breakers and diagnostic biomarkers", (ICARB-2017). Chennai.

INVITED SPEAKER (2017-2018)

Invited Speaker	International Conference on “Novel antibiotic resistance breakers and diagnostic biomarkers”, (ICARB-2017), B.S. Abdur Rahman University, Chennai	2017
Invited Lecture on “Elucidating the potentials of Wnt Signaling in Progenitor mesenchymal stromal cells”. Antara B, Ganesan J	National conference. Biotrends, 2018, IIT Madras, Chennai 2018	2018
Overview of National funding agencies. (Invited Lecture)	Scientific Proposal Writing, CARE, 2019,	CARE 2019
Invited speaker	AMWC ASIA & TDAC (Taiwan Dermatology aesthetic conference), 2019, Taiwan-Taipei	AMWC, ASIA , 2019

Courses completed:

1. **Successfully completed graduate course work (2 months) and examination for Handling and usage of Laboratory Animal Sciences (2014) in Linköping University, Sweden. Recognized by European Union, USA, India, FELASA to work on genetically modified and all research animals.**