

CURRICULUM VITAE

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CONTACT INFORMATION

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EDUCATION AND TRAINING

September, 1984 - June, 1988: Undergraduate Student in the College of Pharmacy and Allied Health Professions, Northeastern University, Boston, MA.

September, 1986 - May, 1988: Undergraduate Honors Student Research Project Entitled "*Preparation and Characterization of Doxorubicin-Dextran Conjugates*" – Major Advisor: Professor Mehdi Boroujerdi.

June, 1988: Bachelor of Science in Pharmacy (*magna cum laude*).

August, 1988 - July, 1992: Doctoral Student in the Department of Industrial and Physical Pharmacy, School of Pharmacy and Pharmacal Sciences, Purdue University, West Lafayette, Indiana.

August, 1988 - June, 1989: Teaching Assistant in the Department of Industrial and Physical Pharmacy.

July, 1989 - June, 1992: Research Assistant in the Department of Industrial and Physical Pharmacy.

July, 1989 - June, 1992: Doctoral Dissertation Research Entitled "*Surface Modification of Biomaterials with Water-Soluble Polymers: A Steric Repulsion Approach*" - Major Advisor: Professor Kinam Park.

July, 1992: Doctor of Philosophy in Pharmaceutical Science/Pharmaceutics.

PROFESSIONAL AND ACADEMIC POSITIONS

August, 1992 – December, 1992: Senior Research Scientist, Columbia Research Laboratories, Madison, WI.

January, 1993 – June, 1999: Assistant Professor, Department of Pharmaceutical Sciences, School of Pharmacy, Northeastern University, Boston, MA.

July, 1999 – April, 2006: Associate Professor (with tenure), Department of Pharmaceutical Sciences, School of Pharmacy, Northeastern University, Boston, MA.

June, 2000 – December, 2000: Visiting Research Scholar. Department of Chemical Engineering, MA Institute of Technology, Cambridge, MA. (Sabbatical leave appointment in Institute Professor Robert Langer's group).

May, 2006 – January, 2010: Full Professor, Department of Pharmaceutical Sciences, School of Pharmacy, Northeastern University, Boston, MA.

February, 2010 – April, 2016: Present: Bouve College Distinguished Professor, Department of Pharmaceutical Sciences, School of Pharmacy, Northeastern University, Boston, MA.

September, 2012 – Present: Affiliate Faculty Member, Department of Chemical Engineering, College of Engineering, Northeastern University, Boston, MA.

September, 2013 – Present: Affiliate Faculty Member, Department of Biomedical Engineering, College of Engineering, Northeastern University, Boston, MA.

January, 2014 – Present: Distinguished Adjunct Professor, Faculty of Pharmacy, King Abdulaziz University, Jeddah, Saudi Arabia.

April, 2016 – Present: University Distinguished Professor, Department of Pharmaceutical Sciences, School of Pharmacy, Northeastern University, Boston, MA.

ADMINISTRATIVE POSITIONS

July, 1995 – June 2000: Pharmaceuticals Group Leader, Department of Pharmaceutical Sciences, School of Pharmacy at Northeastern University, Boston, MA.

September, 2002 – June, 2004: Education and Outreach Coordinator, Molecular Biotechnology Initiative at Northeastern University, Boston, MA.

July 2003 – Present: Co-Director, Nanomedicine Education and Research Consortium (NERC) at Northeastern University, Boston, MA.

July, 2005 – December, 2008: Associate Chairman, Department of Pharmaceutical Sciences, School of Pharmacy at Northeastern University, Boston, MA.

January, 2009 – January, 2010: Interim Chairman, Department of Pharmaceutical Sciences, School of Pharmacy at Northeastern University, Boston, MA.

February, 2010 – April, 2016: Chairman, Department of Pharmaceutical Sciences, School of Pharmacy, Northeastern University, Boston, MA.

