

BIOGRAPHICAL SKETCH AND PROFESSIONAL ACTIVITIES

RENSELAER POLYTECHNIC INSTITUTE

I. **NAME:** Pankaj Karande **DEPARTMENT:** CHBE
RANK: Assistant Professor **SCHOOL:** Engineering

Date of Birth: June 5th 1979

EDUCATIONAL PREPARATION

Institute	Degree	Year(s)	Discipline
University of Mumbai, India	B. S.	1996-2000	Chemical Engineering
University of California, Santa Barbara CA	Ph. D.	2000-2006	Chemical Engineering

II. PROFESSIONAL EXPERIENCE

Employer	Position	Year(s)
University of California, Santa Barbara	Research Assistant	2000-2001
University of California, Santa Barbara	Teaching Assistant	2001-2002
University of California, Santa Barbara	Research Assistant	2002-2006
Fqubed Inc., San Diego	Consultant	2003-2006
Massachusetts Institute of Technology, MA	Research Fellow	2006-2007
Massachusetts Institute of Technology, MA	Research Associate	2007-2008

III. TEACHING

Courses

CRN	Title	Students	Term	Year	Rating
CHME 2020	Energy, Entropy and Equilibrium	56	Spring	2008	4.4
CHME 4160	Chemical Engineering Laboratory	32	Spring	2008	4.7
CHME 2020	Energy, Entropy and Equilibrium	75	Spring	2009	4.8
CHME 4150	Chemical Engineering Laboratory	56	Fall	2009	4.3
CHME 2020	Energy, Entropy and Equilibrium	73	Spring	2010	4.2
CHME 4150	Chemical Engineering Laboratory	65	Fall	2010	4.4
CHME 2020	Energy, Entropy and Equilibrium	79	Spring	2011	4.8
CHME 4150	Chemical Engineering Laboratory	69	Fall	2011	4.2
CHME 2020	Energy, Entropy and Equilibrium	77	Spring	2012	4.7

IV. PUBLICATIONS

A. Books, Monographs, Recordings, Large Scale Musical or Video Works, Commissions

1. **Karande, P.**, Jain, A. and Mitragotri, S., Multi-component formulations of chemical penetration enhancers: Opportunities, methods and applications, In: Walters, K. and Roberts, M., eds., Dermatological and cosmeceutical development, Informa Health Care, New York, 1st Ed., 2007
2. **Karande, P.**, Jain, A. and Mitragotri, S. Synergistic combinations of penetration enhancers and their discovery by high throughput screening, In: Katdare, A. and Chaubal, M., eds., Exceptional development for pharmaceutical, biotechnology, and drug delivery systems, CRC Press, Boca Raton, 1st Ed., 2006
3. Jain, A., **Karande, P.** and Mitragotri, S. Skin impedance guided high throughput screening of penetration enhancers: Methods and applications, In: Maibach, H. and Bronaugh, R., eds., Percutaneous absorption: Drugs-cosmetics-mechanisms-methodology, Taylor and Francis, Boca Raton, 4th Ed., 2005
4. Jain, A., **Karande, P.** and Mitragotri, S. High throughput screening of transdermal penetration enhancers: Opportunities, methods and applications, In: Smith, E., Maibach, H., eds., Percutaneous penetration enhancers, CRC Press, Boca Raton, 2nd Ed., 2005
5. Simmons, T. J., Rivet, C. J., Singh, G. S., Beaudet, J. Sterner, E., Guzman, D., Hashim, D. P., Lee, S., Qian, G., Lewis, K. M., Rosales, R., **Karande, P.**, Ajayan, P. M., Gilbert, R. J., Dordick, J. S. and Linhardt, R. J. ACS Symposium Series: Nanomaterials for Biomedicine. Editor R. Nagarajan. Chapter: Applications of Carbon Nanotubes to Wound Healing Biotechnology. 2012, *In press*.

