

Kathryn A. Whitehead, Ph.D.

Assistant Professor
Dept. of Chemical Engineering
Dept. of Biomedical Engineering
Carnegie Mellon University
5000 Forbes Ave., DH A205
Pittsburgh, PA 15213
Office: (412) 268-9836
Email: kawhite@cmu.edu

Fax: (412) 268-7139
Website: <http://whitehead.cheme.cmu.edu>

EDUCATION

University of California, Santa Barbara, Santa Barbara, CA
Doctor of Philosophy, Department of Chemical Engineering
Advisor: Professor Samir Mitragotri
December 2007

University of Delaware, Newark, DE
Honors Bachelor of Chemical Engineering, Degree with Distinction, Magna Cum Laude
Minor in Mathematics
May 2002

PROFESSIONAL POSITIONS

Carnegie Mellon University, Assistant Professor
Department of Chemical Engineering, 2012 – present
Department of Biomedical Engineering (courtesy), 2013 – present

Massachusetts Institute of Technology, Postdoctoral Fellow
David H. Koch Institute for Integrative Cancer Research, 2008 - 2012
Advisors: Professors Robert Langer & Daniel Anderson

HONORS AND AWARDS

Carnegie Science Center Emerging Female Faculty Award (2017)
DARPA Young Faculty Award (2016)
Cellular and Biomolecular Engineering Young Innovator Award (2016)
Popular Science Brilliant Ten Award (2015)
Selected participant, National Academy of Engineering U.S. Frontiers of Engineering (2015)
Junior Faculty Poster Award, Gordon Research Conference on Biomaterials (2015)
Kun Li Award for Excellence in Education (2015)
MIT Technology Review Innovator Under 35 (2014)
NIH Ruth Kirschstein NRSA Fellowship (2010 – 2012)
UC Graduate Research and Education in Adaptive Biotechnology Fellowship (2004 – 2006)
Diabetes Technology Society Peterson Research Award (2004)
Controlled Release Society Capsugel/Pfizer Innovative Aspects of Oral Drug Delivery Award (2004)
UCSB Chemical Engineering Service Award (2004)
NSF Graduate Fellowship Honorable Mention (2003)
Materials Research Laboratory Fellowship (2002 – 2003)
UD Outstanding Senior Research Award (2002)
UD Chemical Engineering Class of 1952 Scholarship (2001 – 2002)
Phi Kappa Phi Honor Society (2001)
Just Born Candies Scholarship (2000 – 2003)
Howard Hughes Medical Institute Undergrad Research Award (2001 – 2002)
UD Chemical Engineering Class of 1950 Scholarship (2000 – 2001)
Tau Beta Pi Engineering Honor Society (2000)

OTHER EXPERIENCE AND PROFESSIONAL MEMBERSHIPS

- Associate Scientific Advisor, *Science Translational Medicine* (2016 – present)
- Guest editor, *Bioengineering and Translational Medicine* special issue on Nucleic Acid Delivery: Enabling the Drugs of Tomorrow, publication date: November 2016.
- Member, Center for Polymer-Based Protein Engineering, CMU (2015 – present)
- NIH Early Career Reviewer Program, selected participant
- NIH Peer Reviewer, Nanotechnology Study Section, ad hoc (2014 – present)
- Member, Center for Nucleic Acids Science and Technology, CMU (2013 – present)
- Member, McGowan Institute for Regenerative Medicine (2013 – present)
- Member, Biomedical Engineering Society (2013 – present)
- Journal Reviewer, including *ACS Nano*; *Acta Biomaterialia*; *Biomaterials*; *Journal of Controlled Release*; *Nanomedicine: Nanotechnology, Biology, and Medicine*; *Nature Communications*; *Nature Reviews Materials*
- Member, Controlled Release Society (2004 – present)
- Member, American Institute of Chemical Engineers (2004 – present)

PUBLICATIONS (>25 papers, >3,000 total citations)