RESEARCH INTERESTS

The primary focus of research in my laboratory is on the development of biocompatible materials from natural and synthetic polymers, target-specific drug and gene delivery systems for cancer and infectious diseases, and nanotechnology applications for medical diagnosis, imaging, and therapy. Specific projects that we are currently pursuing include:

- Synthesis of novel polymeric materials for medical and pharmaceutical applications.
- Preparation and characterization of polymeric membranes and microcapsules with controlled permeability properties for medical and pharmaceutical applications.
- Target-specific drug, gene, and vaccine delivery systems for diseases of the gastro-intestinal tract.
- Delivery of DNA and siRNA to mucosal surfaces for gene therapy and vaccination.
- Localized delivery of cytotoxic and anti-angiogenic drugs, siRNA, and genes for solid tumors in novel biodegradable polymeric nanoparticles.
- Intracellular and sub-cellular delivery systems for drugs and genes using target-specific, long-circulating, biodegradable polymeric nanoparticles.
- Role of hypoxia and tumor microenvironment in development of tumor drug resistance, angiogenesis, and metastasis.
- Local administration of drugs and nucleic acid-containing nanovectors immobilized on stents for the treatment of arterial diseases (e.g., coronary restenosis).
- Novel oil-in-water nanoemulsion formulations for drug delivery through the gastrointestinal tract and across the blood-brain barrier.
- Systemic and mucosal vaccination using novel immune-modulatory strategies and delivery systems.
- Intranasal administration of liposomes and nanoemulsions to enhance brain delivery of peptides, proteins, siRNA, and genes.
- Functionalized inorganic nanoparticles - including gold, iron oxide, alloys, and core-shell nanostructures - for biosensing, imaging, and targeted therapeutic applications.

PUBLICATIONS [Google Scholar Hirsch “h” index = 65 and Thompson-Reuters Highly Cited (top 1%) in Pharmacology and Toxicology]

Book Editorship

Amiji, M.M. and Sandmann, B.J. (eds.). *Applied Physical Pharmacy*. Published by McGraw-Hill Medical Publishing Division. New York, NY. 2002.

Amiji, M.M. (ed.) *Polymeric Gene Delivery: Principles and Applications*. Published by CRC Press, LLC (a subsidiary of Taylor and Francis). Boca Raton, FL. 2004.

Amiji, M.M. (ed.). *Nanotechnology for Cancer Therapy*. Published by CRC Press, LLC (a subsidiary of Taylor and Francis). Boca Raton, FL. 2007.

Torchilin, V.P. and **Amiji, M.M.** (eds.). *Handbook of Materials for Nanomedicine*. Publication of the *Biomedical Nanotechnology Series*, (10 Volumes Book Series edited by Torchilin, V.P. and **Amiji, M.M.**). Volume 1, Pan Published by Stanford Publishing, Singapore, 2010.

Amiji, M.M., Cook, T., and Mobley, W.C. (eds.). *Applied Physical Pharmacy – Second Edition*. Published by McGraw-Hill Medical Publishing Division. New York, NY, 2014.

Merkel, O.M. and **Amiji, M.M.** (eds). *Advances and Challenges in the Delivery of Nucleic Acid Therapeutics – Volumes 1 and 2*. E-Book Published by Future Science, LTD, London, UK. 2015. <http://www.futuremedicine.com/doi/book/10.4155/9781910419922>.

Milane, L. and **Amiji, M.M.** (eds). *Nanotechnology in Inflammatory Diseases*. To be Published by CRC Press, LLC (a subsidiary of Taylor and Francis). Boca Raton, FL. (In preparation).

Book Chapters

Amiji, M. and Park, K. Surface modification of polymeric biomaterials with poly(ethylene oxide): a steric repulsion approach. In Shalaby, S.W., Ikada, Y., Langer, R., and Williams, J. (eds.) *Polymers of Biological and Biomedical Significance*. American Chemical Society Symposium Series Publication, Volume 540. Published by the American Chemical Society, Washington, DC. 1994, pp 135-146.