B. Journal Articles

1. Kumar, S.M, Zhang, G., Bastian, B.C., Arcasoy, M.O., **Karande, P.**, Pushparajan, A., Acs, G. and Xu X. Erythropoietin receptor contributes to melanoma cell survival in vivo. *Oncogene*, 31(13): 1649-1660, 2011
2. Arora, A., Kisak, E., **Karande, P.**, Newsam, J. and Mitragotri, S. Multicomponent chemical enhancer formulations for transdermal drug delivery: More is not always better, *Journal of Controlled release*, 144(2): 175-180, 2010
3. **Karande, P.** and Mitragotri, S. Transcutaneous Immunization: An overview of Advantages, Disease Targets, Vaccines and Delivery Technologies, *Annual Review of Chemical and Biomolecular Engineering*, 1(1): 175-201, 2010 (**Invited Review**)
4. Nauman, E.B., Patel, K. and **Karande, P.** Design of optimized diffusion-controlled transdermal drug delivery systems, *Drug Development and Industrial Pharmacy*, 37(1): 93-102, 2011
5. Nauman, E.B., Patel, K. and **Karande, P.** On the Design and Optimization of Diffusion-Controlled, Planar Delivery Devices, *Chemical Engineering Science*, 65(2): 923-930, 2010
6. **Karande, P.** and Mitragotri, S. Synergistic mixtures of chemical permeation enhancers for transdermal drug delivery, *Biochimica Biophysica Acta Biomembranes*, 1788(11): 2362-2373, 2009 (**Invited Review**)
7. **Karande, P.**, Arora, A., Pham, T., Stevens, D., Wojicki, A. and Mitragotri, S. Transdermal immunization using common chemicals, *Journal of Controlled Release*, 138(2): 134-140, 2009
8. **Karande, P.**, Jain, A., Arora, A. and Mitragotri, S. Synergistic effects of chemical enhancers on skin permeability: A case study of sodium lauroylsarcosinate and sorbitan monolaurate, *European Journal of Pharmaceutical Sciences*, 31(1): 1-7, 2007
9. **Karande, P.**, Jain, A. and Mitragotri, S. Insights into synergistic interactions in binary mixtures of chemical permeation enhancers for transdermal drug delivery, *Journal of Controlled Release*, 115(1): 85-93, 2006

10. **Karande, P.**, Jain, A. and Mitragotri, S. Relationships between skin's electrical impedance and permeability in the presence of permeation enhancers, *Journal of Controlled Release*, 110(2): 307-313, 2006
11. Newsam, J. M., King-Smith, D., Jain, A., **Karande, P.**, Feygin, I., Burbaum, J., Gowrishankar, T. R., Sergeeva, M. and Mitragotri, S. Screening soft materials for their effect on skin barrier function by high throughput experimentation, *Journal of Materials Chemistry*, 15(30): 3061-3068, 2005 (**Feature Article**)
12. **Karande, P.**, Jain, A., Ergun, K., Kispersky, V. and Mitragotri, S. Design principles of chemical penetration enhancers for transdermal drug delivery, *Proceedings of the National Academy of Sciences of the USA*, 102(13): 4688-4693, 2005
13. **Karande, P.**, Jain, A. and Mitragotri, S. Discovery of transdermal penetration enhancers by high throughput screening, *Nature Biotechnology*, 22(3): 192-197, 2004
14. **Karande, P.** and Mitragotri, S. Dependence of skin permeability on contact area, *Pharmaceutical Research*, 20(2): 254-260, 2003
15. **Karande, P.** and Mitragotri, S. High throughput screening of transdermal enhancer formulations, *Pharmaceutical Research*, 19(5): 655-660, 2002

C. Abstracts, Letters of Correspondence, Book Reviews, etc.

1. Woo, J.A., **Karande, P.** Sidhu, S. and Cramer, S. Quantitative Structure Activity Relationship (QSAR) Models for the Lead Optimization of Antibody and Peptide Affinity Reagents. Abstracts of Papers of the American Chemical Society, San Diego, CA, 2012.
2. Chandra, D. and **Karande, P.** Transferrin mediated drug delivery to brain. IEEE 37th Annual Northeast Bioengineering Conference (NEBEC), Troy, NY, 2011.
3. Dumont, C.M., **Karande, P.** and Thompson, D.M. High-throughput analysis of 3D Schwann cell arrays for use in neural tissue engineering. IEEE 37th Annual Northeast Bioengineering Conference (NEBEC), Troy, NY, 2011.
4. Nesbitt, R.S., Pandit, V.A., **Karande, P.** and Kotha, S. Relationship between deformation and electrical impedance in mouse skin. IEEE 37th Annual Northeast Bioengineering Conference (NEBEC), Troy, NY, 2011.
5. Singh, G. Lee, V. Trasatti, J. Yoo, S.S., Dai, G. and **Karande, P.** Development of an immunocompetent human skin tissue model using three dimensional (3D) freeform fabrication. IEEE 37th Annual Northeast Bioengineering Conference (NEBEC), Troy, NY, 2011.
6. Heldt, C.L., Chandra, D., **Karande, P.** and Belfort, G. Small binding peptides that alter Abeta aggregation. Abstracts of Papers of the American Chemical Society, Boston, MA, 2010.
7. Eldridge, A.N., Dumont, C.M., Singh, G., Alphonse, V.D., **Karande, P.** and Thompson, D. Development of a high throughput screen to create an optimized biomaterial for peripheral nerve injury. Annual Meeting of The Society for Biomaterials, Seattle, WA, 2010.

