Supplementary Figure 1. Confirmation of Cas9 expression in *N. benthamiana*
Western blot confirmation of Cas9 expression in three individual T3 permanent lines (for targeting IR, CP and Rep) of *N. benthamiana*. Anti-flag anti-body was used to detect flag-tagged Cas9. Arrow indicates the expected 169 kDa Cas9.

Supplementary Figure 2. Confirmation of Cas9 expression in *S. lycopersicum*
Western blot confirmation of Cas9 expression in six individual permanent lines (for targeting CP and Rep) of (*S. lycopersicum)*. Anti-flag anti-body was used to detect flag-tagged Cas9. Arrow indicated the expected 169 kDa Cas9.

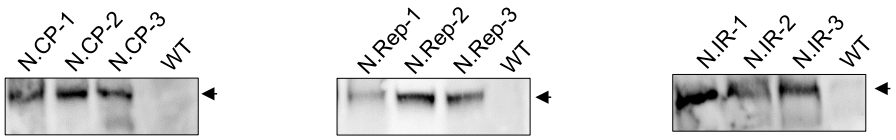
Supplementary Figure 3. RCA for TYLCV genome accumulation

RCA assay for accumulation of the TYLCV genome in T3 lines of tomato expressing CRISPR-Cas9. Compared to the wild type (set as 100%), plants expressing CRISPR-Cas9 accumulate a lower level of the TYLCV genome.

Supplementary Figure 4. Semi-quantitative PCR for TYLCV2.3 genome accumulation

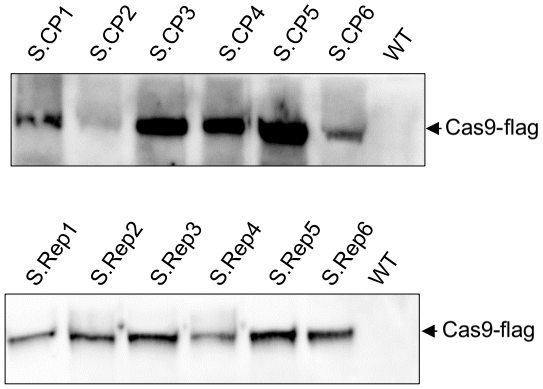
Semi-quantitative PCR for TYLCV genome accumulation in T3 lines of tomato expressing CRISPR-Cas9. Compared to the wild type (set as 100%), plants expressing CRISPR-Cas9 accumulate a reduced level of the TYLCV genome.

Supplementary Figure 1. Cas9 expression confirmation in *N. benthamiana*



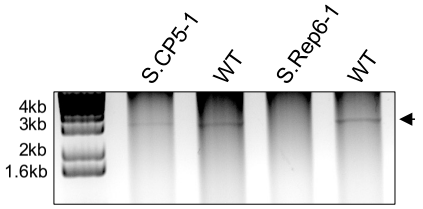
Western blot confirmation of Cas9 expression in three individual T3 permanent lines (for targeting IR, CP and Rep) of *N. benthamiana*. Anti-flag anti-body was used to detect flag-taged Cas9. Arrow indicated the expected 169kda Cas9.

Supplementary Figure 2. Cas9 expression confirmation in *S.lycopersicum*



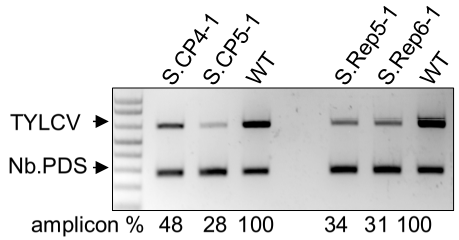
Western blot confirmation of Cas9 expression in six individual permanent lines (for targeting CP and Rep) of (*S. lycopersicum)*. Anti-flag anti-body was used to detect flag-taged Cas9. Arrow indicated the expected 169kda Cas9.

Supplementary Figure 3. RCA for TYLCV genome accumulation



RCA assay for the TYLCV genome accumulation in T3 lines of tomato expressing CRISPR-Cas9. Compared to the 100% wild type, plants expressing CRISPR-Cas9 accumulate a reduce level of TYLCV genome.

Supplementary Figure 4. semi-quantitative PCR for TYLCV2.3 genome accumulation



Simi-quantitative PCR for the TYLCV genome accumulation in T3 lines of tomato expressing CRISPR-Cas9. Compared to the 100% wild type, plants expressing CRISPR-Cas9 accumulate a reduce level of TYLCV genome.