How close are we to a Zika vaccine?

Source: Thomas SJ. Zika Virus Vaccines — A Full Field and Looking for the Closers. N Engl J Med 2017; 376:1883-1886 May 11, 2017. https://doi.org/10.1056/NEJMcibr1701402. (summary).

There are no licensed antiviral drugs to prevent or treat Zika virus (ZIKV) infection or disease. Caring for patients with severe ZIKV disease manifestations, especially patients who were exposed in utero, is challenging for all involved. Because of these challenges, the WHO has called for development of a ZIKV vaccine, with an initial focus on protecting women of childbearing age. Two recent reports describing the successful testing of experimental ZIKV vaccines in animal models — one by Pardi et al. and another by Richner et al. — are welcome news. Both groups engineered messenger RNAs (mRNAs) with sequences encoding the ZIKV precursor membrane (prM) glycoprotein and envelope (E) glycoprotein.

Data from studies in animals have now been described for numerous ZIKV vaccine candidates. The candidates produced no acute safety signals, induced ZIKV-specific humoral or cellular immune responses, and conferred at least some protection against live virus challenge. The mRNA vaccine constructs reviewed here offer numerous potential advantages, including ease and cost of manufacturing, applicability across diverse pathogens, and a favorable safety profile. Vaccinology, however, constantly warns against extrapolating conclusions from animal experiments to humans. In the case of ZIKV vaccines, most of the available data have been generated with the use of animals that have had no previous exposure to flaviviruses. Will preexisting immunity to flaviviruses (such as the dengue, yellow fever, West Nile, and Japanese encephalitis viruses) affect the safety or immunogenicity of a ZIKV vaccine? Demonstrating safety in a small number of volunteers appears feasible; demonstrating that vaccine-induced immune responses are associated with clinical efficacy will be a much more formidable task.

Despite the challenges, the pace of ZIKV vaccine research and development has been impressive. However, history has shown that the race for a vaccine typically begins with many contenders at the start, of whom very few finish the race. This observation notwithstanding, the recently published data from Pardi et al. and Richner et al. represent an important step toward the goal of protecting people from ZIKV through active immunization.

Correction for Can Commun Dis Rep. Supplement 2008;34(S2)

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In the Final Report to Outcomes from the National Consensus Conference for Vaccine-Preventable Diseases in Canada, June 12-14, 2005 – Quebec City, Quebec published in March, 2008, the citation on the inner cover of the PDF had the incorrect year of publication and supplement number.

Was:

Suggested citation: Public Health Agency of Canada. Final Report of Outcomes from the National Consensus Conference for Vaccine-Preventable Diseases in Canada. CCDR 2007;33S3:1-56.

Correction October 5, 2017:

Suggested citation: Public Health Agency of Canada. Final Report of Outcomes from the National Consensus Conference for Vaccine-Preventable Diseases in Canada. CCDR 2008;34S2:1-64.