

Plasmid	TOSV genomic segment end	Sequence (5' -> 3')
pUC57-L	T7 promotor – 3'UTR – ATG	TAATACGACTCACTATAG ACACAAAGAGGCCCAAATATG
	TAA – 5'UTR – HδV ribozyme	TAACA ACTTTGACACTTAGAGAACTAAGAAGGATAAAG GGTTAGGGGGGTGTTCTTTGTTATGTCTATAAATTATT TAAGAATTGGGCGGTCTTTGTGT GGGTCGGCATGGCATC TCC
pCC1-M	T7 promotor – 3'UTR – ATG	TAATACGACTCACTATAG ACACAAAGAAGGTGCTTATG
	TAA – 5'UTR – HδV ribozyme	TAAAA AATCCATCTTCTTTCTATTATTCTCATGTATCT TTCACCTCAGGGTTTAGGGGGGGAGTGGGCAGTGCATGTG TATGGCTCCGTTAGGCAGGTCTGAATCTCAGGGAAAGTA TGGGAAGCAAAACAAGTTGATGGCAGTTTGGACATATTT TGTTTTGTTCTTTAAAGCACCGGTCTTTGTGTGGGTCGG CATGGCATCTCC
pUC57-S	T7 promotor – 3'UTR – ATG	TAATACGACTCACTATAG ACACAGAGATTCCCGTGTATT AATCAAAAGCTATCAACATG
	TAA – 5'UTR – HδV ribozyme	CATGG CTGTCTAGAAGTCTATTATTAGTTCTGGTTTAGC GATAC GGGAGGTCTTTGTGTGGGTCGGCATGGCATCTCC

Figure S1. Sequences of the 3' and 5' ends of the TOSV genomic segments, flanked by the T7 polymerase promotor (T7 promotor) and the HδV ribozyme respectively. T7 polymerase promotor and HδV ribozyme appear in black and TOSV genome sequences in blue. The authentic ATG (or CAT) start codons and the UAA stop codons appear in blue bold. UTR, untranslated terminal region.

NSs ¹ **ATG**CAATCCAGAGCTGTCATTCTGAAGCACAAGTCTGGTTCAAGCCATAAGAGGTCTTTG 60
 ϕNSs **TAG**CAATCCAGAGCTGTCATTCTGAAGCACAAGTCTGGTTCAAGCCATAAGAGGTCTTTG 60

NSs CCTAGGTTCTACATAGACTGTGACCTGGACACCTTTGATTTTGAAAAGGACTGCTCTTTA 120
 ϕNSs CCTAGGTTCTACATAGACTGTGACCTGGACACCTTTGATTTTGAAAAGGACTGCTCTTTA 120

NSs ² ATCGAGA**ATG**AGTTCCCTATTTACATAAAAAATT ³ **ATG**AGGTAGTATACAAGTCAAGACCA 180
 ϕNSs ATCGAGAT**TAG**AGTTCCCTATTTACATAAAAAATT **TAG**AGGTAGTATACAAGTCAAGACCA 180

NSs ACTCTTTCACACTTCCTCATAA ⁴ **ATG**GAGAATTCCCTGCAGTTCTGGGACCAGGT ⁵ **ATG**ATC 240
 ϕNSs ACTCTTTCACACTTCCTCATAA **TAG**GAGAATTCCCTGCAGTTCTGGGACCAGGT **TAG**ATC 240

NSs AGTGCTGTTTGAAGTACTGTT ⁶ **ATG**AGCCAACAATAAGGGAGCTTTACCAGGAATCTATT 300
 ϕNSs AGTGCTGTTTGAAGTACTGTT **TAG**AGCCAACAATAAGGGAGCTTTACCAGGAATCTATT 300

NSs CATCAGCTAAAAAGGAGCAATAAGAAATATCTCTTGCTGCCCTCAG ⁷ **ATG**GCCAACAGGA 360
 ϕNSs CATCAGCTAAAAAGGAGCAATAAGAAATATCTCTTGCTGCCCTCAG **TAG**GCCAACAGGA 360

NSs ATCCCCTCTCTTGAGTTCATAGATTACTATTTTCGAGGAGCTCCTGTTCTTGTCGGAGTTT 420
 ϕNSs ATCCCCTCTCTTGAGTTCATAGATTACTATTTTCGAGGAGCTCCTGTTCTTGTCGGAGTTT 420

