James Dahlman

Assistant Professor, Biomedical Engineering at Georgia Tech College of Engineering
Atlanta, GA, US

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Biography

James Dahlman is an Assistant Professor in the Georgia Tech BME Department. He studied RNA design and gene editing as a post-doc with Feng Zhang at the Broad Institute, and received his PhD from MIT and Harvard Medical School in 2014, where he studied RNA delivery with Robert Langer and Daniel Anderson. The Lab for Precision Therapies at Georgia Tech, also called the 'Dahlman Lab', works at the interface of drug delivery, nanotechnology, genomics, and gene editing. James has designed nanoparticles that deliver RNAs to the lung and heart; these nanoparticles have been used by over ten labs across the US to date. He has also developed targeted in vivo combination therapies; nanoparticles deliver multiple therapeutic RNAs at once, in order to manipulate several nodes on a single disease pathway. More recently, he developed a method to quantify the targeting, biodistribution, and pharmacokinetics of dozens to hundreds of distinct nanoparticles at once directly in vivo. Finally, James uses molecular biology to rationally design the genetic drugs he delivers. He recently reported 'dead' guide RNAs; these engineered RNAs can be used to simultaneously up- and down-regulate different genes in a single cell using Cas9. James has won the NSF, NDSEG, NIH OxCam, Whitaker Graduate, and LSRF Fellowships, the Weintraub Graduate Thesis Award, and was recently named a Bayer Young Investigator and Parkinson's Disease Foundation Young Investigator. He has had significant help along the way. Besides having great scientific advisors, James has been lucky to mentor excellent students, including two that were finalists for the Rhodes Scholarship.

Areas of Expertise

Vascular and Immunoengineering, DNA Barcoded Nanoparticles, Drug Delivery, CRISPR , Gene Editing, Cas9, RNA Therapies, Big Data / Nanotechnology

Education

MIT
Ph.D. Medical Engineering

Wright State University
B.S. Biomedical Engineering

Selected Accomplishments

Young Innovator
2019 Cellular and Molecular Bioengineering

Emerging Investigator

2018 Named an emerging investigator in chemistry / materials science by the Journal of Materials Chemistry B
