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The research interests of the Whitehead Lab lie at the interface of chemical engineering, molecular biology, and medicine, with the ultimate goal of engineering safe and effective drug delivery systems for therapeutic outcomes in humans. Her current effort is focused on developing a fundamental understanding of the relationship between the biology of delivery barrier and the transport of siRNA for RNA interference-mediated gene silencing. The knowledge, combined with modern chemical techniques, guides the design of optimized delivery vehicles for the liver, the intestinal epithelium, or B lymphoma cells. Professor Whitehead was a recipient of the NIH Ruth Kirschstein NRSA Postdoctoral Fellowship. Her lipid nanoparticle-based technology for siRNA delivery has been licensed to several companies and her earlier technology for oral drug delivery is being translated for clinical use.