D. Patents and Patent Applications

1. Combinatorial method for rapid screening of drug delivery formulations, US 20040023841 A1
2. Distributed drug dispensing matrix as a transdermal patch, US 20050181029 A1
3. Penetration enhancer combinations for transdermal drug delivery, US 20070269379 A1
4. Molecules to enhance percutaneous delivery and methods for discovery thereof, US 20090105260 A1
5. Topical Formulation, US 20110028460 A1
6. Peptide chaperones for drug delivery to the brain, US patent pending
7. Digital chip, US patent pending

8. Kidney stone inhibiting peptides, US patent pending
9. Bone proteome profiling, US patent pending

V. RESEARCH GRANTS AND CONTRACTS

A. Proposals Approved and Funded

1. Goldhirsh Foundation (PI) 07/16/10-06/30/11
Project Title: An investigation of claudin-5 binding peptides for enhancing drug delivery across the blood brain barrier
The goal of this project is to develop novel drug delivery systems for targeting neurotherapeutics to the brain for the treatment of malignant diffuse glioma.
2. Alzheimer's Association (PI) 09/01/10-08/31/12
Project Title: Study of tight junction binding peptides for drug delivery across the BBB
The goal of this proposal is to investigate paracellular pathways to enhance drug delivery to the brain.
3. National Science Foundation (Co- PI) 06/01/11-05/31/14
Project Title: Rational and combinatorial design of tissue specific biomaterials
The goal of this proposal is to screen and discover biomaterials for neural engineering.
4. Genzyme (Co- PI) 06/01/12-05/31/13
Project Title: Development of Peptide Affinity Reagents for Purification of Therapeutic Enzymes
The goal of this proposal is to screen and discover peptides as affinity agents for enzyme purification.
5. RPI Seed Funds (PI) 01/01/12-12/31/12
Project Title: A novel therapeutic strategy for targeting breast cancers
The goal of this proposal is to develop new drug delivery techniques for treatment of breast cancer.
6. CERL Army Lab (PI) 05/10/12-09/15/12
Project Title: Engineering peptides to perform biological functions
The goal of this proposal is to develop peptides that mimic protein and enzyme functions.
7. CBIS Funds (PI) 05/10/12-09/15/12
Project Title: Graduate student fellowship
8. National Science Foundation (PI) 08/01/12-07/31/15
Project Title: COLLABORATIVE RESEARCH: Investigating Molecular Thermodynamics and Interfacial Phenomena of Crystal-Peptide Interactions Using Simulations and Experiments.
The goal of this proposal is to design and discover novel drugs for kidney stone disease.

VI. REVIEWS OF MANUSCRIPTS AND RESEARCH PROPOSALS

External Reviewer for Journals

1. Chemical Engineering Science
2. Biomaterials
3. Institute of Electrical and Electronics Engineers Transactions
4. Colloids and Surfaces B
5. Journal of Biomechanical Engineering
6. European Journal of Pharmaceutical Sciences
7. Medicinal Research Reviews
8. Future Medicinal Chemistry
9. Biotechnology and Bioengineering
10. Journal of Medical Devices
11. Biotechnology Progress
12. Nano LIFE
13. Annals of Biomedical Engineering
14. European Journal of Pharmaceutics and Biopharmaceutics
15. American Society of Mechanical Engineers
16. Computers and Chemical Engineering
17. Pharmaceutical Research
18. European Journal of Pharmaceutics and Experimental Therapeutics
19. Industrial & Engineering Chemistry Research
20. Expert Review of Dermatology
21. Journal of Controlled Release
22. Proceedings of the National Academy of Sciences
23. Pharmaceutics
24. Chemosphere
25. Drug Delivery and Translational Research
26. Journal of Pharmacy and Pharmacology
27. Physical Chemistry Chemical Physics
28. Therapeutic Delivery

External Reviewer for Funding Agencies

Alzheimer's Association (2011, 2012)
National Science Foundation (2011)
Helmholtz Institute (2011)

