

## DR. SHOBA NARAYAN

Assistant Professor (Sr.Gr)  
Medical Bionanotechnology  
Faculty of Allied Health Sciences  
Chettinad Hospital & Research Institute  
Chettinad Academy of Research & Education  
Kelambakkam, Chennai 603 103, India



Email: shobulu@gmail.com  
Contact No.: 9840825263

### Qualifications:

Ph.D.: 2008, Department of Biochemistry, University of Madras

M.Phil: 2002, Department of Biochemistry, University of Madras

### Research Interests:

**Nanomedicine, Biochemistry, Targeted Drug Delivery, Natural Product Therapeutics,  
Surface modification of nanoparticles**

### Post-Doc / Work Experience:

- 1) 2014 – Present: Assistant Professor, CARE
- 2) 2011–2014: FASTTRACK DST Young Scientist, Indian Institute of Technology, Madras
- 3) 2008 – 2009: Postdoctoral Trainee, University of Oklahoma, USA

### Extramural projects ongoing/completed

- *Senior Research Fellow, Antiulcer activity of Pterocarpussantalinus (red sandal wood) on experimental gastric ulcer- an in vivo and in vitro study, ICMR*
- *Young Scientist, Chemical strategies for conjugating fluorescent labeled VEGFR targeting peptides to Au NPs – approach in molecular sensing and killing of cancer cells, DST*
- *Co-PI, : Design & development of multifunctional Au nanostructures using cell free extract of Candida parapsilosis ATCC 7330, DAE-BRNS*

### Patents Filed: 3

Sl.no	Patent filed	Refernce number	Status
1	A method and development of a scaffold for delivery of agents for stem cell differentiation	E-2/95/2017-CHE	Provisional registration
2	A method and process for the efficacy enhancement of activities of Bioflavonoids.	E-2/96/2017-CHE	Provisional registration
3	Polymeric matrix containing metal doped ceramic for tissue engineering	E-2/98/2017-CHE	Provisional registration

## Research Guidance

Ph.D.:Co-Guide: 1; Guide: 1

M.Sc.:5

## Summary of Research:

Papers	16	Citations	128	h-index	5
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## Publications:

1. M. Vedhanayagam, M. Nidhin, N. Duraipandy, N. D. Naresh, G. Jaganathan, M. Ranganathan, M. S. Kiran, **S. Narayan**, B. U. Nair, K. J. Sreeram. Role of nanoparticle size in self-assemble processes of collagen for tissue engineering application. *International Journal of Biological Macromolecules*. 2017;99:655-64.
2. S. Azeena, N. Subhadrappa, N. Selvamurugan, **S. Narayan**, N. Srinivasan, R. Murugesan, T. W. Chung, A. Moorthi. Antibacterial activity of agricultural waste derived wollastonite doped with copper for bone tissue engineering. *Materials Science & Engineering C-Materials for Biological Applications*. 2017;71:1156-65.
3. S. Venkataraman, **S. Narayan**, A. Chadha. Direct observation of redox reactions in *Candida parapsilosis* ATCC 7330 by Confocal microscopic studies. *Scientific Reports*. 2016;6.
4. S. Krishnan, **S. Narayan**, A. Chadha. Whole resting cells vs. cell free extracts of *Candida parapsilosis* ATCC 7330 for the synthesis of gold nanoparticles. *Amb Express*. 2016;6.
5. **S. Narayan**, A. Rajagopalan, J. S. Reddy, A. Chadha. BSA binding to silica capped gold nanostructures: effect of surface cap and conjugation design on nanostructure-BSA interface. *Rsc Advances*. 2014;4(3):1412-20.
6. K. J. Sreeram, **S. Narayan**, G. Abbineni, A. Hayhurst, C. Mao. Architectonics of Phage-Liposome Nanowebs as Optimized Photosensitizer Vehicles for Photodynamic Cancer Therapy. *Molecular Cancer Therapeutics*. 2010;9(9):2524-35.
7. S. Prabhu, **S. Narayan**, C. S. S. Devi. Mechanism of Protective Action of Mangiferin on Suppression of Inflammatory Response and Lysosomal Instability in Rat Model of Myocardial Infarction. *Phytotherapy Research*. 2009;23(6):756-60.
8. P. Srinivasan, S. Suchalatha, P. V. A. Babu, R. S. Devi, **S. Narayan**, K. E. Sabitha, C. S. S. Devi. Chemopreventive and therapeutic modulation of green tea polyphenols on drug metabolizing enzymes in 4-Nitroquinoline 1-oxide induced oral cancer. *Chemico-Biological Interactions*. 2008;172(3):224-34.
9. **S. Narayan**, M. Veeraraghavan, C. S. S. Devi. *Pterocarpussantalinus*: An in vitro study on its anti-*Helicobacter pylori* effect. *Phytotherapy Research*. 2007;21(2):190-3.
10. **S. Narayan**, R. S. Devi, V. Ganapathi, C. S. S. Devi. Effect of *Pterocarpussantalinus* extract on the gastric pathology elicited by a hypertensive drug in Wistar rats. *Pharmaceutical Biology*. 2007;45(6):468-74.
11. **S. Narayan**, R. S. Devi, C. S. S. Devi. Role of *Pterocarpussantalinus* against mitochondrial dysfunction and membrane lipid changes induced by ulcerogens in rat gastric mucosa. *Chemico-Biological Interactions*. 2007;170(2):67-75.
12. R. S. Devi, **S. Narayan**, G. Vani, P. Srinivasan, K. V. Mohan, K. E. Sabitha, C. S. S. Devi. Ulcer protective effect of *Terminalia arjuna* on gastric mucosal defensive mechanism in experimental rats. *Phytotherapy Research*. 2007;21(8):762-7.
13. R. S. Devi, **S. Narayan**, G. Vani, C. S. S. Devi. Gastroprotective effect of *Terminalia arjuna* bark on diclofenac sodium induced gastric ulcer. *Chemico-Biological Interactions*. 2007;167(1):71-83.
14. **S. Narayan**, R. S. Devi, P. Srinivasan, C. S. S. Devi. *Pterocarpussantalinus*: A traditional herbal drug as a protectant against ibuprofen induced gastric ulcers. *Phytotherapy Research*. 2005;19(11):958-62.
15. **S. Narayan**, R. S. Devi, M. Jainu, K. E. Sabitha, C. S. S. Devi. Protective effect of a polyherbal drug, ambrex in ethanol-induced gastric mucosal lesions in experimental rats. *Indian Journal of Pharmacology*. 2004;36(1):34.
16. R. S. Devi, **S. Narayan**, K. Vijai Mohan, K. E. Sabitha, C. S. S. Devi. Effect of a polyherbal formulation, Ambrex, on butylatedhydroxy toluene (BHT) induced toxicity in rats. *Indian Journal of Experimental Biology*. 2003;41(11).

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

- [1] Antilcerogenic effect of ambrex, Apolyherbal formulation in experimental gastric ulcer in rats. Second national siddha conference, July 27-28, 2002.
- [2] Evaluation of possible mechanism of antiulcer activity of ambrex, a herbal preparation. XXIII annual conference of Indian association of biomedical scientists, IABMS, October 4-6, 2002
- [3] Role of gastric antioxidants in antiulcerogenic activity of *Pterocarpussantalinus* against ethanol induced ulcer model. International conference on natural products, free radicals and radioprotectors in health (NFRH – 2004), January 17-19, 2004.