1. Cummings, C., Fein, K., Murata, H., Ball, R., Russell, A., and Whitehead, K. ATRP-grown protein-polymer conjugates containing phenylpiperazine selectively enhance transepithelial protein transport. *Journal of Controlled Release*, in press, 2017.
2. Fein, K., Lamson, N., and Whitehead, K. Structure-function analysis of phenylpiperazine derivatives as intestinal permeation enhancers. *Pharmaceutical Research*, [doi:10.1007/s11095-017-2149-8](https://doi.org/10.1007/s11095-017-2149-8), 2017.
3. Ball, R., Bajaj, P., and Whitehead, K. Achieving long term stability of lipid nanoparticles: Examining the effect of pH, temperature, and lyophilization. *International Journal of Nanomedicine*, [2017\(12\): 305-315](https://doi.org/10.1002/ijnm.201600012), 2016.
4. Knapp, C., Guo, P., and Whitehead, K. Lipidoid tail structure strongly influences siRNA delivery activity. *Cellular and Molecular Bioengineering*, [9\(3\): 305-314](https://doi.org/10.1007/s12014-016-0305-3), 2016.
5. Knapp, C., He, J., Lister, J., and Whitehead, K. Lipidoid nanoparticle mediated silencing of Mcl-1 induces apoptosis in mantle cell lymphoma. *Experimental Biology and Medicine*, [241:1007-1013](https://doi.org/10.1002/ebm.21013), 2016.
6. Lamson, N., Cusimano, G., Suri, K., Zhang, A., and Whitehead, K. The pH of piperazine derivative solutions predicts their utility as transepithelial permeation enhancers. *Molecular Pharmaceutics*, [13\(2\):578-585](https://doi.org/10.1021/acs.molpharmaceut.5b00111), 2016.
7. Kasiewicz, L. and Whitehead, K. Silencing TNF alpha with lipidoid nanoparticles downregulates both TNF alpha and MCP-1 in an in vitro co-culture model of diabetic foot ulcers. *Acta Biomaterialia*, [32\(3\):120-128](https://doi.org/10.1016/j.actbio.2016.03.012), 2016.
8. Ball, R., Knapp, C., and Whitehead, K. Lipidoid nanoparticles for siRNA delivery to the intestinal epithelium: in vitro investigations in a Caco-2 model. *PLOS One*, [10\(7\) doi:10.1371/journal.pone.0133154](https://doi.org/10.1371/journal.pone.0133154), 2015.
9. Veisoh, O., Tang, B., Whitehead, K., Langer, R., and Anderson, D. Managing diabetes with nanomedicine: Challenges and opportunities. *Nature Reviews Drug Discovery*, [14: 45-57](https://doi.org/10.1038/nrd1457), 2015.
10. Knapp, C. and Whitehead, K. In pursuit of a moving target: Nanotherapeutics for the treatment of Non-Hodgkin B-cell lymphoma. *Expert Opinion on Drug Delivery*, [11\(12\): 1923-1937](https://doi.org/10.1080/17445019.2014.951111), 2014.
11. Whitehead, K., Dorkin, J., Vegas, A., Chang, P., Veisoh, O., Matthews, J., Fenton, O., Zhang, Y., Olejnik, K., Chen, D., Barros, S., Klebanov, B., Novobrantseva, T., Langer, R., and Anderson, D. Degradable lipid nanoparticles with predictable in vivo siRNA delivery activity. *Nature Communications*, [5: 4277 doi:10.1038/ncomms5277](https://doi.org/10.1038/ncomms5277), 2014.

