

SANARIA

MALARIA ERADICATION THROUGH VACCINATION

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
National Institutes of Health



National Institutes of Health Commercialization Assistance Program
(NIH-CAP)

Company Profile

Industry Sector: Biotechnology (Vaccines)

Company Overview: Sanaria has developed a malaria vaccine platform expected to prevent malaria in >90% of recipients for up to 10 months. The demand for such a vaccine is urgent for impacted populations, the military and international travelers – an estimated \$45 B market.

Target Market(s): The Global Health segment comprises foundations, governments and philanthropic organizations committed to serving the needs of infants and pregnant women in impacted areas. The Developed World segment comprises tourists, business travelers and the military.

Key Value Drivers

Technology: Sanaria is developing a malaria vaccine utilizing an immunogen of known efficacy – live attenuated *P. falciparum* sporozoites. The technical hurdles of producing and preserving sufficient quantities of immunogen under the exacting demands of cGMP have been overcome and clinical trials will soon commence.

Competitive Advantage: There is no licensed vaccine for malaria. Those currently in trials, including GSK's RTS,S, rely on one or a few recombinant or synthetic proteins and have provided only modest results. The majority of the world's successful vaccines use attenuated pathogens - usually live attenuated pathogens, as does Sanaria's vaccine.

Plan & Strategy: Strategic Our business model calls for development costs to come from non-equity sources. Although our vaccine will at once serve both the Global Health and Developed World markets, equity investment will permit parallel trials accelerating time to market.

*Technology funded by the NIAID and being commercialized under the NIH-CAP.

Management

Leadership:

Stephen L. Hoffman, M.D. - CEO & CSO – a world leader in malaria research.

Kim Lee Sim – Vice President, Process Development

Robert Thompson – Vice President, Operations

Scientific Advisory Board:

Fred Binka - Executive Director of InDepth-Network, Accra, Ghana

Carlos (Kent) Campbell - Director of Malaria Control and Evaluation Program in Africa), and PATH

Jeffrey D. Chulay - Medical Director of AlphaVax, Inc. and head of clinical development in HIV and Opportunistic Infections at GSK

Tore Godal - Special Advisor in the Prime Minister's Office, Government of Norway; Former Executive Secretary, Global Alliance for Vaccines and Immunization

Jeffrey D. Sachs - Director of the Earth Institute at Columbia University

James E. Schrage – Clinical Professor of Entrepreneurship and Strategy, U. Chicago Graduate School of Business

Product Pipeline

Sanaria's live attenuated *P. falciparum* sporozoite vaccine (PfSPZ) is anticipated to demonstrate >90% protection for up to 10 month based on the efficacy of the immunogen itself. Clinical trials will commence next year. Sanaria has just begun operation of its 23, 000 sq. ft. cGMP manufacturing facility and has produced sufficient vaccine for preclinical trials. Manufacturing has begun for clinical trial lot release. Manufactured vaccine is cryopreserved under liquid nitrogen giving it an indefinite shelf life.