Exhibitions/ Competitions Judged

Graduate Student Award Presentations for Area22b (Bionanotechnology) at the AIChE annual meeting 2008, 2009.
Undergraduate Research Symposium, Rensselaer Polytechnic Institute, 2012

VII. SERVICE

A. Service to University and Department

1. University, School and Departmental Committees and Dates for Each

1. Hank van Ness Award Lecture Selection Committee, 2009-present
2. Academic Advisor, Chemical Engineering Undergraduate Program, 2008-present
3. Undergraduate curriculum committee, Department of Chemical and Biological Engineering, 2008-present
4. Graduate Recruiting Committee, Department of Chemical and Biological Engineering, RPI, 2009-present
5. PhD Thesis committee of Chris Morrison, Steve Evans, Kandarp Patel, Lucas Wafer, Ying Hou, Gaurav Anand, Vivian Lee, Moumita Bhattacharya, Minghao Gu, 2008-present
6. Organizer, Chemical and Biological Engineering Department Seminar Series, 2009-present
7. Teaching Assistant Orientations, 2012
8. Student and Parent Orientations, 2010-2012
9. Rensselaer Medalists visiting weekends, 2010-2011
10. Judge, Undergraduate Research Symposium, 2012

2. Other Service and Administration Activities

1. Web Lab coordinator, Society for Biological Engineering Remote Lab Experiment, 2010
2. Faculty Mentor, Research Interns in Science, Emma Willard High School, 2008-present
3. Faculty Mentor, Science Research in High School, U Albany and Albany High School, 2009-present
4. Faculty Mentor, New Visions in Math, Engineering, Technology and Science Program, RPI, 2008-present
5. Faculty Mentor, Summer Undergraduate Research Program (SURP), 2008-present

3. Undergraduate Student Advising and Counseling

Class of 2011, 65 students

Class of 2016, 75 students

4. Graduate Student Advising and Counseling

1. Divya Chandra 2008-present
2. Gurtej Singh 2008-2012
3. Zachary Hilton 2008-2010
4. John Trasatti, 2010-present
5. Suhas Rao, 2009-present
6. Anna Lorenz, 2010-2012
7. Sriram Ramamoorthy, 2011-present
8. Thao Nguyen, 2012 - present

B. Professional Societies

1. Chair: International Conference on Biomolecular Engineering, Florida (2013)
2. Co-Chair: Biomimetic Materials, AIChE Annual Meeting, Pittsburgh (2012)
3. Co-Chair: Nanotechnology for In Vivo and In Vitro Imaging, AIChE Annual Meeting, Pittsburgh (2012)
4. Chair: Novel Materials and Self-Assembled Systems, BMES Annual Meeting, Hartford (2011)
5. Co-Chair: Stem Cells and Tissue Microenvironment, Northeast Bioengineering Conference, New York (2011)
6. Chair: Advances in Biomaterials Evaluation, AIChE Annual Meeting, Minnesota (2011)
7. Chair: Drug Discovery, AIChE Annual Meeting, Minnesota (2011)
8. Co-Chair: Biomaterials for Drug Delivery, AIChE Annual Meeting, Minnesota (2011)
9. Co-Chair: Nanotechnology for in vitro and in vivo imaging, AIChE Annual Meeting, Minnesota (2011)
7. Chair: Cell - Materials Interactions, AIChE Annual Meeting, Utah (2010)
8. Co-Chair: Nanotechnology for in vitro and in vivo imaging, AIChE, Utah (2010)
9. Co-Chair: Biomaterials for Immunological Applications, AIChE Annual Meeting, Utah (2010)
10. Co-Chair: Multifunctional Materials, AIChE Annual Meeting, Utah (2010)
11. Co-Chair: Design and Engineering of Novel Therapeutic Strategies, ACS, Washington (2009)
12. Co-Chair: Nanotechnology for in vitro and in vivo imaging, AIChE, Nashville (2009)
13. AIChE Bionanotechnology Graduate Student Award Session Judge, 2009
14. Chair: Bionanotechnology, AIChE, Philadelphia, (2008)