NSs GATCCAGGATCTATTCAGAGATATCTCAAATTACTGGTCAAGGCTTCTGGACTCTACTGT 480
 ϕNSs GATCCAGGATCTATTCAGAGATATCTCAAATTACTGGTCAAGGCTTCTGGACTCTACTGT 480

NSs TCAACCATTGAGGAGCAAATAGTGGAATTCATAGGAGGGTTCTCCTAGAAGGCAAGAAG 540
 ϕNSs TCAACCATTGAGGAGCAAATAGTGGAATTCATAGGAGGGTTCTCCTAGAAGGCAAGAAG 540

NSs ⁸ **CATG**GATTAAGTCTTTTGACCTCCCAGGAA ⁹ **ATG**ACATCCTCGGAGACAT ¹⁰ **ATG**TGTGGTT 600
 ϕNSs **C****TAG**GATTAAGTCTTTTGACCTCCCAGGAA **TAG**ACATCCTCGGAGACAT **TAG**TGTGGTT 600

NSs CAAGCAGCACGGGTGACTAAATTGGTTGCAAAGGCATTTTCTAGA ¹¹ **ATG**ACCAGAGACTCC 660
 ϕNSs CAAGCAGCACGGGTGACTAAATTGGTTGCAAAGGCATTTTCTAGAT **TAG**ACCAGAGACTCC 660

NSs ¹² CAAGT**ATG**ATATACTTTTCAATAAGCCCAGTGGAATTAGTTCTGAGCAAGCTTGATAGG 720
 ϕNSs CAAGT**TAG**ATATACTTTTCAATAAGCCCAGTGGAATTAGTTCTGAGCAAGCTTGATAGG 720

NSs ¹³ AAAG**ATG**ACAAGAAGGCTAAGGCAAAGGGTTTACTATCA ¹⁴ **ATG**AGTGCTGCCAAGTCTTT ¹⁵ **AT** 780
 ϕNSs AAAG**TAG**ACAAGAAGGCTAAGGCAAAGGGTTTACTATCA **TAG**AGTGCTGCCAAGTCTTT **TA** 780

NSs ¹⁶ **G**ACTACTTCT**ATG**AAAACAGACCTGAGATTTAGAGAACTGCTCTTTCCACCTTCTGGGCT 840
 ϕNSs **G**ACTACTTCT**TAG**AAAACAGACCTGAGATTTAGAGAACTGCTCTTTCCACCTTCTGGGCT 840

NSs ¹⁷ AAAGATTGGCCCAACAATAC **ATG**AGTCTGTGCTGTCTAATAGACG ¹⁸ **ATG**CCCTAAGGAAGAC 900
 ϕNSs AAAGATTGGCCCAACAATAC **TAG**AGTCTGTGCTGTCTAATAGACG **TAG**CCCTAAGGAAGAC 900

NSs AAGAGAGTGACAAAGTGGCTGCCTAGTCCCCCCCCACTACCCACCCCTATGA 951
 ϕNSs AAGAGAGTGACAAAGTGGCTGCCTAGTCCCCCCCCACTACCCACCCCTATGA 951

Figure S2. Nucleotide sequence alignment of TOSV NSs (H4906) strain and the derived mutant ϕNSs, the 18 first ATG codons of which were replaced by TAG stop codons. The blue numbers indicate the ATG codons that have been mutated in the ϕNSs sequence. ATG codons appear in bold red in the wild type NSs sequence when they have been replaced by TAG stop codons, which appear in bold green in the ϕNSs sequence.

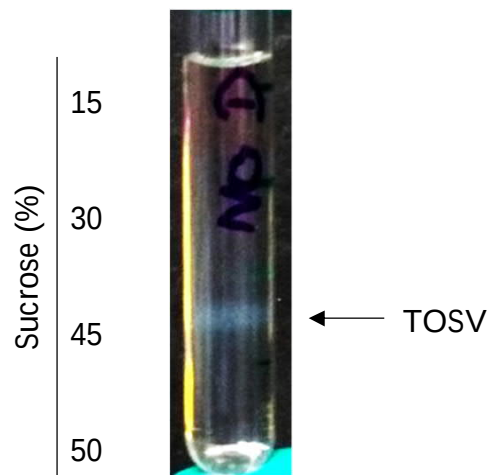


Figure S3. The picture shows a sucrose linear gradient after ultracentrifugation with a large white band that corresponds to TOSV.