12. Mizrahi, B., Shankarappa, S., Hickey, J., Dohlman, J., Timko, B., Whitehead, K., Lee, J. J., Langer, R., Anderson, D., and Kohane, D. A stiff injectable biodegradable elastomer. *Advanced Healthcare Materials*, **23(12)**: 1527-33, 2013.
13. Whitehead, K., Matthews, J., Chang, P., Dorkin, J. R., Niroui, F., Severgnini, M., Anderson, D. In vitro – in vivo translation of lipid nanoparticles for hepatocellular siRNA delivery. *ACS Nano*, **6(8)**: 6922-9, 2012.
14. Chen, D., Love, K., Chen, Y., Eltoukhy, A., Kastrup, C., Sahay, G., Jeon, A., Dong, Y., Whitehead, K., Langer, R., and Anderson, D. Rapid discovery of potent siRNA-containing lipid nanoparticles enabled by controlled microfluidic formulation. *JACS*, **134(16)**: 6948-51, 2012.
15. Kanasty, R., Whitehead, K., Vegas, A., Langer, R., and Anderson, D. Action and reaction: The biological response to siRNA and its delivery vehicles. *Molecular Therapy*, **20(3)**: 513-24, 2012.
16. Novobrantseva, T. I., Borodovsky, A., Wong, J., Klebanov, B., Zafari, M., Yucius, K., Querbes, W., Ge, P., Ruda, V., Milstein, S., Speciner, L., Duncan, R., Barros, S., Basha, G., Cullis, P., Akinc, A., Donahoe, J.S., Jayaprakash, N., Jayaraman, M., Bogorad, R.L., Love, K.T., Whitehead, K., Levins, C., Manoharan, M., Swirski, F.K., Weissleder, R., Langer, R., Anderson, D.G., de Fougères, A., Nahrendorf, M., Kotliansky, V. Systemic RNAi-mediated gene silencing in non-human primate and rodent myeloid cells. *Molecular Therapy Nucleic Acids*, **1**, e4; doi:10.1038/mtna.2011.3, 2012.
17. Whitehead, K., Sahay, G., Li, G., Love, K., Alabi, C., Ma, M., Zurenko, C., Querbes, W., Langer, R., and Anderson, D. Synergistic silencing: Binary combinations of lipid-like materials for efficacious siRNA delivery. *Molecular Therapy*, **19(9)**:1688-94, 2011.
18. Siegwart, D., Whitehead, K., Nuhn, L., Sahay, G., Cheng, H., Jiang, S., Ma, M., Lytton-Jean, A., Vegas, A., Fenton, P., Levins, C., Love, K., Lee, H., Cortez, C., Collins, S., Li, Y., Jang, J., Querbes, W., Zurenko, C., Novobrantseva, T., Langer, R., and Anderson, D. Combinatorial synthesis of chemically diverse core-shell nanoparticles for intracellular delivery. *PNAS*, **108**:12996-13001, 2011.
19. Whitehead, K., Dahlman, J., Langer, R., and Anderson, D. Silencing or stimulation? siRNA delivery and the immune system. *Annual Review of Chemical and Biomolecular Engineering*, **2**:77-96, 2011.
20. Timko, B., Whitehead, K., Gao, W., Kohane, D., Farokhzad, O., Anderson, D., and Langer, R. Advances in drug delivery. *Annual Review of Materials Research*, **41**:1-20, 2011.
21. Mahon, K., Love, K., Whitehead, K., Akinc, A., Leshchiner, E., Leshchiner, I., Langer, R., and Anderson, D. A combinatorial approach to determine functional group effects on lipidoid-mediated siRNA delivery. *Bioconjugate Chemistry*, **21(8)**:1448-54, 2010.
22. Love, K., Mahon, K., Levins, C., Whitehead, K., Querbes, W., Dorkin, R., Qin, J., Cantley, W., Qin, J., Racie, T., Frank-Kamesky, M., Yip, K. N., Alvarez, R., Sah, D., de Fougères, A., Fitzgerald, K., Kotlianski, V., Akinc, A., Langer, R., and Anderson, D. Lipid-like materials for low dose, in vivo gene silencing. *PNAS*, **107(5)**:1864-9, 2010.
23. Cheng, H., Kastrup, C., Ramanathan, R., Siegwart, D., Ma, M., Bogatyrev, S., Xu, Q., Whitehead, K., Langer, R., Anderson, D. Nanoparticulate cellular patches for cell-mediated tumortropic delivery. *ACS Nano*, **4(2)**:625-31, 2010.
24. Whitehead, K., Langer, R., and Anderson, D. Knocking down barriers: Advances in siRNA delivery. *Nature Reviews Drug Discovery*, **8(2)**:129-38, 2009.
25. Whitehead, K. and Mitragotri, S. Mechanistic analysis of chemical permeation enhancers for oral drug delivery. *Pharmaceutical Research*, **25**: 1412-9, 2008.
26. Whitehead, K., Karr, N., and Mitragotri, S. Discovery of synergistic permeation enhancers for oral drug delivery. *Journal of Controlled Release*, **128**: 128-33, 2008.