C. Community and Public Service

1. Relay for Life, Rensselaer Campus, 2012

VIII. PROFESSIONAL AND PUBLIC LECTURES

Invited Talks

1. "Blood Brain Barrier", Society for Biological Engineering Webinar, August 2012
2. "Novel strategies for breaching the blood brain barrier", RPI Biology, October 2011
3. "Novel approaches to vaccine design and delivery", Wadsworth Center, March 2011
4. "Breaking barriers in CNS delivery", Albany Medical College, May 2011
5. "Use of 3D Free Form Fabrication for Design of Living Tissues", Upstate New York LRIG symposium, October 2010
6. "Novel strategies for breaching the blood brain barrier", Genentech, September 2010
7. "Transdermal drug delivery", National Institute of Technology Tiruchirappalli, August 2010
8. "Chemical enhancers facilitated transdermal drug delivery", Albany College of Pharmacy, February 2009
9. "Tailoring surfactant mixtures for transdermal drug delivery", University of Massachusetts, Dartmouth, August 2008
10. "Tailoring surfactant mixtures for transdermal drug delivery", 35th New England Complex Fluids Meeting, University of Rhode Island, June 2008
11. "Breaking the skin barrier", Invited Seminar at University of Connecticut, March 2005
12. "Breaking the skin barrier", Invited Seminar at University of New Mexico, March 2005

13. "Breaking the skin barrier", Invited Seminar at Northeastern University, March 2005
14. "Breaking the skin barrier", Invited Seminar at Rensselaer Polytechnic Institute, February 2005

Conference Presentations

1. "Role of Transferrin Receptor in Breast Cancers", AIChE Annual Meeting, 2012, Pittsburgh, PA, USA
2. "Targeted Drug Delivery to the Brain Using Transferrin-Binding Peptides", AIChE Annual Meeting, 2012, Pittsburgh, PA, USA
3. "Probing Human Transferrin-Receptor Interactions Using Linear Epitope Mapping", AIChE Annual Meeting, 2012, Pittsburgh, PA, USA
4. "Elucidating Human Transferrin-Receptor Interactions Using Linear Epitope Mapping", AIChE Annual meeting 2011, Minneapolis, MN, USA
5. "Transferrin Mediated Drug Delivery to Brain", AIChE Annual meeting 2011, Minneapolis, MN, USA
6. "Use of 3D Free Form Fabrication for Design of Functional Human Tissues", AIChE Annual meeting 2011, Minneapolis, MN, USA
7. "High Throughput Screening of Tissue Specific Biomaterials", AIChE Annual meeting 2011, Minneapolis, MN, USA
8. "Discovery of Tight Junction Disrupting Peptides for Drug Delivery to the Brain", AIChE Annual meeting 2011, Minneapolis, MN, USA
9. "Rational and Combinatorial Design of Peptide Affinity Ligands for Troponin I", AIChE Annual meeting 2011, Minneapolis, MN, USA
10. "Sensitivity of High-Throughput Arrays to Detect Cellular Metrics in 3D Biomaterials for PNS Repair", BMES Annual Meeting 2011, Hartford, CT, USA
11. "Design of an Immunocompetent Human Skin Model", BMES Annual Meeting 2011, Hartford, CT
12. "Transferrin Mediated Drug Delivery to Brain", BMES Annual Meeting 2011, Hartford, CT, USA
13. "Development of an Immunocompetent Human Skin Tissue Model Using Three Dimensional (3D) Freeform Fabrication", The 38th Annual Meeting & Exposition of the Controlled Release Society, 2011, National Harbor, MD, USA
14. "Transferrin Mediated Drug Delivery to Brain", The 38th Annual Meeting & Exposition of the Controlled Release Society, 2011, National Harbor, MD, USA
15. "Development of an Immunocompetent Human Skin Tissue Model", Northeast Bioengineering Conference, 2011, Troy, NY, USA
16. "Transferrin Mediated Drug Delivery to Brain", Northeast Bioengineering Conference, 2011, Troy, NY
17. "Relationship between Skins Electrical Impedance, Permeability, and Deformation", Northeast Bioengineering Conference, 2011, Troy, NY, USA
18. "Novel biomaterials for neural engineering", Northeast Bioengineering Conference, 2011, Troy, NY
19. "Probing human transferrin-receptor interactions using linear epitope mapping", AIChE Annual meeting 2010, Salt Lake City, UT, USA
20. "Development of a multicompartment immunocompetent skin tissue model using 3D freeform fabrication", AIChE Annual meeting 2010, Salt Lake City, UT, USA
21. "Rational and combinatorial design of peptide affinity ligands for diagnostic assays", AIChE Annual meeting 2010, Salt Lake City, UT, USA
22. "A 3D high throughput screening platform for cancer drug discovery", AIChE Annual meeting 2010, Salt Lake City, UT, USA
23. "Investigation of tight junction disrupting peptides for drug delivery across the blood brain barrier", AIChE Annual meeting 2010, Salt Lake City, UT, USA
24. "Rational and combinatorial design of chemical mixtures for transcutaneous vaccination", AIChE Annual meeting 2010, Salt Lake City, UT, USA
25. "Rational and Combinatorial design of peptide affinity ligands for diagnostic assays", AIChE Annual