- [4] Antiulcer effect of *Terminaliaarjuna* in experimental rats. RS. Devi, International conference on natural products, free radicals and radioprotectors in health (NFRH – 2004), January 17-19, 2004.
- [5] *Pterocarpussantalinus* –Its antiperoxidative role during NaCl enhanced – N-methyl-N'-nitro-N-nitrosoguanidine induced gastric cancer. Indo-Australian conference on biotechnology in medicine, February 9-11, 2004.
- [6] Antidiarrhoeal activity of *Terminaliaarjuna* bark in rats. Indo-Australian conference on biotechnology in medicine, February 9-11, 2004.
- [7] Study of *Pterocarpussantalinus* in experimental gastritis. Indo-Australian conference on biotechnology in infectious diseases, March 1-3, 2005.
- [8] Ulcer healing property of *Terminaliaarjuna* against diclofenac sodium induced gastric ulcer in rats. Indo-Australian conference on biotechnology in infectious diseases, March 1-3, 2005.
- [9] Effect of *Terminaliaarjuna* on deaxamethasone induced gastric ulcer in experimental rats. International conference on drug development from medicinal plants – Issues and problems, October 20-22, 2005
- [10] *Pterocarpussantalinus*: A traditional herbal drug in the protection against reserpine induced gastric ulcers. International conference on drug development from medicinal plants – Issues and problems, October 20-22, 2005
- [11] Effect of *Terminaliaarjuna* in aspirin induced gastric ulcerated rats. ASPUM International Symposium on Science in New Millennium, June 12-13, 2006.
- [12] Liposome-phage mediated delivery of zinc naphthalocyanines for photodynamic therapy, Oklahoma EPSCoR Annual State Conference, March 31-April 1, 2009.
- [13] Workshop on sequence Analysis and Molecular Simulation, Sponsored by the Department of Biotechnology, Government of India, NewDelhi, Conducted by Centre for Biotechnology, Anna University, Chennai 14<sup>th</sup> – 17<sup>th</sup> December 2011.
- [14] Designing probes for molecular sensing: Spectroscopic studies on the specific and non-specific-crosslinking of gold nanoparticles to a model protein. 4<sup>th</sup> International Conference on Advanced Materials, October 17 – 19(2012), Chennai, India.
- [15] Double Edged Sword –Designing Gold Nanorods Functionalized with KDR - Binding Peptides for Effective Blocking of Angiogenesis and Photothermal Therapy. Third International Conference on Multifunctional, Hybrid and Nanomaterials, March 3 – 7(2013), Sorrento, Italy.
- [16] Advances in NanoBiotechnology: Opportunities for Green Chemistry Dr M.G.R Educational and Research Institute, Department of Biotechnology, BIOZONE (Biotech Fest) 26 & 27 August 2013.
- [17] Mechanistic understanding of the role of anisotropy in binding of nanoparticles to targeting peptides of vascular endothelial growth factor receptors, NanoSciTech 2014, Feb 13-15 (2014), Chandigarh, India.
- [18] Workshop on *in vivo* small animal optical imaging, CRL, CARE, 14 Mar 2016
- [19] 3T-IBHSc Training course in bioethics – training for health professionals of health science universities, UNESCO, 28-30 Apr 16. International conference at CARE.
- [20] A novel design of hesperetin encapsulated chitosan-folate nanoparticle for colon cancer therapy. National seminar on advanced biomaterials and applications, 15 February, 2017, Chennai
- [21] Polycaprolactone polymeric composite reinforced with copper doped wollastonite for bone tissue engineering. National seminar on advanced biomaterials and applications, 15 February, 2017, Chennai
- [22] Studies on Li<sub>2</sub>CO<sub>3</sub> – loaded chitosan nanoparticles: With potential application for enhanced drug efficacy. International conference on frontiers in nanoscience and nanotechnology, February 27 and 28, Thanjavur
- [23] Amalgamating the Science of Small with the Science of Teeth: A Case of Nanotechnology for Dentistry. National Seminar on "Nano Medicine: Pharmacology and Toxicology, 24.03.2017- 25.03.2017, Chennai, University of Madras.
- [24] Two Days National Workshop on Cellular & Molecular Diagnostics (organized), 10.02.2017-11.02.2017, CARE
- [25] Two Days Workshop on Nanotechnology for Dental Application (organized), 11.04.2017-12.04.2017, CARE, CHRI.