283. Long-term protection from SARS coronavirus infection conferred by a single immunization with an attenuated VSV-based vaccine

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Abstract

Although the recent SARS coronavirus (SARS-CoV) that appeared in 2002 has now been contained, the possibility of re-emergence of SARS-CoV remains. Due to the threat of re-emergence, the overall fatality rate of ~10%, and the rapid dispersion of the virus via international travel, viable vaccine candidates providing protection from SARS are clearly needed. We developed an attenuated VSV recombinant (VSV-S) expressing the SARS coronavirus (SARS-CoV) spike (S) protein. In cells infected with this recombinant, S protein was synthesized, glycosylated at approximately 17 Asn residues, and transported via the Golgi to the cell surface. Mice vaccinated with VSV-S developed SARS-neutralizing antibody and were able to control a challenge with SARS-CoV performed at 1 month or 4 months after a single vaccination. We also demonstrated, by passive antibody transfer, that the antibody response induced by the vaccine was sufficient for controlling SARS-CoV infection. A VSV-vectored SARS vaccine could have significant advantages over other SARS vaccine candidates described to date.