Navakanth R. Gandavarapu

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Education:

Ph.D (in progress). Chemical and Biological Engineering, University of Colorado Boulder December 2012 (expected)

GPA: 3.823

B.Tech (Hon's): Department of Chemical Engineering, Indian Institute of Technology, Khargpur, India. August 2007

GPA: 8.49/10

Awards:

- Best thesis award, B.Tech thesis project, August 2007, IIT-Kharagpur
- "Pratibha Scholarship" from Govt. of A.P, India
- Special Award in Regional Math Olympiad, 2001.

Research Experience:

Graduate Researcher, Unversity of Colorado Boulder, Anseth Group, Jan 2008-current, Advisor: Dr. Kristi Anseth

- Role of phosphate functional groups on promoting osteogenic differentiation of hMSCs
- Synthesis, characterization of alpha5 integrin priming peptidefunctionalized hydrogels for hMSC differentiation
- Role of matrix elasticity on hMSC differentiation on alpha5 priming peptide hydrogels
- Synthesis, Characterization and application of Addition-Fragmentation Chain Transfer functional groups for reversible patterning of biochemical ligands
- Apply this novel hydrogel system to study the role of effect of integrin signaling on hMSC differentiation

Undergraduate thesis, Indian Institute of Technology, Kharagpur Advisor: Dr. Saikat Chakraborty (2006-07)
Title: Micro-scale modeling of uptake of NO by Human Lung

Internship, National Chemical Laboratories, Pune, India. (May-July 2006). Adivsor: Mr. Prashant Barve, Senior Scientist Title: Lactic Acid production via Counter Current Reactive Distillation

Internship, Indian Institute of Chemical Technology, Hyderabad, India (December 2005). Advisor: Dr. Yamuna Rani, Scientist E-II Title: Optimization of Unsteady state process using Simulated Annealing.

Publications:

- **1. Gandavarapu N. A.,** Mariner P., Schwartz M. Anseth. K. S. Extracellular matrix protein adsorption to phosphate-functionalized hydrogels from serum promotes osteogenic differentiation of human mesenchymal stem cells. *Submitted to Acta-Biomaterialia*
- **2. N. R. Gandavarapu,** Azagarsamy M. A., Anseth. K. S., Reversible biochemical patterning in hydrogels with Addition-Fragmentation Chain Transfer functional groups., *In Preparation for submission to Advanced Materials.*
- **3.** Azagarsamy, M. A.; **Gandavarappu, N, R.**; Anseth, K. S. " Poly (ethylene glycol) (PEG) Hydrogels Using Bioorthogonal, Click Reactions to Create Versatile Cell Culture Scaffolds" Material Matters -Sigma Aldrich, 2012 (Invited article).

Conference Presentations:

- Gandavarapu N. R; Anseth K. S. "Extracellular matrix proteins mediate osteogenic differentiation of human mesenchymal stem cells on phosphate functionalized gels through integrin mediated focal adhesion kinase signaling", oral presentation at Society of Biomaterials Annual Meeting, April 2011, Orlando, FL.
- **Gandavarapu N. R.**; Anseth K. S. "Effect of acid and sulfate functional groups on chondrogenic differentiation of human

mesenchymal stem cells", poster presentation at Society of Biomaterials Annual Meeting 2009, San Antonio, TX.

 Gandavarapu N. R.; Chakraborty. S."Microscale modeling of Reactive uptake of Nitric Oxide in the Red Blood Cell. Oral presentation at CHEMCON organized by Indian Institute of Chemical Engineers, 2006, Bharuch, Gujarath.

Professional Experience:

Teaching Assistant, University of Colorado Boulder Biomaterials: Held weekly recitation sessions, gave multiple lectures, and helped write homework and test questions for this graduate course

Teaching Experience, University of Colorado Boulder General Chemistry: Held weekly recitation sessions. Organized and supervised Laboratory sessions weekly

Practical Trainee, Godavari Fertilizers and Chemicals Limited, Kakinada, A.P. India.

Undergraduate trainee in NPK fertilizer production unit.

Technical Skills:

Cell culture: hMSC extraction and culture, RT-PCR Instrument expertise: HPLC, Solid phase peptide synthesis, rheometer, MALDI-TOF, Confocal Microscope, UV-vis, Plate Reader

Activities:

- Member, AID, Colorado Chapter.
- Head, Cheminsight ,2006, Annual Symposium, Dept. of Chemical Engineering, IIT-Kharagpur.
- Captain, LLR hall 'ChemInnovations' team, 2005-07, IIT-Kharagpur
- Red-cross (IIT-Kgp unit) volunteer, NSS, IIT Kharagpur 2004-05
- NCC training camp (Airforce unit), IIT Kharagpur