Award ID:
RP100735

Project Title:
Bioengineering Cancer Immunotherapy: A Synthetic Injectable
Microenvironment for DC Migration, Activation and Antigen priming

Award Mechanism:
Individual Investigator

Principal Investigator:
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Entity:
The University of Texas at Austin

Lay Summary:

Cancer vaccines, as a strategy to trigger anti-tumor immunity has been explored for
several decades. However, effective translation into human therapy has proven elusive.
Although the recent success of cervical cancer vaccines has been much hailed, that
vaccine is primarily against a viral infection that causes cervical cancer, and hence does
not represent the tremendous challenge in generating immunity against other cancers,
most of which have evolved to avoid the immune system. New paradigms and
technologies, that can precisely modulate anti-cancer immune response following
vaccination, and enhance the efficacy of cancer vaccines many folds over current
strategies, are urgently needed. This CPRIT project aims to develop a highly efficacious
injectable vaccine against B cell lymphoma. The strategy is to use novel engineering
concepts to create an artificial immune center at the site of vaccination and "train" the
patient's own immune system to recognize the lymphoma cells as "diseased", just like it
does for viral or bacterial infections. This should lead to a vigorous anti-lymphoma
immune response and help "kill" the cancer cells. The goal is to slow down cancer
progression and eventually generate protective immunity.