

PROGRAMMABLE AND RESPONSIVE DNA-BASED SYNTHETIC CELLS AND STRUCTURES

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Abstract: DNA nanotechnology uses synthetic DNA (or nucleic acids) as a versatile material to rationally engineer devices, switches and structures with different applications (e.g., in-vivo and in-vitro diagnostics, drug delivery, genetic circuits etc.).

During this presentation I will introduce the field of DNA nanotechnology and I will show how to exploit the “designability” of DNA to fabricate DNA-based structure and synthetic cells that display programmable features.

I will demonstrate how these systems can be designed to respond to different chemical and environmental stimuli including antibodies and enzymes.

Key words: DNA nanotechnology, nanostructures, synthetic cells, antibodies, nanodevices