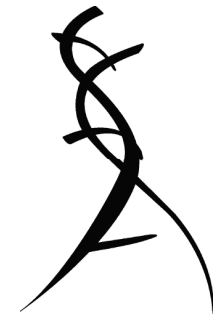


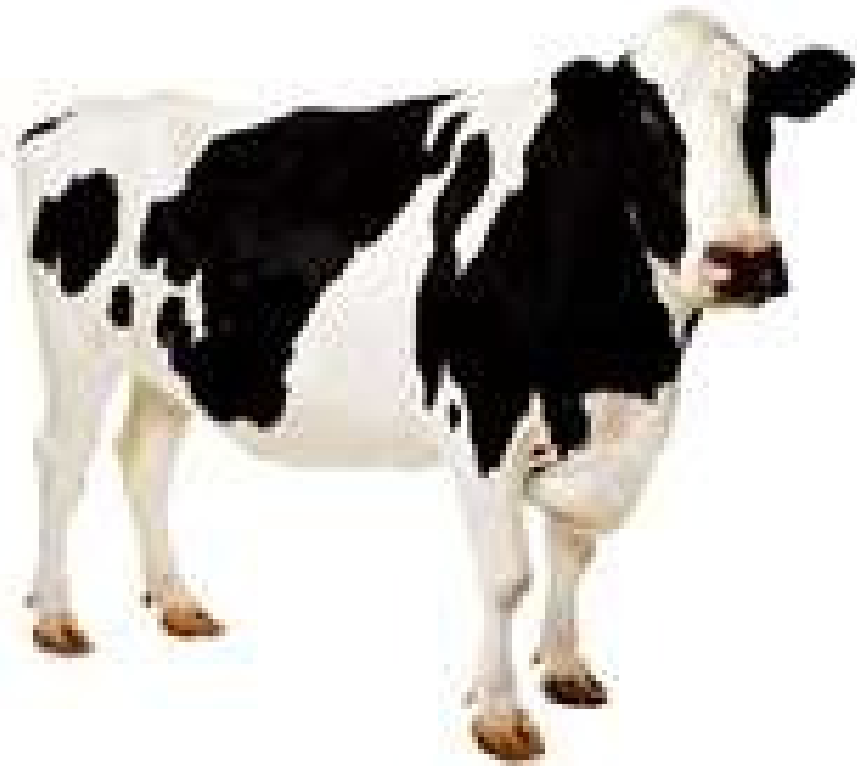
# A SYSTEM OF EFFICIENT, COST-EFFECTIVE, AND CUSTOMIZABLE VACCINES FOR USE WITH MULTIPLE VACCINE CANDIDATES

George C. Stewart, Ph.D.  
Brian M. Thompson, Ph.D.  
Dept. of Veterinary Pathobiology  
Bond Life Sciences Center  
University of Missouri