27. Whitehead, K., Karr, N., and Mitragotri, S. Safe and effective permeation enhancers for oral drug delivery. *Pharmaceutical Research*, **25**: 1782-8, 2008.
28. Whitehead, K. and Mitragotri, S. Oral delivery of macromolecules. *Drug Delivery Companies Report*, Pharmaventures. Spring/Summer 2005.
29. Whitehead, K., Shen, Z., and Mitragotri, S. Oral delivery of macromolecules using intestinal patches: Applications for insulin delivery. *Journal of Controlled Release*, **98**: 37-45, 2004.

Science Translational Medicine Associate Scientific Advisor Articles

1. Whitehead, K. A new lease on half-life. *Science Translational Medicine*, **8**: 369ec201, Dec. 14, 2016.
2. Whitehead, K. Muscling out gene mutations. *Science Translational Medicine*, **8**: 367ec193, Nov. 30, 2016.
3. Whitehead, K. Protecting kids with a patch. *Science Translational Medicine*, **8**: 361ec169, Oct. 19, 2016.
4. Whitehead, K. Gobbling up inflammation to ameliorate autoimmunity. *Science Translational Medicine*, **8**: 355ec145, Sept. 7, 2016.
5. Whitehead, K. A captive peptide for T cell activation. *Science Translational Medicine*, **8**: 349ec121, July 27, 2016.
6. Whitehead, K. Pancreatic cells play switcheroo. *Science Translational Medicine*, **8**: 343ec97, June 15, 2016.
7. Whitehead, K. A one-two punch for pain control. *Science Translational Medicine*, **8**: 336ec69, April 27, 2016.
8. Whitehead, K. A cage for pathogens. *Science Translational Medicine*, **8**: 331ec49, March 23, 2016.

INVITED PRESENTATIONS & SEMINARS

1. Whitehead, K. Lipid-like materials for RNA delivery: A how-to guide for hacking gene expression. Department of Chemical Engineering, University of Washington, April 2017.
2. Whitehead, K. Enabling the medicine of tomorrow: Lipid nanoparticles for applications in RNA delivery. Center for Targeted Therapeutics and Translational Medicine, University of Pennsylvania, April 2017.
3. Whitehead, K. Giving genes the silent treatment: Engineering lipid materials for potent siRNA delivery. Molecular Biophysics and Structural Biology Program, University of Pittsburgh and Carnegie Mellon University, November 2016.
4. Whitehead, K. Lipidoid tail structure strongly influences siRNA delivery activity. Biomedical Engineering Society Annual Meeting, October 2016.
5. Whitehead, K. Giving genes the silent treatment: Lipid nanoparticles for siRNA delivery. Department of Biomedical Engineering, Penn State University, September 2016.
6. Whitehead, K. Giving Genes the Silent Treatment: Lipid Nanoparticles for Potent siRNA Delivery. American Association for Pharmaceutical Sciences – National Biotechnology Conference, May 2016.
7. Whitehead, K. RNA Nanobiomaterials: Promise and Potential. McGowan Institute for Regenerative Medicine Scientific Retreat, 15, March 2016.
8. Whitehead, K. Giving genes the silent treatment: Lipid nanoparticles for siRNA delivery. Department of Chemical Engineering, Tufts University, February 2016.

