

Hilleman Laboratories' Synthetic Vaccine to Fight Growing Meningitis

New Delhi, 26 October 2015: Global vaccine research and development organization, Hilleman Laboratories, has announced the publication of an original scientific report in the Royal Society of Chemistry Advances Journal based on the synthesis of a meningitis vaccine for *Neisseria meningitidis* sero group X (MenX). This first report of an efficient MenX tetramer synthetic strategy can address the critical issue of the rise of meningitis serogroups. After the containment of the more common strains of meningitis (MenA, C, Y, W), MenX has been increasingly responsible for meningitis epidemics.

“Normally there is a large capital investment required for creating such a vaccine. Hilleman Laboratories, however, has taken an approach that will allow the vaccine to be created at a lesser cost thus providing a boost to vaccine manufacturers on creating low cost next-generation vaccines using synthetic platform technology” said **Dr. Davinder Gill, CEO, Hilleman Laboratories**

Speaking on this new development **Dr. Manoj Kumar Chhikara, Head of the Conjugate Vaccines** said, *“In this unique research, we have been able to come up with a synthetic strategy for the tetrameric repeat unit of the capsular polysaccharide (CPS) of N. meningitidis serogroup X, using common reaction intermediates and generalized chemical conditions. The glycoconjugate vaccine with bacterial CPS antigens which have been in use for the eradication of infections suffer from disadvantages, ranging from handling of live bacterial strains, presence of biological impurities, batch to batch variations and epitopic modification during conjugation. We discovered that with the use of synthetic oligosaccharides with precise structures for the preparation of glycoconjugate derivatives the short-comings could be significantly overcome. To our knowledge, we are the first worldwide group to have successfully made a synthetic MenX tetramer-tetanus toxoid conjugate vaccine.”*

Meningitis is a type of meningococcal disease and a relatively common infection that affects the delicate membranes, called meninges, that covers the brain and spinal cord. Bacterial meningitis can be deadly and contagious among people in close contact. It is caused by any one of several bacteria, the most common of which is *N. meningitidis*. The bacteria can spread from person to person through coughing and sneezing. A person develops bacterial meningitis when bacteria get into the bloodstream from the sinuses, ears, or other part of the upper respiratory tract. The bacteria then travel through the bloodstream to the brain.

The incidence of endemic meningococcal disease in India is varied, but occasional epidemics of meningococcal disease have been recorded for at least 100 years. When there have been relatively larger epidemics of the disease, they have mainly affected the cities of northern India, especially Delhi. On the other hand, Sub-Saharan Africa is known as the ‘meningitis belt’ because large epidemics occur frequently there on a scale that is unparalleled as compared to the rest of world.

Speaking more about the conjugate vaccine research, **Dr. Chhikara** said, *“Currently the research is still under progress and pre-clinical trials are ongoing. But the first report has shown positive results; so much so that in controlled experiments by the use of synthetic organic chemistry the conjugated vaccine has been found to have efficacy greater than 100-fold than the oligosaccharide vaccine alone. Duration of further development of this vaccine would however take another 5 years.”*

About Hilleman Laboratories:

Hilleman Laboratories is a first-of-its-kind joint-venture partnership formed between Merck & Co., a global research-driven pharmaceutical organization and Wellcome Trust, a global charitable foundation dedicated to human and animal health by supporting the brightest minds.

Hilleman Laboratories has been named after renowned scientist and father of modern vaccines Dr. Maurice Hilleman. His dedication to making a difference through the practical application of vaccine research and delivering vaccines to people in need forms the core mission of Hilleman Laboratories.

Operating on a not-for-profit principle, Hilleman Laboratories aims to become a preferred partner for Low Cost Vaccine Manufacturers and the ‘global voice’ for vaccine development and usage for public health in the developing world. For further information please visit: www.hillemanlabs.org

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