

Zika infection is caused by one virus serotype, study finds

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WHAT:

Vaccination against a single strain of Zika [virus](#) should be sufficient to protect against genetically diverse strains of the virus, according to a study conducted by investigators from the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health (NIH); Washington University in St. Louis; and Emory University in Atlanta.

Zika virus strains are grouped into two distinct genetic lineages: African and Asian. The Zika virus strain circulating in the current outbreak affecting Central and South America and the Caribbean is of the Asian lineage. When individuals are infected with Zika virus, their immune systems produce neutralizing antibodies to fight the infection. These antibodies may offer immunity against future infections by strains of the same Zika virus lineage. Until now, it was unclear whether the antibodies could also protect against infection with strains of the other Zika virus lineage. Results from laboratory experiments and tests in mice now show this may be possible. Such protection indicates that, despite being genetically distinct, all strains of Zika virus have identical surface antigens and therefore are the same serotype. The closely-related Dengue virus has four serotypes, which is why people can be infected with dengue as many as four times, once with each serotype.

In this study, scientists took serum samples from people infected by Zika virus strains circulating in South America and mixed them with multiple

strains of the virus in the laboratory to see how well the serum antibodies neutralized the virus. Results showed that antibodies elicited after infection with Zika virus strains of the Asian lineage were able to potently inhibit both Asian lineage and African lineage strains. The researchers conducted similar experiments using serum samples from mice and found that sera from mice infected with either Asian or African Zika virus strains were equally effective in neutralizing virus strains from either [lineage](#).

The findings are important to the ongoing effort to rapidly develop a preventive Zika vaccine, according to the authors. Because there is only one Zika virus serotype, [antibodies](#) elicited by any Zika virus strain in a vaccine could conceivably confer protection against all Zika [virus strains](#), the researchers conclude.

More information: KA Dowd et al. Broadly neutralizing activity of Zika virus-immune sera identifies a single viral serotype. *Cell Reports*. DOI: [10.1016/j.celrep.2016.07.049](https://doi.org/10.1016/j.celrep.2016.07.049)

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