



Supplementary Figure S1. Structure of the CMV-HL vector. Full-length CMV-HL RNA1, 2, and 3 genomes were respectively cloned downstream of the T7 promoter (named pCHL1, pCHL2, and pCHL3, respectively). *StuI*-*BglII* (SB) or *EcoRV*-*BglII* (EB) cloning sites were introduced between 3a and 3b in RNA3, and 33- or 52-nt fragments of *LIPDS* were respectively inserted into these sites. 1a and 2a encode the replication complex, 2b encodes the silencing suppressor, and 3a and 3b encode the movement and coat proteins, respectively. The CY2T7 and HL1-3 arrows indicate the position of the primers used to amplify the fragment including the T7 promoter and full RNA1 genome. *SphI* and *EcoRI* indicate the restriction sites at the 3' end of the RNA2 and 3 genomes, respectively. *NheI* and *EcoRI* indicate the restriction sites used to construct the cloning sites. The HL3ff and HL3er arrows indicate the positions of primers used to detect viral inoculation and the presence of the *LIPDS* fragments.

5' _GGAGCACTCTATGATTTTTGCAATGCCAAACAAGCCAGGAGAATTCAGCCGCTTT
GATTTTCCAGAGGTTCTTCCCTGCACCCTTAAATGGAATATGGGCCATCTTAAAGAATA
ATGAAATGCTGACTTGGCCAGAAAAAGTGCGTTTTGCCATAGGCCCTTCTACCTGCTAT
GATTGGGGGACAGGCCTATGTTGAGGCTCAGGATGGTTTAACTGTTAAAGAGTGGATG
33 nt fragment
AGGAAGCAGGGCGTTCCTGAACGTGTCAATGACGAAGTTTTATTGCAATGTCCAAAG
CTCTTAATTTTATAAATCCAGATGAGCTTTCATGCAGTGCATTTTAAATTGCTTTAAA
CCGTTTTCTTCAGGAAAAGCATGGCTCCAAGATGGCTTCTTAAATGGTAATCCTCCC
GAGAGGTTGTGCATACCAATTGTTGACCACATTC AATCATTGGGTGGTCAAGTCCTAC
52 nt fragment
TTAACTCTCGTATACAGAAAATTGAGTTGAATTCTGATAGTACTGTGAAAAACCTTAT
ACTGAGCAATGGGAAAATAATCAATGGAGATGTTTATGTAATAGCTACTCCTGTTGAT
GTCTTGAAGCTTCTTTTGCCTCAAGAATGGAGAGAAATTCATACTTCAAGAAATTGG
ATAAATTGGTGGGAGTTCCTGTAATCAATGTTTCATATATGGTTTGACAGGAACTGAA
GAACACCTATGATCATCTTCTTTTCAGCAGGAGTCCTCTTTTGAGTGTTTATGCAGAT
ATGTCTGTAACCTGCAAGGAATATTACGATCCTTATCGTTCTATGCTTGAGTTGGTGT
TCGCACCGGCAGAGGAATGGATCTCACGTAGTGATGATGAGATCATCGATGCTACAAT
GACAGAACTGGCTAAGCTGTTCCCAGATGAAATAGCCGCAGATCAGAGTAAAGCGAAA
ATTCTCAAGTATCATGTTGTCAAACTCCAAGATCTGTTTACAAACTGTGCCCGACT
GTGAACCGTGCCGGCCTCTGCAAAGATCGCCAATTGAAGGGTTCATCTGGCTGGCGA
TTATACGAAGCAGAAGTACTTGGCTTCGATGGAGGGGGCTGTTTTGTCTGGGAAGCTT
TGTGCGCAGTCTATTGTACAGGATTACGACATTTTAGTTGATCGGACGAAGAGAAGCC
CTCAAGCAGAGATGTCAGTCGTCTAGTTGCGAAATTTGGAGTCATAGCAGACATCTTG
CTTATACAATGTATTCTTTGCATGCTGAGAAAATCAGATCTCAGAATATATACA_3'

Supplementary Figure S2 Partial nucleotide sequence of *LIPDS* (DBJ accession: LC155113). Sequences used to induce silencing are shown in red. The *StuI* site used for cloning is underlined.

pCHL3-EB52 CTCCGCGAGATTGCGTTATTGTCTACTGACTATATAGAGAGAGTTTGTGCTGTGTTTTCT
fragment 1 CTCCGCGAGATTGCGTTATTGTCTACTGACTATATAGAGAGAGTTTGTGCTGTGTTTTCT
fragment 2 CTCCGCGAGATTGCGTTATTGTCTACTGACTATATAGAGAGAGTTTGTGCTGTGTTTT-CT
fragment 3 CTCCGCGAGATTGCGTTATTGTCTACTGACTATATAGAGAGAATTTGTGCTGTGTTTTCT
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pCHL3-EB52 CTTTTGTGTCGTAGAATTGAGTCGAGTCgatatcCGAGAGGTTGTCATACCAATTGTTGA
fragment 1 CTTTTGTGTCGTAGAATTGAGT-----cCGAGAGGTTGTCATACCAA-----
fragment 2 CTTTTGTGTCGTAGAATTGAGTCGAGTCgatatcCG-----
fragment 3 CTTTTGTGTCGTAGAATTGAGTCGA-----

pCHL3-EB52 **CCACATTCAATCATTGGGTGGTCAA**agatctATGGACAAATCTGAATCAACCAGTGCCGGT
fragment 1 -----ctATGGACAAATCTGAATCAACCAGTGCCGGT
fragment 2 -----tATGGACAAATCTGAATCAACCAGTGCCGGT
fragment 3 -----ctATGGACAAATCTGAATCAACCAGTGCCGGT

pCHL3-EB52 CGTAGCCGTCGACGTCGTCCGCGTCGTGGTTCCCGCTCCGCCCTCCTCCGCGGATGCTA
fragment 1 CGTAGCCGTCGACGTCGTCCGCGTCGTGGTTCCCGCTCCGCCCTCCTCCGCGGATGCTA
fragment 2 CGTAGCCGTCGACGTCGTCCGCGTCGTGGTTCCCGCTCCGCCCTCCTCCGCGGATGCTA
fragment 3 CGTAGCCGTCGACGTCGTCCGCGTCGTGGTTCCCGCTCCGCCCTCCTCCGCGGATGCTA

pCHL3-EB52 ACTTTAGAGTCTTGTGCGCAGCAGCTTTCGCGACTTAATAAGACGTTAGCAGCTGGTCGT
fragment 1 ACTTTAGAGTCTTGTGCGCAGCAGCTTTCGCGACTTAATAAGACGTTAGCAGCTGGTCGT
fragment 2 ACTTTAGAGTCTTGTGCGCAGCAGCTTTCGCGACTTAATAAGACGTTAGCAGCTGGTCGT
fragment 3 ACTTTAGAGTCTTGTGCGCAGCAGCTTTCGCGACTTAATAAGACGTTAGCAGCTGGTCGT

Supplementary Figure S3 Comparison of cDNA sequences of pCHL3-EB52 (original) and three viral fragments amplified from leaves #3 and #4 of the P52 plant. Underlined sequences indicate the position of the primers (HL3ff and HL3er) used to amplify the fragments. Lower-case letters indicate *EcoRV* (gatatc) and *BgIII* (agatct) recognition sequences. Nucleotides shown in red represent the *LIPDS* sequence. Note that only the fragment 1 sequence was detected in leaf #4, whereas all three fragment sequences were amplified from leaf #3.