

Attenuated Rubella Vector to Express Vaccine Antigens

Technology Summary

Live attenuated viruses make potent and effective vaccines. Despite the urgent need for a human immunodeficiency virus (HIV) vaccine, this approach has not been feasible due to the inability to attenuate viruses to guarantee a safe and reliable vaccine. In its place, live viral vectors have been proposed that could present HIV vaccine antigens in the context of an active infection.

FDA inventors have developed a rubella viral vector platform capable of stably expressing a heterologous antigen. An acceptor site in the rubella nonstructural gene region was identified that can be modified to express the insert with the nonstructural protein, P150, as a fusion protein without affecting essential viral functions. The inserts are expressed as early genes of rubella, under control of the rubella genomic promoter. Using this site, HIV and simian immunodeficiency virus (SIV) antigens were stably expressed with high titers achieved. Another advantage of the rubella vector platform is its ability to readily infect rhesus macaques, the ideal model for testing the new vectors for replication *in vivo*, immunogenicity, and protection against SIV or SHIV challenge.

Potential Commercial Applications

- Development of HIV vaccines
- Development of a bivalent rubella vaccine
- Research tool
- Rhesus macaque models

Competitive Advantages

- Ease of manufacturing
- Lower cost vaccines

Development Stage:

- Pre-clinical, *in vitro* data available
- *In vivo* data available (animal)

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Publication(s): Virnik K, et al. Live attenuated rubella viral vectors stably express HIV and SIV vaccine antigens while reaching high titers. *Vaccine*. 2012 Aug 10;30(37):5453-8. PMID: 22776214

Intellectual Property: US Patent 9,566,329, issued 2/14/2017

Product Area: Research materials

FDA Reference: E-2012-003

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