

Ocean Biomedical Announces Groundbreaking Malaria Vaccine Discovery

Screening Platform Can Help Develop Novel Vaccine Candidates Against Future Coronaviruses and Human Schistosomiasis



Providence, Apr 22, 2020 (Issuewire.com) - Ocean Biomedical is pleased to announce the publication of a groundbreaking discovery in the global effort to eradicate malaria. In advance of World Malaria Day, the journal Nature today [published](#) the findings of a Brown University research team led by Dr. Jake Kurtis, MD, PhD. This discovery provides new insights into the way malaria regulates infection levels within its host and new possibilities for a broadly effective vaccine and a whole new class of antimalarial medications.

According to the World Health Organization's 2019 Malaria Report, there were 228 million cases of malaria in 2018 and 405,000 deaths. Two-thirds of those deaths were children under 5 years old. "This disease is highly adaptable and for hundreds of years has evaded efforts to stop it," Dr. Kurtis said in an interview from his lab at Brown Medical School. "We believe this is a window of opportunity, and we are working with Ocean Biomedical to build a broadly effective vaccine that will deliver relief to the struggling populations, especially in sub-Saharan Africa."

“Malaria is the most significant killer of children on earth,” said Brown’s Dean of Medicine, Dr. Jack Elias. “Dr. Kurtis’ team’s discovery of PfGARP is a major advance toward developing a vaccine for this devastating disease, and Ocean Biomedical is committed to developing and delivering this vaccine.”

Ocean Biomedical is developing Dr. Kurtis’ discovery to accelerate the timetable for clinical availability of this new vaccine and related medicines. Ocean Biomedical’s experienced biopharma team will support the next steps in optimizing the vaccine formulation, preparing for phase 1 clinical trials, and developing related therapeutic treatments.

In addition to the potential malaria treatments, Ocean Biomedical plans to expand the unique development platform that led to this discovery to facilitate breakthroughs in other critical areas, including addressing novel coronaviruses, such as SARS-CoV-2.

A Unique Antigen: At the center of this breakthrough is the discovery of a new antigen protein, PfGARP, that is produced by malaria parasites at the trophozoite stage. When PfGARP is activated by antibodies, a signal is sent to the parasites inside the red blood cells to undergo programmed cell death, apparently as a self-regulating mechanism that keeps the malaria parasite from overwhelming its host. “It’s like a kill switch that can regulate the parasite’s density, and we believe we can use that switch as the core of a powerfully effective vaccine and therapeutic regimen,” said Dr. Kurtis. As revealed today in the Nature article, pre-clinical testing of an initial vaccine formulation has proven effective in laboratory studies, tissue culture studies, and non-human primate studies.

Vaccine Optimization: Dr. Kurtis is a founding partner in Ocean Biomedical and will work with the company to take the next steps in optimizing the vaccine for use in humans, and will then take it into phase 1 clinical trials. To optimize effectiveness, Kurtis’ team is experimenting with combining PfGARP with additional antigens discovered using their unique platform, working to create the strongest vaccine possible.

Differential Screening: To discover the PfGARP antigen, Dr. Kurtis and his team developed a pioneering whole-proteome differential screening platform and used that platform to examine blood samples from field studies in malaria-endemic regions of Tanzania and Kenya. As previously published in Science and Nature, Kurtis developed his screening technique to zero in on the antigen differences between children who are naturally resistant to malaria and those who are highly susceptible. Sifting through millions of possibilities, Kurtis’ team found two unique antigens that appear consistently in malaria-resistant children, PfSEA-1 ([Science, May 2014](#)), and then PfGARP. They have spent the last decade working to understand the function of those antigens and to develop treatment approaches around them, including designing an optimized vaccine.

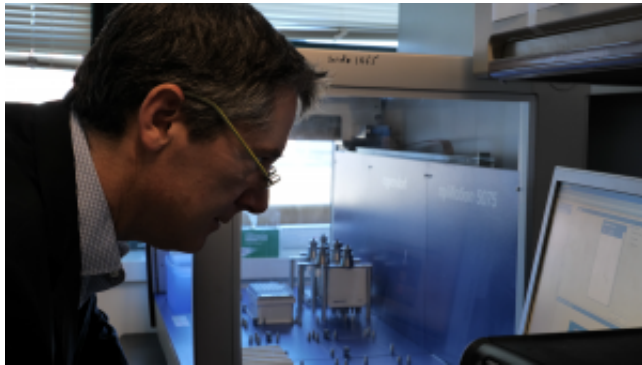
Expanding Malaria Discovery Platform to Other Illnesses, Including Coronaviruses: Kurtis’ team has also applied this whole-proteome differential screening platform to identify novel vaccine candidates against another intractable disease, human schistosomiasis japonica, a parasitic worm infection. Ocean Biomedical is committed to applying this unique discovery platform to other challenging infectious diseases, including viruses like the recently emerged SARS-CoV-2 which is responsible for the current COVID-19 pandemic. “Our whole-proteome differential screening platform is unique in that it identifies the pathogen targets that are recognized by protected humans, bypassing the shortcomings of starting with animal models,” said Ocean Biomedical’s founder and Chairman, Dr. Chirinjeev Kathuria. “This malaria vaccine platform has generated one of the most exciting vaccine candidates for treating malaria in the world. We’re thrilled to be moving it forward, and we’re looking to adopt the platform for use with other intractable diseases, including those that can cause devastating coronavirus pandemics.”

Ocean Biomedical: Ocean Biomedical Inc. (oceanbiomedical.com) is a Rhode Island based company that was founded by Brown University medical school graduate and Stanford business school graduate Dr. Chirinjeev Kathuria, along with Dr. Jack Elias, Brown's Dean of Medicine, and other experienced biopharma executives. The company is working to help facilitate the translation of great laboratory science into practical medical treatments. Ocean Biomedical is partnering with inventor-scientists and research institutes to bridge the gap between basic research and clinical development. The company's mission is to identify promising discoveries in need of expertise and funding to help bridge the translational research process and move efficiently through clinical trials, and on to the patients who need it most.

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ADDITIONAL Photos and media available by request.



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