Amiji, M. and Park, K. Surface modification of polymeric biomaterials with poly(ethylene oxide), albumin, and heparin for reduced thrombogenicity. In Cooper, S.L., Bamford, C.H., and Tsuruta, T. (eds.) *Polymer Biomaterials: In Solution, as Interfaces, and as Solids*. Published by VSP, The Netherlands. 1995, pp 535-552.

Amiji, M., Kamath, K., and Park, K. Albumin-modified biomaterial surfaces for reduced thrombogenicity. In Wise, D.L., Altobelli, D.E., Grasser, J.D., Shwartz, E.R., Trantolo, D.J., and Yaszemski, M. (eds.) *Encyclopedic Handbook of Biomaterials and Bioengineering - Part B Applications. Volume II*. Published by Marcel Dekker, Inc., New York, NY. 1995, pp 1057-1070.

Amiji, M.M. Surface modification of chitosan to improve blood compatibility. In Pandalai, S.G. (eds.). *Recent Research Developments in Polymer Science, Volume III*. Published by Transworld Research Network, Trivandrum, India. 1999, pp 31-39.

Hejazi, R. and **Amiji, M.** Chitosan-based delivery systems: physicochemical properties and pharmaceutical applications. In Dumitriu, S. (eds.). *Polymeric Biomaterials. Second Edition, Revised and Expanded*. Published by Marcel Dekker, Inc., New York, NY. 2001, Chapter 10, pp 213-238.

Kaul, G. and **Amiji, M.** Polymeric gene delivery systems. In Wise, D.L., Hasirci, V., Lewandowski, K.-U., Yaszemski, M.J., Altobelli, D.W., and Trantolo, D.J. (eds.). *Tissue Engineering and Novel Delivery Systems*. Published by Marcel Dekker, Inc., New York, NY. 2004, Chapter 16, pp 333-367.

Kommareddy, S. and **Amiji, M.** Targeted drug delivery to tumor cells using colloidal carriers. In Lu, D.R. and Oie, S. (eds.). *Cellular Drug Delivery: Principles and Practice*. Published by Humana Press, Inc., Totowa, NJ. 2004, Chapter 10, pp 181-215.

Kaul, G. and **Amiji, M.M.** Protein nanospheres for gene delivery. In Amiji, M.M. (ed.) *Polymeric Gene Delivery: Principles and Applications*. Published by CRC Press, LLC. Boca Raton, FL. 2004, Chapter 27, pp. 429-447.

Kommareddy, S., Shenoy, D.B., and **Amiji, M.M.** Gelatin nanoparticles and their biofunctionalization. In Kumar, C. (ed.). *Nanotechnologies for the Life Sciences, Volume 2: Biological and Pharmaceutical Nanomaterials*. Published by Wiley-VCH, Berlin, Germany. 2005, Chapter 11, pp. 330-353.

Bhavsar, M.D., Shenoy, D.B., and **Amiji, M.M.** Nanoparticles for delivery in the gastrointestinal tract. In Torchilin, V.P. (ed.). *Nanoparticulates as Drug Carriers*. Published by Imperial College Press, London, United Kingdom, 2006, Chapter 26. pp 609-648.

