

# DNA Vaccines for SARS

Keywords: SARS, Virus, Vaccine, Proteins, Plasmid

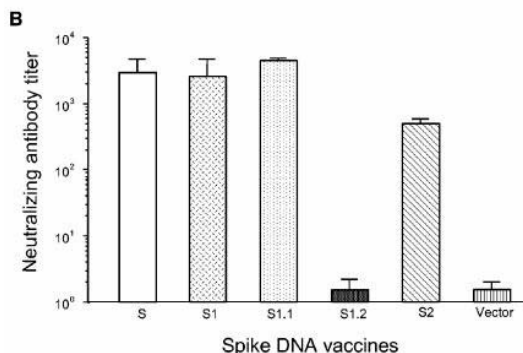
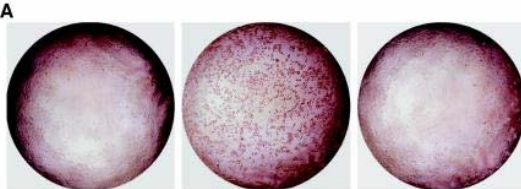
WIPO application# WO/2005/013904

## Background

Severe Acute Respiratory Syndrome (SARS) is a respiratory illness caused by a coronavirus, called SARS-associated coronavirus (SARS-CoV). SARS first appeared in southern China in 2002. By 2003 it was recognized as a global threat. This underscores the potential of a SARS outbreak to rapidly develop into an epidemic. The mortality rate from SARS has been estimated to be around 7%. It can be higher for aged individuals. It is thus crucial to develop effective therapeutic and prophylactic intervention for SARS.

## Technology

Developed by UMass Medical School Professor Dr. Shan Lu and colleagues, the technology is comprised of composition and methods for generating novel DNA vaccines against SARS. The invention features an isolated nucleic acid including: a sequence encoding a SARS-CoV S polypeptide or fragment thereof, a SARS-CoV M polypeptide or fragment thereof, a SARS-CoV E polypeptide or fragment thereof, or a SARS-CoV N polypeptide or fragment thereof, wherein the sequence has been codon-optimized for expression in a mammalian host.



Reference: Wang et al. (2005) J Virol. 79(3): 1906.

## Application

Microbial vaccines, particularly SARS Vaccines

## Salient Features and Competitive Advantages

- 👍 **Robust and Specific Immune Response:** High titer S-specific immunoglobulin G antibody responses were elicited in rabbits immunized with DNA against various segments of the S protein.
- 👍 **Safety.** Utilizes no viral components that may cause unwanted immune responses, infections, or malignant and permanent changes in the targeted cells' genetic makeup,
- 👍 **Broad Applicability.** It can be easily adapted to developing vaccines for infectious diseases, novel therapies for cancer, and therapeutic protein delivery,
- 👍 **Cost-Effectiveness.** Lesser doses of highly immunogenic vaccine will be needed.
- 👍 **Ease of Manufacturing:** Can be manufactured by using uniform fermentation and purification procedures,
- 👍 **Longer Shelf Life.** DNA is more *thermostable* compared to *live/attenuated* viral vaccines
- 👍 **Market Potential:** The global vaccine market is expected to top \$10 billion this year and \$23.8 billion by 2012.

## Business Opportunity

UMass OTM is seeking statements of interest from parties interested in licensing and/or sponsoring collaborative research to further develop, evaluate, or commercialize this technology.

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