

US researchers develop a universal vaccine platform

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Researchers at The University of Texas Medical Branch at Galveston, US have developed a less expensive way to produce vaccines that cuts the costs of vaccine production and storage by up to 80 per cent without decreasing safety or effectiveness.

The research team engineered a live-attenuated Zika vaccine in the DNA form. Once the DNA is delivered into the body, it launches the vaccine in the cells, leading to antibody production and other protective immunity. With this production method, there is no need to manufacture the vaccine in cell culture or eggs at factories. Because DNA molecules are shelf stable, the vaccine will not expire at warm temperatures and could be stockpiled at room temperature for years.

Using this model, the research group showed that the DNA platform worked very efficiently in mice. After a single low dose, the DNA vaccine protected mice from Zika virus infection, mother-to-fetus transmission during pregnancy and male reproductive tract infection and damage.

This is the first study to demonstrate that, after a single low dose, a DNA vaccine could induce saturated protective immunity. The team intends to continue testing this promising Zika vaccine platform and then apply the platform to other viruses.