meeting 2010, Salt Lake City, UT, USA

26. "A novel high throughput screening platform for design of biomaterials for peripheral nerve injury", Biomedical Engineering Society Annual Meeting, 2010, Austin, TX, USA
27. "Development of a high throughput screen to create an optimized biomaterial for peripheral nerve injury", Annual Meeting of the Society for Biomaterials, 2010, Seattle, WA, USA
28. "Mapping Homo- and hetero-typic interactions between extracellular loop sequences of human claudins". Barriers of the CNS: Blood/brain interface in health and disease. Gordon Conference, 2010, New London, NH, USA
29. "Multiplexed molecular penetration enhancer (mmpe™) systems for increased delivery of diclofenac sodium", Skin and Formulation, 3rd Symposium & Skin Forum, 10th Annual Meeting, 2009, Versailles, France
30. "S100 protein-peptide interactions: Specificity and thermodynamics characterization", Gibbs conferences in Biothermodynamics, 2009, Carbondale, IL, USA
31. "Understanding protein transcytosis to engineer efficient therapeutics", AIChE Annual Meeting 2007, Salt Lake City, UT, USA
32. "Understanding protein transcytosis to engineer efficient biomolecular therapeutics", International Conference on Biomolecular Engineering 2007, Coronado, CA, USA
33. "Vaccination using topical formulations", AIChE Annual meeting 2006, San Francisco, CA, USA
34. "Breaching the skin barrier with chemicals for drug delivery: How to strike a balance between Potency and safety?" AIChE Annual meeting 2005, Cincinnati, OH, USA
35. "Breaching the skin barrier with chemicals for drug delivery: How to strike a balance between Potency and safety?" The 32nd Annual Meeting and Exposition of Controlled Release Society, 2005, Miami, Florida, USA
36. "Breaching the skin barrier with chemicals for drug delivery" in Barrier Function of mammalian skin, Gordon Research Conference, 2005, South Hadley, MA, USA
37. "Understanding and quantifying the effect of permeation enhancers on skin", AIChE Annual meeting 2004, Austin TX, USA
38. "INSIGHT screening of penetration enhancers for transdermal drug delivery", AIChE Annual meeting 2004, Austin TX, USA
39. "High throughput screening of binary enhancer formulations for transdermal delivery of peptide therapeutics", The 31st Annual Meeting and Exposition of Controlled Release Society, 2004, Honolulu, Hawaii, USA
40. "High throughput screening of binary formulations for transdermal drug delivery", The 30th Annual Meeting and Exposition of Controlled Release Society, 2003, Glasgow, Scotland, UK
41. "High throughput discovery of potent and safe enhancer mixtures for transdermal delivery of macromolecules" in Barrier Function of mammalian skin, Gordon Research Conference, 2003, Bristol, RI, USA
42. "High throughput screening of transdermal formulations", UC System wide Biomedical Engineering symposium, 2002, Berkeley, CA, USA
43. "Recent developments in group contribution methods to determine liquid phase non-idealities", 1999, UDCT, Mumbai, India

IX. HONORS AND AWARDS

- 2012 Excellence in Classroom Instruction, School of Engineering, Rensselaer Polytechnic Institute
- 2012 Outstanding Teacher Award, Chemical & Biological Engineering, Rensselaer Polytechnic Institute
- 2010 Alzheimer's Association New Investigator Research Grant
- 2010 Goldhirsh Brain Tumor Research Award
- 2009 Edison Award (Bronze, Best New Product in Science & Medical Category)
- 2006 Anna Fuller Postdoctoral Fellowship in Molecular Oncology
- 2005 Fiona Goodchild Award for excellence in undergraduate mentoring
- 2005 Outstanding Pharmaceutical Paper Award by Controlled Release Society
- 2005 Author of Top 20 most frequently read engineering papers in *PNAS*
- 1998 Best article in Bombay Technologist
- 1996 Talented Students Scholarship, India
- 1996 The Arvind Mafatlal scholarship for undergraduate studies, India