

# Abstract



## **Professor Chad A. Mirkin**

Director of the International Institute for Nanotechnology and the George B. Rathmann  
Professor of Chemistry,  
Chemical and Biological, Materials Science & Engineering and  
Medicine, Northwestern University.

**Title:** *Rational Vaccinology: In Pursuit of the Perfect Vaccine*

Spherical Nucleic Acids (SNAs) are an emergent therapeutic architecture, which consist of oligonucleotides radially conjugated to a nanoparticle core. This arrangement of DNA or RNA gives rise to unique properties not observed with their linear counterparts, such as rapid cellular uptake and increased resistance to nuclease degradation. The emergent properties of SNAs are revolutionizing the way we study, track, and treat disease and may help realize the promise of rational vaccinology: elucidating and leveraging the structure-activity relationships of SNAs to arrive at the most potent immunostimulatory construct. We are advancing this vision forward by treating solid tumors with immunostimulatory SNAs that activate an immune

response against cancer cells. This presentation will describe these advancements and illustrate how rational vaccinology may improve human lives.