9. K. Whitehead. Lipidoid Nanoparticles for the treatment of Non-Hodgkin lymphoma. Gordon Research Conference, Biomaterials, July 2015. (invited short talk selected from posters)
10. K. Whitehead. RNA interference therapeutics using lipidoid nanoparticles. Biomedical Engineering Materials and Applications (BEMA) Roundtable of the National Academies, April 2015.
11. K. Whitehead. Giving genes the silent treatment: Lipid nanoparticles for siRNA delivery. Department of Chemical Engineering, University of Rhode Island, April 2015.
12. K. Whitehead. Giving genes the silent treatment: Lipid nanoparticles for siRNA delivery. Department of Pharmaceutical Sciences, Duquesne University, December 2014.
13. K. Whitehead. Lipid-like materials for siRNA delivery. ACS Central Regional Meeting, October 2014.
14. K. Whitehead. Lipid nanoparticles for the delivery of siRNA to immune cells. Nanomedicine and Drug Delivery Symposium, October 2014.
15. K. Whitehead. Effective drug delivery systems. EmTech Conference, September 2014.
16. K. Whitehead. Lipid-like materials for therapeutic gene silencing. University of Delaware, Department of Chemical Engineering Centennial Celebration, September 2014.
17. K. Whitehead. Lipid-like materials for drug delivery. SPARK Retreat on the Development of Next-Generation Biohybrids for Therapeutic Applications, September 2014.
18. Whitehead, K. Giving genes the silent treatment: Lipid nanoparticles for siRNA delivery. Department of Biomedical Engineering, Carnegie Mellon University, October 2013.
19. Whitehead, K. Lipid nanoparticle siRNA delivery systems with predictable in vivo siRNA delivery activity. Biomedical Engineering Society Annual Meeting, September 2013.
20. Whitehead, K. Giving genes the silent treatment: Lipid nanoparticles for siRNA delivery. Colloids, Polymers, and Surfaces Seminar, Carnegie Mellon University, September 2013.

CONTRIBUTED PRESENTATIONS

1. Lamson, N., Cusimano, G., Suri, K., Zhang, A. and Whitehead, K. pH-predicted behavior of piperazine derivatives as transepithelial permeation enhancers. Gordon Research Conference, Drug Carriers in Medicine and Biology, August 2016.
2. Hajj, K. and Whitehead, K. Next generation mRNA delivery systems with precise spatial and temporal activity. Gordon Research Conference, Drug Carriers in Medicine and Biology, August 2016.
3. Knapp, C. and Whitehead, K. Lipidoid nanoparticles delivering siRNA cocktails to treat Mantle cell lymphoma. Gordon Research Conference, Drug Carriers in Medicine and Biology, August 2016.
4. Kasiewicz, L. and Whitehead, K. Silencing TNF-alpha with lipidoid nanoparticles downregulates both TNF-alpha and MCP-1 in an in vitro co-culture model of diabetic foot ulcers. Gordon Research Conference, Drug Carriers in Medicine and Biology, August 2016.
5. Ball, R. and Whitehead, K. Lipidoid siRNA nanoparticles for inflammatory bowel disease therapeutics. Gordon Research Conference, Drug Carriers in Medicine and Biology, August 2016.
6. Hajj, K. and Whitehead, K. Lipidoid Nanoparticles for the Intracellular Delivery of Messenger RNA. Poster presentation, McGowan Institute for Regenerative Medicine Scientific Retreat, March 2016.

