

DR. ANTARA BANERJEE, PhD

Assistant Professor (Sr-Scale)

Faculty of Allied Health Sciences
Chettinad Hospital & Research Institute
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Qualifications:

Ph.D.: 2008, University Of Kalyani

M.Sc: 2004, University of Kalyani

Research Interests: Stem Cell Biology/Regenerative Medicine, Toxicology, Molecular Biology, Gastroenterology, Alternative Medicine.

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).**

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.- ONGOING**
- 3. PI- Dr. Antara Banerjee, Role of Wnt signaling in determination of differentiation potential and fate of Mesenchymal stem cells. An *in vitro* approach. CARE.- ONGOING**

Research Guidance:**Ph.D:1****M.Sc.:3****TEACHING ACTIVITIES (20 HOURS/WEEK)**

- M.Sc –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)

Summary of Research:

Papers	32	Cites/paper	13.89	h-index	11
Book chapters	2				
Citations	445	Cites/author	107.37	g-index	20
Years	12	Papers/author	6.55	i10-index	12
Cites/year	36.08	Authors/paper	4.26	hI-index	11

Publications:**BOOKS/CHAPTERS (2017)**

1. Contributed in the book chapter titled “Urinary tract infections & Treatment” for publication in eBook edited by Justin Prince (Accepted). Ganesan J, Pathak S, Sushmitha S, Murugesan R, **Banerjee A**, Bissi L, Marotta F.
2. Contributed in the chapter titled “Biofilms” of the Formatex Microbiology book series titled “Antimicrobial Research: Novel bioknowledge and educational programs”. Surajit Pathak, Sushmitha S, Francesco Marotta, **Antara Banerjee. A. Méndez-Vilas, Ed, 2017. Edited by Aurora Solano (Accepted)**

3. Gut Microbiome: the role in neuro development. Surajit Pathak, Suhanya Veronica Prasad, Francesco Marotta, **Woo-Sik Jeong, Antara Banerjee**. **Abstract Accepted for Book Chapters (Caister Academic Press, 2017)**.
4. Contributed in the chapter titled “Novel therapeutic Approaches of Polyphenols: A review” for publication in eBook edited by **Elsevier publishing house**. Surajit Pathak, Pallavi Kesavan, Ram Murugesan, **Antara Banerjee**, 2017 (**Invited Book Chapters**).
5. 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**, 2017 (**Invited Book Chapter**).
6. 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**, 2017 (**Invited Book Chapter**).
7. 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, Ram Murugesan, **Antara Banerjee**, 2017 (**Invited Book Chapter**).
8. 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**, 2017 (**Invited Book Chapter**).

Research articles:

1. **Banerjee Antara**; Surajit Pathak; Vimala Devi S; Ramachandran Murugesan; Dharani Vasan; Rama Shanker Verma. Strategies for targeted drug delivery in treatment of colon cancer- current trends and future perspectives. **2017, Drug Discovery Today** pii: S1359-6446(17)30255-6.
2. 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**
3. Pathak S, Sushmitha S, **Banerjee A**, Bhavani B, Murugesan R, Zhang H, Girigoswami A, Sun XF. A review on comparative efficacy of Cetuximab, Panitumumab and Bevacizumab antibody therapy with combination of FOLFOX in K-RAS mutated colorectal cancer patients. **Oncotarget** <https://doi.org/10.18632/oncotarget.22471> (**In Press**)

4. 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. **2017. Acta Biomedica**, Vol. 88, N. 1: 000-000.
5. 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) **International Journal of Hematology-Oncology and Stem Cell Research (Accepted, 2017)**.
6. **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 Journal of Radiation Biology (Accepted, 2017)**
7. Surajit Pathak, Sushmitha Sriramulu, 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 (Accepted, 2017)**.
8. Sushmitha S, Murugesan R, Saraswathi S, Rathiusha K, Madhumala G, Sollano J, Bissi L, Antara B, **Surajit P**, Francesco M. A Review on role of ATM gene in hereditary transfer of colorectal cancer. *Acta Biomedica*, **(In Revision)**
9. **Antara Banerjee**, Marco Scarpa, Surajit Pathak, Patrizia Burra, Ram Murugesan, Giacomo Carlo Sturniolo, Francesco Paolo Russo, Renata D'Inca. Inflammatory bowel disease therapies adversely affect fertility in men- A systematic review and metanalysis **(In revision)**
10. Suhanya Veronica Prasad, Surajit Pathak, Francesco Moratta, Ganesan J, Ram Murugesan, **Antara Banerjee**^{1*}. Targeting Wnt Signaling through small molecules in governing stem cell fate and diseases. **(Communicated, 2017)**.
11. **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.**
12. 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).**

13. **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.**
14. 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.**
15. 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.**
16. 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.**
17. 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.**
18. 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.**
19. **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.**
20. 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.**
21. **Antara Banerjee**, Roy Karmakar S, Saili Paul, Saiful Hoque, Debarsi 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.**

22. 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.
23. 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.
24. 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.
25. 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.
26. **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.**
27. 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.
28. **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.**
29. 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.
30. Khuda-Bukhsh AR, Belon P, Biswas SJ, Roy-Karmakar S, Banerjee P, **Banerjee A**, Guha B, Das JK, Pathak S, Choudhury SC, Bhattacharjee N (2007). Is An Elevated Antinuclear Antibody Titer In Subjects Living In Two Groundwater Arsenic Contaminated Villages Indicative Of A Time-

Dependent Effect Of Arsenic Exposure? *Environmental Science: An Indian Journal* 2(1): <http://esajj.tsijournals.com/ESVol2Iss1.htm>

31. 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
32. 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.
33. 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

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***. Favourable effects of Kyolic extract in pathophysiological profiles of p-DAB and phenobarbital induced chronic liver damage in Wistar 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. Organiser 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 Rahaman University, Chennai	2017
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Course 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.**
- 2. Participated and successfully completed the 10 days training programme on Recombinant DNA Technology from Madurai Kamaraj University from 20th to 31st December 2007.**