New adjuvant successful in extending immunity against HIV
20 June 2020, by Lisa Newbern

Researchers at the Yerkes National Primate Research Center and the Emory Vaccine Center (EVC) are first to show a new adjuvant, 3M-052, helps induce long-lasting immunity against HIV. The study results are published today in Science Immunology.

In this pre-clinical study that included 90 rhesus monkeys, the researchers showed 3M-052, a new, synthetic small molecule that targets a specific receptor (TLR 7/8), successfully induced vaccine-specific, long-lived bone marrow plasma cells (BM-LLPCs), which are critical for durable immunity. In a striking observation, 3M-052-induced BM-LLPCs were maintained at high numbers for more than one year after vaccination. This prolonged interval is not only feasible in monitoring pre-clinical effectiveness, it is also highly informative in down selecting vaccine candidates.

First author Sudhir Pai Kasturi, Ph.D., an assistant professor at Yerkes and the EVC, says, "We have known adjuvants are critical immunity-boosting supplements that help improve the effectiveness of vaccines. Until now, however, it has been unclear which class of adjuvants can promote stable and long-lived immunity in nonhuman primate models. Our study provides that information."

Co-senior author Rafi Ahmed, Ph.D., director of the Emory Vaccine Center, adds, "The key to a successful vaccine is durability of immune responses. Antibodies provide the first line of defense against pathogens, and antibody levels are maintained by the generation of long-lived plasma cells that reside in bone marrow. Our study identifies an adjuvant that is effective in generating such long-lived plasma cells in bone marrow. This finding has implications for developing successful vaccines against HIV, influenza and, especially important now, COVID-19.


Provided by Emory University