

## **Josh Ramsey, Ph.D.**

Assistant Professor of Chemical Engineering  
School of Chemical Engineering  
College of Engineering and Architecture  
Oklahoma State University

### **Contact Information:**

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### **Education:**

1996-1998: Undergraduate Research Assistant, Chemical Engineering, OSU

2000-2006: Graduate Research Assistant, Chemical and Biomolecular Engineering, UIUC

2006-2007: Postdoctoral Fellow, Pharmaceutical Chemistry, KU

2000: B.S., Chemical Engineering, Oklahoma State University, OK

2003: M.S., Chemical Engineering, University of Illinois, IL

2006: Ph.D., Chemical and Biomolecular Engineering, University of Illinois, IL

2007: Post-Doc., Pharmaceutical Chem, University of Kansas, KS

### **Academic Appointments:**

1996-1998: Undergraduate Research Assistant, Chemical Engineering, OSU

2000-2006: Graduate Research Assistant, Chemical and Biomolecular Engineering, UIUC

2006-2007: Postdoctoral Fellow, Pharmaceutical Chemistry, KU

2008-present: Assistant Professor, School of Chemical Engineering, OSU

### **Awards and Honors**

2013: Oklahoma State University President's Cup Award (3rd Place), OK

2005: Graduate College Conference Travel Award

2006-2007: PhRMA Foundation Postdoctoral Research Fellowship

2007: Journal of Pharmaceutical Chemistry 2007 Top Reviewer

2009/2010/2011: Outstanding Faculty Graduate-Course Teaching Award

2013: Oklahoma State University President's Cup Award (3rd Place), OK

### **Other Professional Experiences and Memberships:**

Licensed Professional Engineer, Oklahoma

American Institute of Chemical Engineers

Ad hoc reviewer for Advanced Drug Delivery Reviews, Biomacromolecules, Controlled Release Society, Drug Discoveries and Therapeutics, Journal of Pharmaceutical Sciences, Langmuir, Molecular Pharmaceutics, Molecular Therapy, Molecular Therapy Nucleic Acids, UNL Natural Resources Strategic Investments, Canada Foundation for Innovation, and the Prostate Cancer Foundation of Australia.

### **Research Support:**

Current:

Past:

- 2006-2007: Pharmaceutical Research and Manufacturers of America (PhRMA) Foundation, "Using Protein Dynamics to Predict Stability and Formulate Therapeutic Protein Macromolecules", Role: Postdoctoral Fellow, Awarded: \$80,000
- 2008-2011: Oklahoma Center for the Advancement of Science and Technology, "Design and Development of Hybrid Gene Delivery Vectors", Role: PI, Awarded: \$134,000
- 2009-2013: American Heart Association, Scientist Development Grant, "Cell-Penetrating Peptide/Adenovirus Nanoparticles for Improved Gene Delivery to Vascular Tissue", Role: PI, Awarded: \$308,000
- 2009-2013: Oklahoma Transportation Center, "Characterization and Mediation of Microbial Deterioration of Concrete Infrastructure", Role: PI, Awarded: \$600,000
- 2010: Oklahoma State University, Facility Renovation Program, "Development of Bio-based Technologies Laboratory.", Role: Co-PI, Awarded: \$120,000
- 2011-2012: Oklahoma State University, "Interdisciplinary Biomedical Research Initiative – a Joint Program between OSU-Center for Health Sciences, OSU-Stillwater, and OSU-Tulsa.", Role: Co-PI, Awarded: \$20,926
- 2012-2012: Oklahoma State University, Interdisciplinary Seed Funding, "Liposomal Encapsulated Adenovirus.", Role: PI, Awarded: \$4,000
- 2013-2017: Department of Defense, Defense Threat Reduction Agency, "Nanocarrier-Mediated Targeting of Bioscavengers to the Red Blood Cell for Prolonged Circulation & Protection", Role: Co-PI, Awarded: \$3,300,000
- 2013-2014: OSU Interdisciplinary Toxicology Program, "Development of RBC Targeted rBChE Encapsulated Nanoparticles for Long-term Circulation and Bioavailability.", Role: Co-PI, Awarded: \$18,500
- 2013-2014: OSU CVHS RED Account Competition, "Development of RBC-targeted Nanodevice for Longterm Protection against Organophosphates.", Role: Co-PI, Awarded: \$34,000