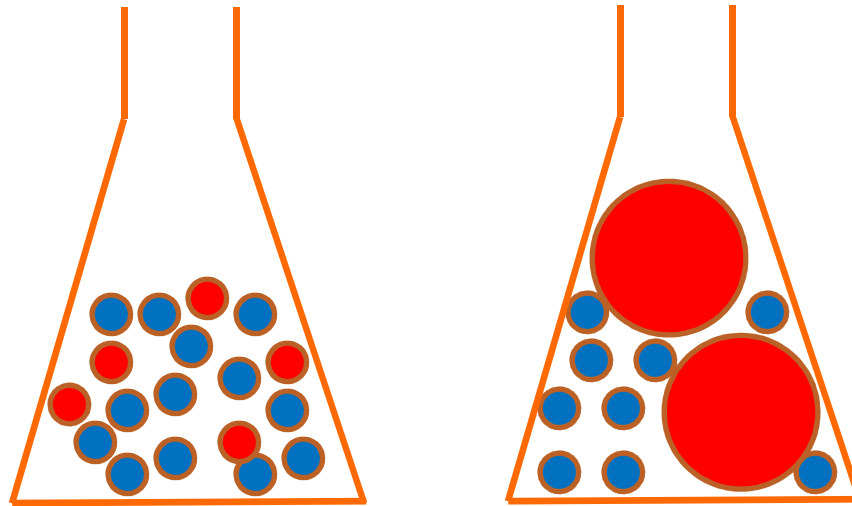
U.S. Patent Application No. 12/391,060



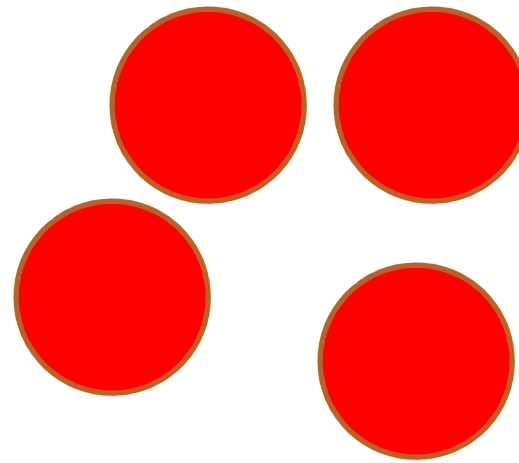
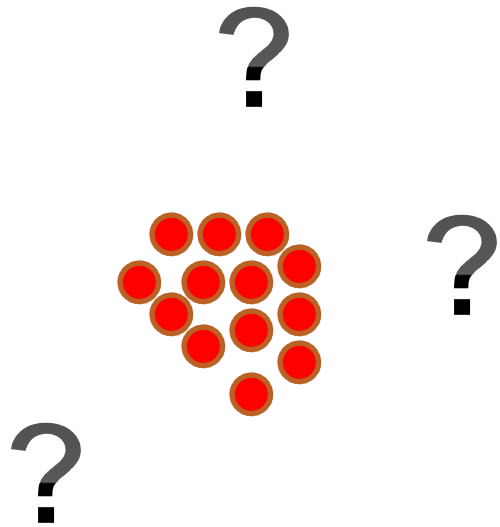
# A NEW PATH TO VACCINE DEVELOPMENT?



# ANTIGEN: HOW EASY IS IT TO PURIFY?



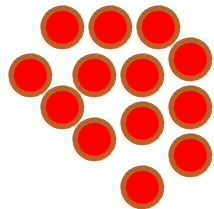
# CHOOSE THE APPROPRIATE ADJUVANT



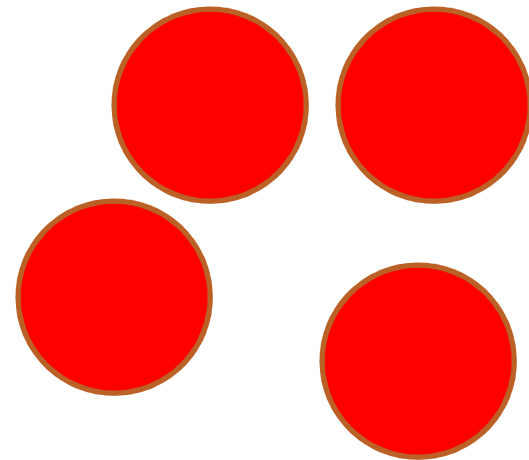
Microbial microparticle – no need for added adjuvant  
(immune system recognizes it as foreign;  
balanced immune response; mucosal  
response)



# HOW STABLE IS IT?



Requires refrigeration?  
Short shelf life?