7. Knapp, C., He, J., and Whitehead, K. Lipidoid Nanoparticles Delivering siRNA for Treatment of Mantle Cell Lymphoma. Poster presentation, McGowan Institute for Regenerative Medicine Scientific Retreat, March 2016.
8. Ball, R. and Whitehead, K. Lipidoid siRNA Nanoparticles for the Treatment of Inflammatory Bowel Disease. Poster presentation, McGowan Institute for Regenerative Medicine Scientific Retreat, March 2016.
9. Lamson, N., Cusimano, G., Suri, K., Zhang, A., and Whitehead, K. pH-Predicted Behavior of Piperazine Derivatives as Transepithelial Permeation Enhancers. Poster presentation, McGowan Institute for Regenerative Medicine Scientific Retreat, March 2016.
10. Knapp, C. and Whitehead, K. Silencing Bcl-2 and Cyclin family proteins for the treatment of Mantle Cell Lymphoma. Poster presentation. US-Japan Symposium on Drug Delivery Systems, 12, December 2015.
11. Knapp, C., and Whitehead, K. siRNA-loaded lipidoid nanoparticles for the treatment of mantle cell lymphoma. Podium presentation, American Institute of Chemical Engineers Annual Meeting, November 2015.
12. Ball, R., Knapp, C. and Whitehead, K. Lipidoid Nanoparticles for siRNA Delivery to the Intestinal Epithelium: *In vitro* Investigations in a Caco-2 Model. Podium presentation, American Institute of Chemical Engineers Annual Meeting, November 2015.
13. Knapp, C. and Whitehead, K. RNA interference mediated treatment of Mantle cell lymphoma using lipidoid nanoparticles. Podium presentation. Fusion Conference on Drug Delivery, September 2015.
14. Ball, R. and Whitehead, K. siRNA nanoparticles for intestinal disease therapeutics. Poster presentation. Proceedings of the Controlled Release Society, 42, July 2015.
15. Knapp, C. and Whitehead, K. Lipidoid Nanoparticles for the treatment of Non-Hodgkin lymphoma. Poster presentation. Proceedings of the Controlled Release Society, 42, July 2015.
16. Knapp, C. and Whitehead, K. Lipidoid siRNA Nanoparticles Targeting D-type Cyclins and Bcl-2 Family Proteins for the Treatment of Mantle Cell Lymphoma. Gordon Research Conference, Cancer Nanotechnology, June 2015.
17. Ball, R. and Whitehead, K. siRNA nanoparticles for intestinal disease therapeutics. Podium presentation. ACS Colloid and Surface Science Symposium, 89, June 2015.
18. Kasiewicz, L. and Whitehead, K. siRNA loaded lipidoid nanoparticles for improved diabetic wound healing. Podium presentation. ACS Colloid and Surface Science Symposium, 89, June 2015.
19. Knapp, C. and Whitehead, K. Lipidoid nanoparticles delivering siRNA for the treatment of Mantle cell lymphoma. Podium presentation. ACS Colloid and Surface Science Symposium, 89, June 2015.
20. Ball, R. and Whitehead, K. Lipidoid siRNA Nanoparticles for Intestinal Disease Therapeutics. Poster presentation. McGowan Institute for Regenerative Medicine Scientific Retreat, March 2015.
21. Kasiewicz, L. and Whitehead, K. siRNA Loaded Lipidoid Nanoparticles for Improved Chronic Wound Healing. Poster presentation. McGowan Institute for Regenerative Medicine Scientific Retreat, March 2015.
22. Knapp, C. and Whitehead, K. Poster presentation. A lipid siRNA nanoparticle delivery system for the treatment of Mantle cell lymphoma. McGowan Institute for Regenerative Medicine Scientific Retreat, March 2015.
23. Knapp, C. and Whitehead, K. A Lipid Nanoparticle siRNA Delivery System for B cell Lymphoma. Podium presentation. American Institute of Chemical Engineers Annual Meeting, November 2014.
24. K. Whitehead and D. Anderson. Degradable Lipid Nanoparticles with Predictable *In Vivo* siRNA Delivery Activity. American Institute of Chemical Engineers Annual Meeting, November 2014.