### **Selected Publications:**

1. N. Flynn and J.D. Ramsey<sup>‡</sup>. Virus-Like Particles in Gene, Vaccine, and Therapeutic Delivery. In Nanoparticles for Delivery of Biotherapeutics. London, UK: Future Science Ltd. Manuscript in press.
2. J.D. Ramsey<sup>‡</sup> and M.L. Forrest (Eds.). (in press, 2013). Nanoparticles for Delivery of Biotherapeutics. London, UK: Future Science Ltd. In press.
3. S.P. Choudhari, K. Pendleton, J.D. Ramsey, T. Blanchard and W.D. Picking<sup>‡</sup>, "A Systematic Approach Toward Stabilization of CagL, a Protein Antigen from Helicobacter pylori that is a Candidate Subunit Vaccine." Journal of Pharmaceutical Sciences, in press, 2013.
4. N.A. Alhakamy, A.S. Nigatu, C.J. Berkland and J.D. Ramsey<sup>‡</sup>, "Gene Delivery Applications of Noncovalently Associated Cell-Penetrating Peptides." Therapeutic Delivery, 4 (6), 741 – 575, 2013.
5. Whitebay, B. Neely, K.G. Gasem and J.D. Ramsey<sup>‡</sup>, "In Silico Prediction of Mechanism of Action for Cancer Therapeutics." Molecular Informatics, in press 2013.
6. Nigatu, S. Vupputuri, N. Flynn, B.J. Neely and J.D. Ramsey<sup>‡</sup>, "Evaluation of Cell Penetrating Peptide-Adenovirus particles for Transduction of CAR-Negative Cells." Journal of Pharmaceutical Sciences, 102 (6), 1981-1993, 2013.
7. S. Vupputuri, S. Karode, B.J. Neely and J.D. Ramsey<sup>‡</sup>, "Protein Impurities from Cell Culture Dramatically Impact Transduction Efficiency of Polymer/Virus Hybrid Vectors." Journal of Virological Methods, 92 (2013), pp. 1-11, 2013.
8. K. Singarapu, I. Pal, and J.D. Ramsey<sup>‡</sup>, "Modified Polyethylenimine Used to Enhance Adenovirus Gene Delivery." Journal of Biomedical Materials Research: Part A, 101A, 1857– 1864, 2012.

