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Polarization remote sensing: New method for the earth observation and climate change

For many of the world's most dangerous viruses, traditional vaccine technologies have failed to provide protections, especially against those with multiple strains or serotypes. The hemorrhagic fevers caused by the Ebola and Marburg viruses are among the most deadly diseases to affect humans, and are fatal in nearly 90% of those affected. The dengue fever viruses affect over 100 million people each year, with severe cases causing a hemorrhagic fever or shock syndrome or death. In response to these needs, we have developed a multivalent vaccine platform, based on the complex ad-vector vaccine platform (CAdVax), and have shown its efficacy in vaccines against some of the most dangerous infectious agents. There are many advantages of the CAdVax platform, but the most important one is its capacity of expressing multi-antigens *de novo* to induce immune responses by mimicking natural infection, but without causing any significant side effects. This makes the platform especially suitable for multivalent vaccines to protect against viruses of multiple subtypes. In animal studies, the CAdVax vaccines induce potent immune responses, 100% of the vaccinated animals, including non-human primates, survived challenge by multiple subtypes of Ebola, Marburg, or effectively suppressed viremia of all four types of dengue viruses. The same CAdVax platform has been applied to other viral agents, including the highly pathogenic influenza, West Nile Virus, and Rift Valley Fever virus. All theses vaccines induced portent immune response against their specific viral targets. These results demonstrated the broad application of the vaccine platform against lethal virus infections.

Biography

Lei Yan has completed his Ph.D. from Tsinghua University and postdoctoral studies from Peking University School of Earth and Space Science. He is the Director of Beijing Key Lab of Spatial Information Integration & Its Applications. In the past 10 years, more than 240 articles are published, about 30 of them are indexed by SCI and 80 are indexed by EI. He is one of the "Hundred Talents" of Changchun Institute of Optics and Fine Mechanics. His research on PRS was awarded as the first Award for Natural Science of Beijing in 2012.

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