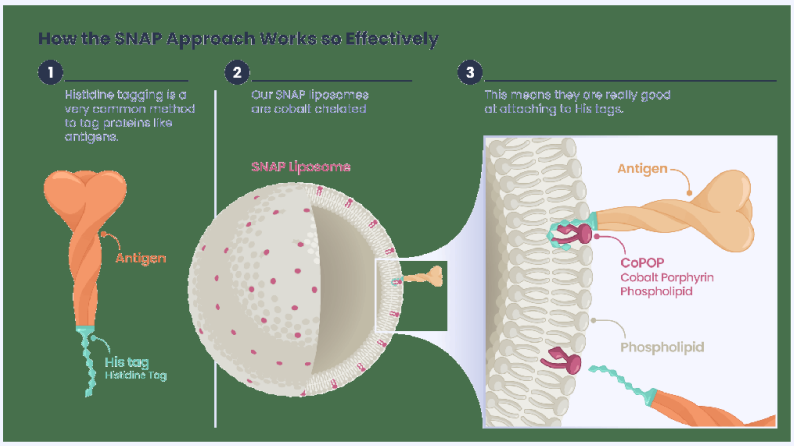
POP BIO awarded $2.84M Phase II SBIR for seasonal influenza vaccine development

BUFFALO, NY, UNITED STATES, November 26, 2024 / EINPresswire.com/ -- POP Biotechnologies Inc. (POP BIO) received a $2.84M Phase II SBIR under award number 1R44AI181479-01, supported by the National Institute of Allergies and Infectious Disease (NIAID), part of the National Institutes of Health (NIH), to pursue development of a unique vaccine approach against seasonal influenza.



SNAP Platform

Influenza is the cause of considerable morbidity and mortality globally. Despite immunization being the most effective and economical prophylactic approach, vaccines often provide less than optimal defense against an influenza virus infection and illness. While hemagglutinin (HA) is the primary target of influenza vaccines, it is also known that the other major surface protein, neuraminidases (NA) induce protective antibodies.

> This grant will provide significant validation for the POP BIO SNAP technology to serve as a means of addressing the critical unmet need for a more effective vaccine against seasonal influenza."
>
> *Hilliard Kutscher, PhD*

In this project POP BIO will develop its proprietary platform consisting of fabricating lipid bilayer nanoliposomes with a cobalt-porphyrin moiety intercalated into the bilayer (CoPoP) along with a monophosphoryl lipid A, a TLR4-based vaccine adjuvant, and a saponin QS-21 as the basis for a hexavalent influenza vaccine. CoPoP enables spontaneous nanoliposome adjuvant particle formation (SNAP). When SNAP liposomes are combined with his-tagged recombinant trimeric HAs and tetrameric NAs, a mosaic nanoparticle vaccine candidate, SNAP-Flu is formed. The his-tag stably inserts into the bilayer by association with the cobalt producing nanoliposomes decorated with the immunogenic influenza antigens. POP BIO has established that HA and NA protect mice from lethal H1N1, H3N2 and B strain influenza virus challenge, while even better protection is observed with the multivalent SNAP-Flu nanoparticle

vaccine. It has also been shown that this platform allows for the use of much less antigen in the vaccine (antigen sparing) in addition to the capacity for multiplexing with numerous antigens from different influenza strains.

This study will involve POP BIO producing and characterizing the physical and chemical properties of SNAP-Flu. POP BIO will collaborate with University at Buffalo, BIOQUAL, and Texas Biomedical Research Institute to assess the level of protection of SNAP-Flu against challenge with mouse-adapted strains of influenza in mice, human influenza strains in ferrets, and human influenza strains in non-human primates. The amount of antigen-sparing will be determined as will head-to-head comparison with other commercially available influenza vaccine formulations. This Direct to Phase 2 SBIR award will used to expand development of this platform to novel influenza antigen designs in preparation for clinical translation and testing.

About POP Biotechnologies: POP Biotechnologies, Inc. is a privately held biotechnology company focused on the research and development of novel therapeutics and vaccines employing their proprietary porphyrin-phospholipid (PoP) liposome technologies. The PoP technology, exclusively licensed from the State University of New York Research Foundation (SUNY-RF), was developed by company co-founder Dr. Jonathan Lovell at his academic facilities at The State University of New York at Buffalo (SUNY Buffalo). POP Biotechnologies is currently a resident of the SUNY Buffalo incubator at Baird Research Park.

About POP BIO’s SNAP Technology: POP BIO’s Spontaneous Nanoliposome Antigen Particleization (SNAP) technology enables the rapid development and manufacturing of highly immunogenic particle-based vaccines and immunotherapies directed against infectious disease and cancer through the use of a cobalt modified variant of the PoP technology (CoPoP). The SNAP technology enables the seamless generation of stable particle-formation and liposome-display of protein and peptide antigens resulting in substantial improvements in immune responses. The SNAP technology has undergone substantial human validation, completing Phase 3 clinical trials for COVID-19 and ongoing Phase 1 clinical studies in RSV and HZV.

Jonathan Smyth
POP Biotechnologies, Inc.
+1 315-220-0087
email us here