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Biomedical Engineering
Wallace H. Coulter Foundation
Seminar Series

A Library of Engineered Polymeric Nanoparticles for Effective DNA and siRNA Delivery

Dr. Jordan J. Green
Johns Hopkins University

Friday, March 29th, 2013
LECTURE: 9:00 AM - 10:00 AM

ENGINEERING CENTER
ROOM EC 2300
10555 WEST FLAGLER STREET
MIAMI, FL 33174

Abstract

The Green lab uses a library of synthetic biodegradable polymers to construct nanoparticles that are safe and effective for intracellular delivery. The effect of differential polymer structure on the delivery of nucleic acids of different structures and sizes will be elucidated. Biomaterial structure, and in particular polymer end-group, can determine cell-type specificity of nanoparticles in a range of cell types, including cancer cells vs. healthy cells. Biomaterial degradation mechanism, and in particular bioreducible disulfide linkages, can enable environmentally triggered release and high siRNA-mediated knockdown. Both of these efficacies are significantly higher than those of leading commercially available reagents. Applications of these nanoparticles in the fields of cancer, ophthalmology, and regenerative medicine will be discussed.

Biography

Dr. Jordan J. Green is an assistant professor of Biomedical Engineering and Ophthalmology at the Johns Hopkins University. He graduated from Carnegie Mellon University with a B.S. in Biomedical Engineering and Chemical Engineering in 2003 and from MIT with a Ph.D. in Biological Engineering in 2007. Following a postdoctoral appointment at MIT, he started his lab at JHU in November 2008. He directs a laboratory of 10 researchers that utilize biomedical engineering and nanotechnology to design new treatments for human health. He has published 38 peer-reviewed papers, filed 12 patents/patent applications, and published 75 research abstracts. Dr. Green has received numerous awards including the BMES Rita Schaffer Young Investigator Award, the CMU Recent Alumni Award, and the Maryland Outstanding Young Engineer Award.

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