

## COMBATting FUTURE BIOLOGICAL THREATS – HOST-DIRECTED INTERVENTIONS TO EMERGING THREATS FOR RAPID RESPONSE

### **A Host Disruption To Zika Virus Amplification Via Genetically-engineered Porcine Colonies Tested For mRNA-1893 Tolerance**

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The location, prevalence, and interaction with wild type pig colonies to alleged zika virus amplification zones is understood to be an important economic and health factor risk to future pandemic risks. It is widely reported that countries have faced significant agricultural losses whenever pig lots are destroyed around known zoonotic transmissions likely to occur from bat droppings into pigs, spreading human contact exposure risks.

What if a foundational breeding colony of pigs could demonstrate tolerance to developing zika virus vaccine(s) such as mRNA-1893 (NCT04064905) by ModernaTX, Inc.? Safety, tolerability, and immunogenicity of human zika vaccines inside designated pathogen free porcine colonies could serve many purposes to avert, disrupt, or recover from a pandemic impact.

This proposal would utilize a FDA reviewed herd of breeding pigs to verify the safety, uses, and effectiveness of hosts less likely to introduce amplified risks. Reserved dual uses of this clinically-reviewed colonies could be used with other clinical studies, including how to prove disruptions of zoonotic transmission between bats, pigs, and humans in high risk areas such as Southeast Asia.

The results imagined here would be to test vaccine tolerances within clinically reviewed porcine herds within the United States that can be reserved for restocking hybrid seed genetics inside foreign threat zika zones. Other large animal studies could be completed to draw baselines views about exposures over times with collaborative research. Alternative uses for these methods could involve deep genomic library reads of prevalent swine food sources as indicators of contamination risks from near peer adversaries or accidental contamination. Such data could assist various foreign programs while also preparing our United States Department of Agriculture with detection, aid, and food restoration.

Confidence from vaccinated swine herds could translate to pandemic prevention strategies when necessary with allied missions of state or humanitarian responses.

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