25. Knapp, C. and Whitehead, K. A lipid nanoparticle siRNA delivery system for B cell lymphoma. Poster presentation. Gordon Research Conference, Drug Carriers in Medicine & Biology, August 2014.
26. Whitehead, K., Langer, R., and Anderson, D. Degradable lipid nanoparticles with predictable in vivo siRNA delivery activity. Poster presentation. Keystone Symposium, Engineering Cell Fate and Function, April 2014.
27. Whitehead, K., Langer, R., and Anderson, D. Giving genes the silent treatment: Lipid-like materials for applications in siRNA delivery. Poster presentation. Gordon Research Conference, Drug Carriers in Medicine & Biology, August 2012.
28. Whitehead, K. How to deliver siRNA to Tyler Jacks' liver. Focus Seminar. Koch Institute for Integrative Cancer Research, MIT, May 2012.
29. Whitehead, K., Sahay, G., Li, G., Love, K., Alabi, C., Langer, R., and Anderson, D. Synergistic silencing: combinations of lipid-like materials for improved siRNA delivery. Poster presentation. US-Japan Symposium on Drug Delivery Systems, 10, December 2011.
30. Whitehead, K., Sahay, G., Li, G., Love, K., Alabi, C., Langer, R., and Anderson, D. Synergistic silencing: combinations of lipid-like materials for improved siRNA delivery. Podium presentation. American Institute of Chemical Engineers Annual Meeting, October 2011.
31. Whitehead, K., Sahay, G., Li, G., Love, K., Ma, M., Alabi, C., Langer, R., and Anderson, D. Synergistic silencing: Binary combinations of lipid-like materials for siRNA delivery. Poster presentation. Gordon Research Conference, Cancer Nanotechnology, July 2011.
32. Whitehead, K., Niroui, F., Matthews, J., Langer, R., and Anderson, D. A high-throughput method for evaluating siRNA delivery materials in vivo. Podium presentation, American Institute of Chemical Engineers Annual Meeting, November 2010.
33. Whitehead, K., Li, G., Love, K., Langer, R., and Anderson, D. Binary combinations of lipid-like materials for siRNA delivery. Podium presentation, US-Japan Symposium on Drug Delivery Systems, 10, December 2009.
34. Whitehead, K., Li, G., Love, K., Langer, R., and Anderson, D. Binary combinations of lipid-like materials for siRNA delivery. Podium presentation, American Institute of Chemical Engineers Annual Meeting, November 2009.
35. Whitehead, K., Li, G., Love, K., Langer, R., and Anderson, D. Binary combinations of lipid-like materials for siRNA delivery. Podium presentation, Proceedings of the Controlled Release Society, 36, July 2009.
36. Whitehead, K. and Mitragotri, S. Improving oral delivery through the use of permeation enhancers. Podium presentation, Proceedings of the Controlled Release Society, 34, July 2007.
37. Whitehead, K. and Mitragotri, S. Evaluation of intestinal permeation enhancers for oral drug delivery. Podium presentation, American Institute of Chemical Engineers Annual Meeting, November 2006.
38. Whitehead, K., Shen Z., and Mitragotri, S. Oral delivery of macromolecules using intestinal patches: Applications for insulin delivery. Podium presentation, American Institute of Chemical Engineers Annual Meeting, November 2004.
39. Whitehead, K., Shen, Z. and Mitragotri, S. Oral insulin delivery using intestinal patches. Poster presentation, Diabetes Technology Society Meeting, 4, October 2004.
40. Whitehead, K., Shen, Z., and Mitragotri, S. Oral delivery of macromolecules using intestinal patches: Applications for insulin delivery. Podium presentation, Proceedings of the Controlled Release Society, 31, July 2004.
41. Shen, Z., Whitehead, K., and Mitragotri, S. Oral insulin delivery using intestinal patches. Poster presentation, Proceedings of the Controlled Release Society, 30, July 2003.

