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Division of Pharmaceutics (Joint Appointment)
Department of Chemical and Biochemical Engineering (Joint Appointment)
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EDUCATION

May 2004 Ph.D. Chemical and Biomolecular Engineering, Johns Hopkins University
May 1998 B.S. Chemical Engineering, University of Massachusetts at Amherst

PROFESSIONAL EXPERIENCE

2006-present Assistant Professor
Division of Pharmaceutics, College of Pharmacy, University of Iowa
2006-present Assistant Professor
Department of Chemical and Biochemical Engineering, College of Engineering,
University of Iowa
2004-2006 Postdoctoral Fellow
Division of Engineering and Applied Sciences, Harvard University
1998-2003 NSF Graduate Student Fellow
Chemical and Biomolecular Engineering Department, Johns Hopkins University

HONORS AND AWARDS

2003 Best Paper Award, Aerosole in der Inhalationstherapie VIII, Marburg, Germany.
(English Translation: "Aerosols in Inhalation Therapy").
1999-2002 National Science Foundation Fellowship for Graduate Research
1997 Elected to Tau Beta Pi, Full Member

PUBLICATIONS

Published or accepted:

1. W. Watanabe, M. Thomas, R. Clarke, A. Klibanov, R. Langer, G. Fuller, J. Fiegel, D. Edwards. Why inhaling salt water changes what we exhale. *J. Colloid Interface Sci.* 2007; 307(1): 71-78.
2. J. Fiegel, R. Clarke, D. Edwards. Airborne infectious disease and the suppression of exhaled aerosols [review]. *Drug Discovery Today.* 2006; 11(1-2):51-57.
3. D.A. Edwards, J. Fiegel, W. DeHaan, M. Brande, J. Man, R. Clarke. Novel inhalants for control and protection against airborne infections [review]. *Respiratory Drug Delivery* 2006; 1: 41-48.
4. J. Fiegel, F. Jin, J. Hanes, K. Stebe. Wetting of a particle in a thin film. *J. Colloid Interface Sci.* 2005; 291(2):507-514.
5. J. Fiegel, J. Fu, J. Hanes. Poly(ether-anhydride) microparticle aerosolization improved by controlling particle surface properties. *J. Control. Release.* 2004; 96(3):411-423.
6. J. Fu, J. Fiegel, J. Hanes. Synthesis and characterization of PEG-based ether-anhydride terpolymers: Novel polymers for pulmonary drug delivery. *Macromolecules*; 2004. 37(19): 7174-7180.
7. J. Fiegel, C. Ehrhardt, U.F. Schaefer, C.-M. Lehr, J. Hanes. Large porous particle impingement on lung epithelial cell monolayers: Toward improved particle characterization in the lung. *Pharm. Res.* 2003; 20(5):788-796.
8. J. Fu, J. Fiegel, E. Krauland, J. Hanes. New polymer carriers for pulmonary drug delivery. *Biomaterials* 2002; 23(22):4425-4433.
9. C. Ehrhardt, J. Fiegel, S. Fuchs, R. Abu-Dahab, U.F. Schaefer, J. Hanes, C.-M. Lehr. Drug absorption by the respiratory mucosa – Cell culture models and particulate drug carriers. *J. Aerosol Med.* 2002; 15(2):131-139.

Jennifer Fiegel Curriculum Vitae

10. C. Ehrhardt, C. Kneuer, J. Fiegel, J. Hanes, U.F. Schaefer, K.-J. Kim, C.-M. Lehr. Influence of apical fluid volume on the development of functional cellular junctions in the human bronchial epithelial cell line 16HBE14o-: implications for the use as an in vitro model for drug absorption. *Cell & Tissue Research* 2002; 308:391-400.

Papers submitted or to be submitted

1. L. Garcia-Contreras, J. Fiegel, J. Sung, K. Elbert, M. Thomas, J. Verberkmoes, A. Germishuizen, E. Nardell, B. Fourie, A. Hawi, A. Hickey, D. Edwards. Treating tuberculosis by inhalation of antibiotics. *Antimicrob. Agents Chemother.* Submitted.
2. J. Fiegel, L. Garcia-Contreras, M. Thomas, J. Verberkmoes, A. Hickey D. Edwards. Targeted delivery of capreomycin to the lungs for MDR-TB treatment. *Pharm. Res.* Submitted.
3. J. Fiegel, J. Hanes. Biomaterials for drug delivery by inhalation. *J. Mat. Chem.* In preparation.

Book chapters:

1. J. Hanes, M. Dawson, Y. Har-el, J. Suh, and J. Fiegel. Gene Therapy in the Lung. *In: A. J. Hickey (ed.) Pharmaceutical Inhalation Aerosol Technology*, 2nd edition. Vol. 134. New York: Marcel Dekker Inc. 2003.