- Shenoy, D.B. and **Amiji, M.M.** An overview of condensing and non-condensing polymeric systems for gene delivery. In Friedmann, T. and Rossi, J (eds.). *Gene Transfer: Delivery and Expression of DNA and RNA – A Laboratory Manual*. Published by Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY. 2007, Chapter 34, pp 395-403.
- Kommareddy, S. and **Amiji, M.M.** Protein nanospheres for gene delivery: preparation and *in vitro* transfection studies with gelatin nanoparticles. In Friedmann, T. and Rossi, J. (ed.). *Gene Transfer: Delivery and Expression of DNA and RNA – A Laboratory Manual*. Published by Cold Spring Harbor Laboratory Press, Cold Spring Harbor, NY. 2007, Chapter 52, pp 527-540.
- Kommareddy, S., Shenoy, D.B., and **Amiji, M.M.** Long-circulating polymeric nanocarriers for drug and gene delivery in cancer. In Amiji, M.M. (ed.). *Nanotechnology for Cancer Therapy*. Published by CRC Press, Boca Raton, FL. 2007, Chapter 13, pp 231-242.
- Tiwari, S.B. and **Amiji, M.M.** Nanoemulsions for tumor targeted drug delivery. In Amiji, M.M. (ed.). *Nanotechnology for Cancer Therapy*. Published by CRC Press, Boca Raton, FL. 2007, Chapter 35, pp 723-739.
- Iftemia, N., **Amiji, M.M.**, and Iftemia, I. Nanotechnology applications in cancer diagnosis and therapy. In Yih, T.C. and Talpasanu, I. (ed.). *Micro and Nano Manipulations for Biomedical Applications*. Published by Springer Publishing, New York, NY, 2008, Chapter 2, pp 13-41.
- Magadala, P., van Vlerken, L.E. Shahiwala, A., and **Amiji, M.M.** Multifunctional polymeric nanosystems for tumor-targeted delivery. In Torchilin, V.P. (ed.). *Multifunctional Pharmaceutical Nanocarriers*. Published by Springer Publishing, New York, NY 2008, Chapter 2, pp 33-64.
- Nagesha, D., Devalapally H.K., Sridhar, S., and **Amiji, M.** Multifunctional magnetic nanosystems for tumor imaging, targeted delivery, and thermal therapy. In Torchilin, V.P. (ed.). *Multifunctional Pharmaceutical Nanocarriers*. Published by Springer Publishing, New York, NY 2008, Chapter 14, pp 381-408.
- Bhavsar, M.B., Jain, S., and **Amiji, M.M.** Nanotechnology in oral drug delivery. In Xu, J. J. and Ekins, S. (eds.). *Drug Efficacy, Safety, and Biologics Discovery: Emerging Technologies and Tools*. Published by Wiley Publishing, New York, NY 2009, Chapter 10, pp. 231-275.
- Brito, L., Chadwick, S., and **Amiji, M.M.** Gelatin-based gene delivery systems. In Morishita, M. and Park, K. (eds.). *Biodrug Delivery Systems: Fundamentals, Applications, and Clinical Developments*. Published by Informa Healthcare Group, New York, NY 2009, Chapter 20, pp 323-341.
- Ganta, S., Iyer, A.K., and **Amiji, M.M.** Multifunctional stimuli-responsive nanoparticles for delivery of small and macromolecular therapeutics. In Mahato, R.I. and Narang, A.S. (eds.). *Targeted Delivery of Small and Macromolecular Drugs*. Published by CRC Press, Inc., Boca Raton, FL, 2010 Chapter 20, pp 555-586.
- Iyer, A.K., Ganta, S., and **Amiji, M.M.** Polymeric nanoparticles as target-specific delivery systems. In Torchilin, V.P. and **Amiji, M.M.** (eds.). *Handbook of Materials for Nanomedicine: Volume 1*. Published by Pan Stanford Publishing, Singapore, 2010, Chapter 2, pp 81-130.
- Matthäus, C., Chernenko, T., Miljković, M., Quintero, L., Miljkovic, M., Milane, L., Kale, A., **Amiji, M.**, Torchilin, V., and Diem, M. Raman microspectral imaging of cells and intracellular drug delivery using nanocarrier systems. In Dieing, T., and Hollricher, O., and Toporski, J. (eds.). *Confocal Raman Microscopy*, Springer Series in Optical Science. Volume 158. Published by Springer Verlag, Heidelberg, Germany. 2010. pp. 137-163.

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