Severe acute respiratory syndrome (SARS) was a disease that emerged in 2002. The disease was caused by animals and got transmitted to humans. The public health was able to control the disease, but there is a possibility that it might re-emerge again. If SARS re-emerged, there is a chance that scientists may have a difficult time controlling it. Reverse genetics was used to develop a vaccine that is both robust and biosafe. The SARS-CoV genome was duplicated in separate vaccinia virus vectors. One was vSARS-CoV-5prime and the other one was vSARS-CoV-3prime. The two cDNAs were created for *in vitro* transcription of SARS-CoV infectious RNA transcripts. The transfection of the RNA transcripts led to the recovery of the virus. The characteristics of the plaque produced by recSARS-CoV showed they were very similar size to parent SARS-CoV isolate HKU-39849, but smaller than SARS-CoV isolate Frankfurt-1. Reverse genetic system was used to make a recSARS-CoV reporter virus expressing *Renilla* luciferase to facilitate the analysis of SARS-CoV in human cells. The *Renilla* luciferase was used in the human coronavirus 229E too.

**Citation**

**Worm S, Eriksson K, Zevenhoven J, Weber F, Zust R, Kuri T, Dijkman R, Chang G, Siddell S, Snijder E, Thiel V, Davidson A**. 2012. Reverse Genetics of SARS-Related Coronavirus Using Vaccinia Virus-Based Recombination. PLOS ONE 7(3): e32857. <https://doi.org/10.1371/journal.pone.0032857>