



THERAPEUTIC

Two-Step Immunization Strategy to Elicit HIV Neutralizing Antibodies

Brief Technology Description

Two-step immunization process guiding the maturation of VRC01-like antibodies by accommodating a conserved position of Env, which is known to restrict CD4-binding sites.

BUSINESS OPPORTUNITY

Exclusive license
Sponsored research
Start-Up

TECHNOLOGY TYPE

Vaccine
Therapeutic

STAGE OF DEVELOPMENT

Preclinical in vivo

PATENT INFORMATION

[Patent Pending](#)

INVESTIGATOR OVERVIEW

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Technology Overview

VRC01-class antibodies are considered potent and broad neutralizing antibodies (bnAbs) for HIV-1 and are important in eliciting protective immune responses in HIV vaccines. Although VRC01-class antibodies mature along different pathways, the complementarity determining region (CDR) domains similarly recognize CD4-binding sites of Env, thus providing their bnAb activity. Efforts to guide antibody maturation elicited by germline-targeting still lack the ability to efficiently bypass the major challenge N276 steric obstruction. Drs. Stamatatos and McGuire have developed a two-step immunization scheme consisting of an immunization with a VRC01 germline-targeting immunogen core, followed by a boost immunization with a heterologous Core expressing N276-associated glycans. As a result, they have discovered how to produce VRC01-like antibodies that overcome steric block and that neutralize the autologous, tier 2 426c virus.

Applications

- Vaccination for prevention and treatment of HIV infection
- Treatment of chronic viral infections

Potential Advantages

- Overcomes steric hindrance
- Only requires a two-step immunization
- Cost-effective manufacturing
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Market Overview: Although more than 60 phase I/II trials covering greater than 10,000 patients have been conducted, there is still no commercially available vaccine for HIV prevention. A significant rise in infectious rates spurred by needle contamination and through bodily fluids like breastmilk and blood continue to grow the global HIV vaccine market. With a compound annual growth rate (CAGR) of 5.2% and an estimated value of USD 2,702.3 billion by 2027, companies and governments are dedicating substantial resources to finding a solution.