Zika vaccine protects both mom and fetus, but mom needs a higher dose when pregnant

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Credit: University of Texas Medical Branch at Galveston

Researchers from The University of Texas Medical Branch at Galveston showed, for the first time, that a single, higher dose of vaccination to a pregnant mouse safely protects both her and her fetus from the Zika virus.

The researchers found that a single, less potent dose was not enough to protect the fetus. The findings are currently available in *Nature Communications*.

"Preventing birth defects in developing fetuses is an important goal of the Zika virus vaccine but studies on vaccinations in pregnant females have been lacking, raising a number of important questions that are critical to the clinical development and regulatory approval of Zika vaccines," said UTMB's Pei-Yong Shi, senior author and the I.H. Kempner professor at the department of biochemistry and molecular biology. "Could vaccination during pregnancy protect against infection and transmission to the fetus? Does pregnancy affect immune responses to Zika vaccination? Does maternal immunity from vaccination during pregnancy protect newborns against infection?"

Shi and his laboratory previously developed a Zika vaccine and continue studies to improve its efficacy.

In addition to protecting both mother and fetus, Shi said that the researchers also learned that their live-attenuated vaccine has an excellent safety profile in pregnant female mice and her fetus. For example, they saw no adverse effects on pregnancy, fetal development or infant behavior. They also found that pregnancy weakens the mother's immune response to the vaccination, suggesting that that a higher dose of the vaccine or a more immunogenic vaccine is needed during pregnancy. Taken together, their results suggest that their vaccine may be considered for both pregnant and non-pregnant people.

More information: Chao Shan et al. Maternal vaccination and protective immunity against Zika virus vertical transmission, *Nature Communications* (2019). DOI: 10.1038/s41467-019-13589-1

Provided by University of Texas Medical Branch at Galveston