



Zika and Mayaro vaccines being developed

Virologist Sandra Abbo got a distinction for her PhD research on the development of candidate vaccines for two tropical diseases that are on the rise. The viruses are transmitted by mosquitos.

In 2015 and 2016, the world was worried about an outbreak of the Zika virus, mainly in South American countries. Infection is particularly dangerous for pregnant women, as it can lead to severe microcephaly in the baby (small skull and brain). Numbers of infections are much lower at present, although the virus is still circulating in the tropics. There is no approved treatment or vaccine for the virus. So Abbo decided to

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develop a vaccine in her lab. She also came up with a vaccine for the Maya-

ro virus. That virus is found in Central and South America and can lead to persistent joint pain. Abbo developed vaccines based on virus-like particles. The exterior (envelop) is identical to that of the virus but the particle does not contain any genetic material. That means it is harmless but still causes a strong immune response.

Test with mice

Both vaccines were tested in mice by scientists in Australia. Two jabs of the Mayaro vaccine gave good protection against the virus and arthritis. The Zika vaccine did not work well, possibly because the protein on the virus envelop was not folded correctly. Abbo strengthened the links between the proteins and reduced the acidity of the bioreactor to change the folds. The tweaked design is now ready for a new test with mice. The Mayaro vaccine can be developed further for trials with human subjects. ss