PUBLISHED ABSTRACTS AND PROCEEDINGS

1. J. Fiegel, L. Garcia-Contreras, K. Elbert, A. Hickey, D. Edwards. Dry powder aerosols for multi-drug resistant tuberculosis (MDR-TB) treatment. *Proceedings of the American Institute of Chemical Engineers*, Cincinnati, OH, 2005.
2. J. Sung, L. Garcia-Contreras, Y. Liu, J. Fiegel, J. Verberkmoes, K. Elbert, A. Hawi, R. Prud'homme, A. Hickey, D. Edwards. Formulation and in vivo results for a porous nanoscale drug delivery platform for tuberculosis. *36th UNION World Conference on Lung Health*, Paris, France, 2005.
3. J. Fiegel, W. Watanabe, G. Fuller, D. Edwards. Controlling the production of exhaled bioaerosols. *Proceedings of the American Institute of Chemical Engineers*, Cincinnati, OH, 2005.
4. J. Fiegel, J. Sung, D.A. Edwards. Aggregate nanoparticle formulations for TB treatment. *35th UNION World Conference on Lung Health*, Paris, France, 2004.
5. J. Fiegel, J. Hanes, K. Stebe. Modeling insoluble aerosol particle submersion in lung fluids: Line tension effects. *Proceedings of the American Institute of Chemical Engineers*, Austin, TX, 2004.
6. J. Fiegel, J. Fu, J. Hanes. Controlled release poly(ether-anhydride) large porous particles for pulmonary delivery. *J. Aerosol Med* 2003; 16: 212.
7. J. Fiegel, K. Stebe, J. Hanes. Modeling insoluble aerosol particle submersion in lung fluids. *Proceedings of the American Institute of Chemical Engineers*, San Francisco, CA, 2003.
8. J. Fiegel, J. Hanes. Effect of surface properties on aerosolization of PEGylated poly(ether-anhydride) microspheres. *Proceedings of the International Symposium on Controlled Release of Bioactive Materials* 2003; 30: 719-720.
9. C. Ehrhardt, J. Fiegel, U.F. Schaefer, J. Hanes, C.M. Lehr. Calu-3 bronchial epithelial cell monolayers to study drug release and absorption from aerosol particles in vitro. *Proceedings of the 4th World Meeting ADRITELF/APGI/APV* (Italian, French and German Societies for Pharmaceutical Technology) 2002; 1009-1010.
10. J. Fiegel, J. Fu, J. Hanes. New poly(ether-anhydride) aerosols: Control of particulate physical and chemical properties for improved aerosolization and deposition behavior. *Proceedings of the American Institute of Chemical Engineers*, Indianapolis, IN, 2002.
11. J. Fu, J. Fiegel, J. Hanes. Synthesis and drug release from PEG-containing poly(ether-anhydride) aerosols: New materials for pulmonary drug delivery. *Proceedings of the American Institute of Chemical Engineers*, Indianapolis, IN, 2002.

Jennifer Fiegel Curriculum Vitae

12. J. Fu, J. Fiegel, J. Hanes. Large, light polyether-anhydride microspheres: A new carrier for pulmonary drug delivery. *Proceedings of the International Symposium on Controlled Release of Bioactive Materials* 2001; 28: 393-394.
13. J. Fiegel, C. Ehrhardt, C.M. Lehr, J. Hanes. An in vitro method to characterize therapeutic aerosol particulates using lung epithelial cell monolayers. *Proceedings of the American Institute of Chemical Engineers*, Reno, NV, 2001.
14. J. Hanes, J. Fiegel, J Fu. New polymers for controlled pulmonary drug delivery. *Annals of Biomedical Engineering* 2001; 29: S-138.
15. J. Fiegel, C. Ehrhardt, C.M. Lehr, J. Hanes. Air-interfaced lung epithelial cell monolayers for characterization of large light polymer aerosols. *Annals of Biomedical Engineering* 2001; 29: S-141.

PATENTS

1. J. Hanes, J. Fiegel, and J. Fu. Biodegradable polymer compositions: Compositions and uses related thereto. (worldwide PCT pending; key claims allowed)
2. J. Fiegel, J. Sung, D. Edwards. Porous Nanoparticles for Pulmonary Drug Delivery. (Provisional filed)

RESEARCH SUPERVISION – STUDENTS, FELLOWS, AND RESEARCH ASSISTANTS

Graduate Students

1. Rania Hamed (2006 – present), Ph.D. candidate in Pharmaceutics
Research area: Lung-derived bioaerosols: mechanism of formation and methods to suppress
2. Emily Thomas (2006 – present), Ph.D. candidate in Chemical and Biochemical Engineering
Research area: Nanoparticle co-delivery systems for treatment of opportunistic respiratory infections

Research Assistants

3. Buffy Ann Stohs (2007-present), Research Assistant I

PROFESSIONAL SOCIETY MEMBERSHIPS

International Society for Aerosols in Medicine
American Institute of Chemical Engineers
Society for Biological Engineering
American Association of Pharmaceutical Scientists
Controlled Release Society
Society of Women Engineers
Tau Beta Pi (Engineering Honors Society)