Microparticle surface display: more resistant to heat drying, and proteases

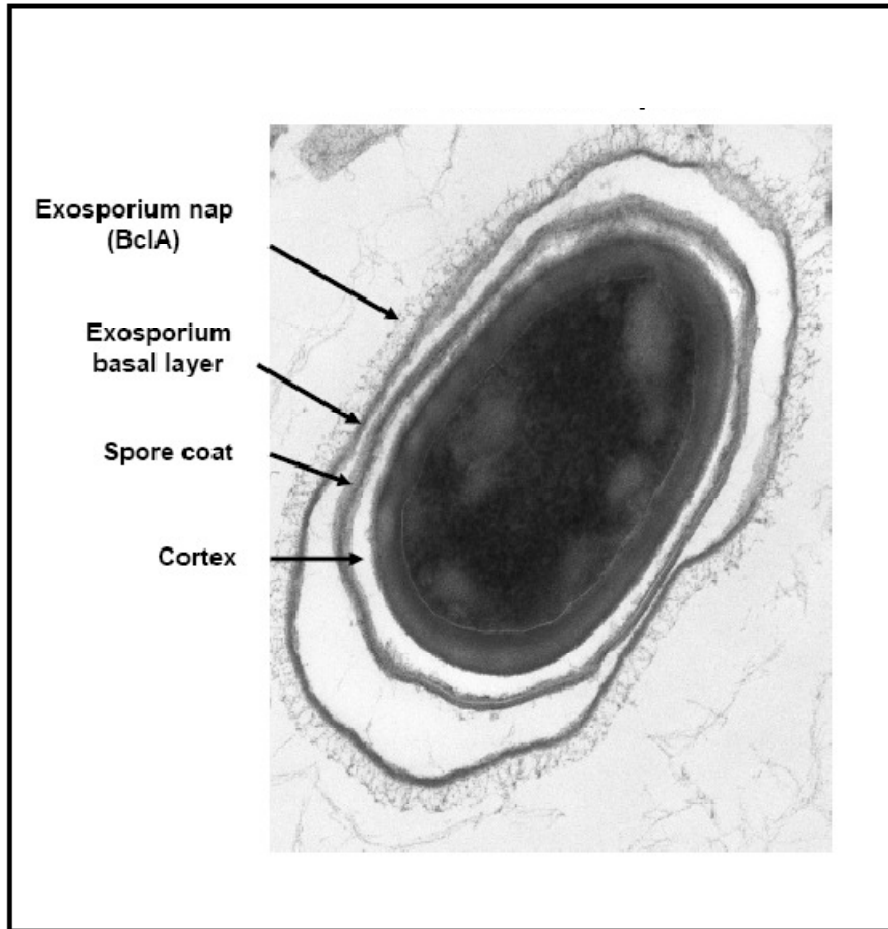


## HOW VERSATILE IS IT?

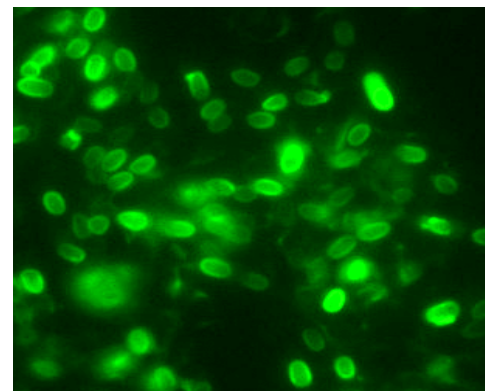
- Tailor vaccine antigens to different geographic regions
- Antigenic drift over time
  
- Simple genetic manipulation to produce a different antigen on the microparticle
- Multiple proteins can be displayed on a single microparticle or easy to mix different combinations of microparticles to make vaccines targeting multiple diseases



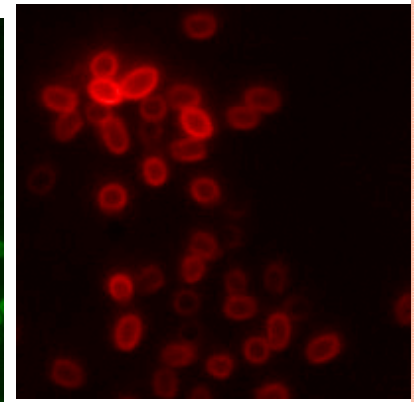
# BACILLUS THURINGIENSIS SPORE



UV or genetically inactivated



eGFP-Bt spores



DsRed-Bt spores

## Surface display

eGFP

DsRed

Protective antigen (anthrax)

PRRSV Orf5 protein

$\beta$ -galactosidase

Horseradish peroxidase

*F. necrophorum* leukotoxin

Virtually any protein!



QUESTIONS?



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# molecular microbiology

On the cover:  
Putting the  
coat on *Bacillus  
anthracis* spores

DNA relaxation  
releases a poised  
RNA polymerase

Regulation of  
gonococcal  
antimicrobial  
resistance and  
*in vivo* fitness

Restoration of  
flagellum  
production in  
*Campylobacter*

 WILEY-BLACKWELL