9. Pal and J.D. Ramsey<sup>‡</sup>, "The Role of the Lymphatic System in Vaccine Trafficking and Immune Response." *Advanced Drug Delivery Reviews*, 63 (10-11), 909-922, 2011.
10. Y. Zeng\*, J.D. Ramsey\*, R. King, M. Leviten, R. McGuire, D. Volkin, S.B. Joshi, and C.R. Middaugh, "Identifying Stabilizers for Plasmid DNA for Pharmaceutical Use." *Journal of Pharmaceutical Sciences*, 100 (3), 904-914, 2011.  
\*Authors share equal first authorship.
11. J.D. Ramsey, H.N. Vu and D.W. Pack, "Top-Down Approach for Construction of Hybrid Polymer-Virus Gene Delivery Vectors." *Journal of Controlled Release*, 1 (144), 39-45, 2010. \*Featured as the cover story.
12. J.D. Ramsey, M.L. Gill, T.J. Kamerzell, E.S. Price, S.B. Joshi, S.M. Bishop, C.N. Oliver and C.R. Middaugh, "Using Empirical Phase Diagrams to Understand the Role of Intramolecular Dynamics in Immunoglobulin G Stability." *Journal of Pharmaceutical Sciences*, 98 (7), 2432-2447, 2009.
13. T.J. Kamerzell, J.D. Ramsey and C.R. Middaugh, "Immunoglobulin Dynamics, Conformational Fluctuations, Non-linear Elasticity and Their Effects on Stability." *Journal of Physical Chemistry B* 112, 3240-3250, 2008.
14. C. R. Middaugh and J.D. Ramsey, "Analysis of Cationic-Lipid-Plasmid-DNA Complexes. *Analytical Chemistry* 79, 7240-7248, 2007. \*Featured as the cover story.
15. H.N. Vu, J.D. Ramsey and D.W. Pack, "Engineering of a Stable Retroviral Gene Delivery Vector by Directed Evolution." *Molecular Therapy* 16, 308-314, 2007.
16. N.H. Flynn, A. Ranjan and J.D. Ramsey, "Intracellular Delivery of Glucose Oxidase for Enhanced Cytotoxicity Toward PSMA-Expressing Prostate Cancer Cells." *Macromolecular Biosciences*, In Press, 2019.
17. A. Erfani, N.H. Flynn, J.D. Ramsey, and C. Aichele, "Increasing protein stability by association with zwitterionic amphiphile cocamidopropyl betaine" *Molecular Liquids*, In Press, 2019.
18. M. Amer, Y. Feng, and J.D. Ramsey, "Using CFD simulations and statistical analysis to correlate oxygen mass transfer coefficient to both geometrical parameters and operating conditions in a stirred-tank bioreactor." *Biotechnology Progress*, 2785-2799, 2019.
19. M. Amer and J.D. Ramsey, "Multi-Chamber Single-Use Bioreactor – A Proof of Concept Prototype." *Biochemical Engineering Journal*, 130 (2018), 113-120, 2018.
20. K. Sahoo, S. Karumuri, R. Hikkaduwa Koralege, N.H. Flynn, S. Hartson, J. Liu, J.D. Ramsey, K. Kalkan, C. Pope, A. Ranjan, "Molecular and biocompatibility characterization of red blood cell membrane targeted and cell penetrating peptide-modified polymeric nanoparticles." *Molecular Pharmaceutics*, 14 (7), 2224-2235, 2017.
21. K. Poindexter, J. Liu, N.H. Flynn, L. Sultatos, L. Geng, S. Brimijoin, J.D. Ramsey, S. Hartson, A. Ranjan, and C. Pope, "Polyionic Complexes of Butyrylcholinesterase and Poly-L-lysine-g-poly(ethylene glycol): Comparative Kinetics of Catalysis and Inhibition and in vitro Inactivation by Proteases and Heat." *Chemico-Biological Interactions* 275 (2017), 86-94, 2017.
22. G. Kupgan, S.P. Choudhari, N.H. Flynn, A.N. Nigatu, S. Vupputuri, W.D. Picking, W.L. Picking, and J.D. Ramsey, "Identification of Excipients for Stabilizing Fiberless Adenovirus as Biopharmaceuticals." *Journal of Pharmaceutical Sciences*, 106 (7), 1764 – 1771, 2017.
23. M. Rasoulianboroujeni, G. Kupgan, F. Moghadam, M. Tahriri, A. Boughdachi, P. Khoshkenar, J.J. Ambrose, N. Kiaie, D. Vashaei, J.D. Ramsey, and L. Tayebi, "Development of a DNA-Liposome Complex for Gene Delivery Applications." *Material Science and Engineering C*, 75, 191-197, 2017.
24. S. Koteeswaran, J.C. Pashin, J.D. Ramsey, and P.E. Clark, "Quantitative Characterization of Polyacrylamide-Shale Interaction under Various Saline Conditions." *Petroleum Sciences*. 14, 586-596, 2017.
25. N.H. Flynn, Ç. Ö. Topal, R.S. Hikkaduwa Koralege, S. Hartson, A. Ranjan, J. Liu, C. Pope, and J.D. Ramsey, "Effect of Cationic Grafted Copolymer Structure on the Encapsulation of Bovine Serum Albumin." *Material Science and Engineering C*, 62, 524-531, 2016.
26. K. Sahoo, R. Hikkaduwa Koralege, N. Flynn, S. Koteeswaran, P. Clark, S. Hartson, J. Liu, J.D. Ramsey, C. Pope, and A. Ranjan<sup>‡</sup>, "Nanoparticle Attachment to Erythrocyte via the Glycophorin A Targeted Ery1 Ligand Enhances Binding without Impacting Cellular Function." *Pharmaceutical Research*, 33 (5), 1191-1203, 2016.'
27. G. Premaratne, R. Nerimetia, R. Matlock, L. Sunday. R. Hikkaduwa Koralege, J.D. Ramsey, and S. Krishnan, "Stability, Scalability, and Reusability of a Volume Efficient Biocatalytic System Constructed on Magnetic Nanoparticles." *Catalysis Science & Technology*, 2016 (6), 2361-2369, 2016.
28. S. Nasrazadani<sup>‡</sup>, R. Eghtesad, E. Sudoi, S. Vupputuri, J.D. Ramsey, and T. Ley, "Application of Fourier Transform Infrared Spectroscopy to Study Concrete Degradation Induced by Biogenic Sulfuric Acid." *Materials and Structures*. 5 (49), 2025-2034, 2016.
29. C. Pope, C. Uchea, N.H. Flynn, K. Poindexter, L. Geng, W.S. Brimijoin, S. Hartson, A. Ranjan, J.D. Ramsey, and J. Liu<sup>‡</sup>, "In Vitro Characterization of Cationic Copolymer-Complexed Nanoparticles of Human Butyrylcholinesterase." *Biochemical Pharmacology*, 98 (3), 531-539, 2015.
30. J.D. Ramsey<sup>‡</sup> and N.H. Flynn, "Cell-Penetrating Peptides Transport Therapeutics into Cells." *Invited Review, Pharmacology & Therapeutics*, 154, 78-86, 2015.

31. N. Flynn and J.D. Ramsey. Virus-Like Particles in Gene, Vaccine, and Therapeutic Delivery. In *Nanoparticles for Biotherapeutic Delivery* (Vol. 1). London, UK: Future Science Ltd. 38-48, 2015.
32. A.S. Nigatu, N. Flynn, S. Vupputuri, and J.D. Ramsey, "Effects of Cell-Penetrating Peptides on Transduction Efficiency of PEGylated Adenovirus." *Biomedicine and Pharmacotherapy*, 71 (2015), 153-160, 2015.
33. S. Vupputuri, B. Fathepure, G. Wilber, S. Nasrazadani, T. Ley, J.D. Ramsey, "Characterization of an Acid-Producing Microorganism Collected from a Deteriorating Bridge Site." *International Biodeterioration & Biodegradation*, 97 (Jan.-Feb.), 128-134, 2015.
34. G. Kupgan, D. Hentges, N. Muschinske, W.D. Picking, W.L. Picking and J.D. Ramsey, "The Effect of Fiber Truncations on the Stability of Adenovirus Type 5." *Molecular Biotechnology*, 56 (11), 979 – 991, 2014.