

Nanovaccine Platform Technology: A New Paradigm

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Why the Urgency?

- Re-emergence of known diseases and rapid emergence of new diseases
- Need to improve existing vaccines (e.g., 2012-13 influenza vaccine)
- Antibiotic resistance
- Unsustainable healthcare system
 - Therapeutics cost 20-1,000 times more than prevention technologies per healthcare \$\$ spent

PRESENT

Prophylactics

Therapeutics



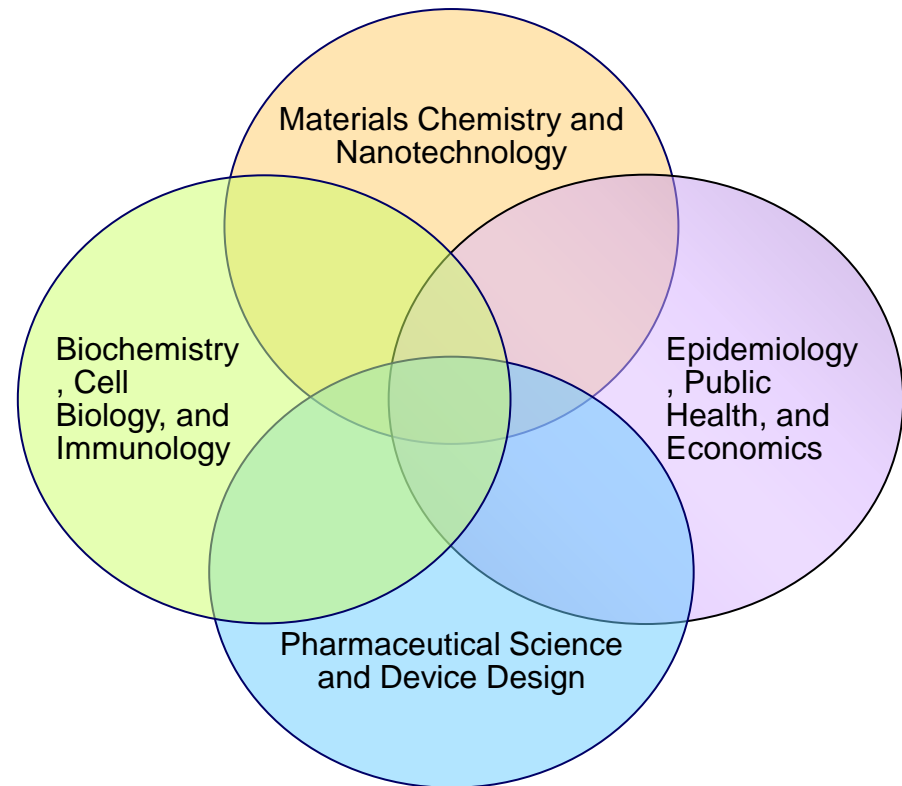
FUTURE?

Therapeutics

Prophylactics

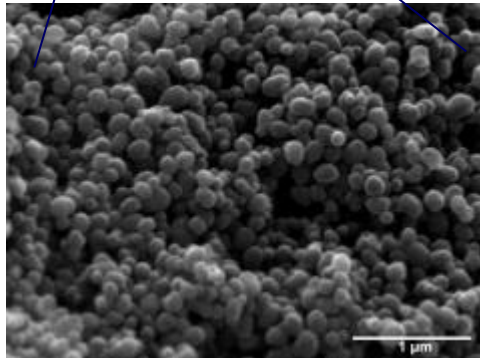
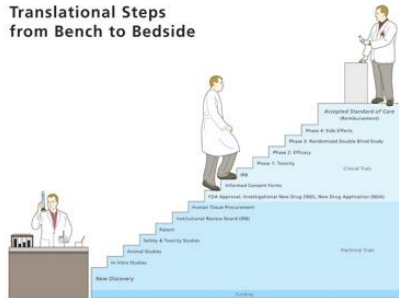
Vision: Nanovaccines will revolutionize our ability to prevent and treat disease

- Bridge groundbreaking science with novel nanoscale platform technologies
 - Science-driven, first principles paradigm for vaccine design
- Novel nanomedicine-driven platform technology for tomorrow's vaccines
 - Inherently interdisciplinary
- **Systems** approach encompassing bench-to-bedside considerations from the earliest stages of conceptualization



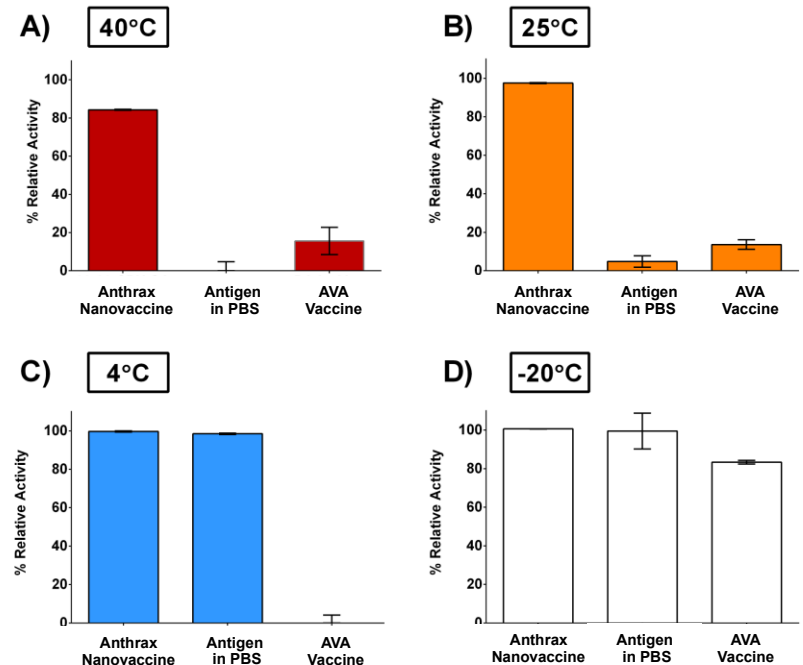
Competitive Edge and Differentiators

- Systems approach to vaccine design
 - Design, delivery, and deployment
- Technology niche
 - Needle-free
 - Single dose
 - **No refrigeration**
 - Combination therapies
- Bench-to-bedside
- Partnerships with universities, government laboratories, and industry



Room Temperature Nanovaccines

- Today's vaccines need to be refrigerated
- Refrigeration is a major component of the cost and a significant logistical roadblock
- Innovation: exploit advances in materials science and nanotechnology to design a thermally stable subunit nanovaccine
- Nanovaccine can be stored at room temperature or higher for up to one year and still maintain efficacy



Tomorrow's Nanovaccines?



Video courtesy of Mystic Pharmaceuticals