PATENTS

1. Anderson, D., Whitehead, K., Dorkin, J., Vegas, A., Zhang, Y., and Langer, R. Amine-containing lipidoids and uses thereof, US Patent Application 15/264,315.
2. Anderson, D., Whitehead, K., Dorkin, J., Vegas, A., Zhang, Y., and Langer, R. Amine-containing lipidoids and uses thereof, US Patent 9,439,968.
3. Whitehead, K., Dorkin, J., Vegas, A., Zhang, Y., Langer, R., and Anderson, D. Amine-containing lipidoids and uses thereof, [US Patent 9,227,917](#).
4. Vegas, A., Whitehead, K., Dorkin, J., Langer, R., and Anderson, D. Alpha-aminoamidine polymers and uses thereof, [WO Patent 2013/090861](#), US provisional application number [61/576,899](#).
5. Schroeder, A., Traverso, C., Polat, B., Whitehead, K., Anderson, D., Langer, S., Schoellhammer, C., Blankschtein, D. Method and apparatus for delivering a substance (Ultrasound Pill), [WO Patent 2012/158,648](#), US provisional application number [61/485,957](#).
6. Whitehead, K., Karr, N., Arora, A., Mitragotri, S., and Gupta, V. Improved oral drug devices and drug formulations, [WO Patent 2010/120892](#), US provisional application number [13264585](#).
7. Mahon, K., Love, K., Levins, C., Whitehead, K., Langer, R., and Anderson, D. Amino alcohol lipidoids and uses thereof, US Patent 9,556,110.
8. Mahon, K., Love, K., Levins, C., Whitehead, K., Langer, R., and Anderson, D. Amino alcohol lipidoids and uses thereof, [US Patent 8,969,353](#).
9. Mahon, K., Love, K., Levins, C., Whitehead, K., Langer, R., and Anderson, D. Amino alcohol lipidoids and uses thereof, [US Patent 8,450,298](#).

PROFESSIONAL ACTIVITIES

Consulting

- Pfizer, 2014 – 2015.
- Triangle Insights Group, 2014.
- Enlight Biosciences, 2012 – 2014.
- Novartis, 2010 – 2011.

RESEARCH GROUP

Postdoctoral Associates and Fellows

1. Ryan Weiss, Department of Chemical Engineering, 2016 – present.

Ph.D. Students

1. Christopher Knapp, Department of Chemical Engineering, 2012 – present.
2. Rebecca Ball, Department of Chemical Engineering, 2013 – present.
3. Lisa Kasiewicz, Department of Chemical Engineering, 2013 – present.
4. Khalid Hajj, Department of Chemical Engineering, 2014 – present.
5. Nicholas Lamson, Department of Chemical Engineering, 2014 – present.
6. Katherine Fein, Department of Chemical Engineering, 2015 – present.
7. Kyle Cochran, Department of Chemical Engineering, 2016 – present.
8. Bo Hak Yoon, Department of Chemical Engineering, 2016 – present.

M.S. Students

1. Penghong Guo, Department of Chemical Engineering, 2012 – 2013.
2. Gabrielle Cusimano, Department of Chemical Engineering, 2012 – 2014.

3. Daniel Lee, Department of Biomedical Engineering, 2013 – 2015.
4. Chang Liu, Department of Chemical Engineering, 2013 – 2014.
5. Jia He, Department of Biomedical Engineering, 2014 – 2016.
6. Kanika Suri, Department of Chemical Engineering, 2014 – 2015.
7. Yan Zhang, Department of Biomedical Engineering, 2015 – present.
8. Yawen Cheng, Department of Biomedical Engineering, 2015 – present.

Undergraduate Students

1. Anna Zhang, Departments of Chemical and Biomedical Engineering, Fall 2013 – present.
2. George Degen, Department of Chemical Engineering, Fall 2014 – Spring 2015.
3. Vishal Ahuja, Departments of Chemical and Biomedical Engineering, Fall 2014 – present.
4. Palak Bajaj, Departments of Chemical and Biomedical Engineering, Spring 2015 – present.
5. Himali Ranade, Departments of Chemical and Biomedical Engineering, Summer 2015 – present.
6. Sevahn Vorperian, Departments of Chemical and Biomedical Engineering, Summer 2015.
7. Lucine Gabriel, Department of Chemistry at MIT, Summer 2015.
8. Shridhar Singh, Departments of Chemical and Biomedical Engineering, Fall 2015 – present.
9. Adrian Berger, Departments of Chemical and Biomedical Engineering, Spring 2016 – present.
10. Jamie Vizelman, Departments of Chemical and Biomedical Engineering, Summer 2016 – present.
11. Kye Stapleton-Gray, Departments of Chemical and Biomedical Engineering, Fall 2016 – present.
12. Sarah Deluty, Departments of Chemistry and Neuroscience, Fall 2016 – present.