Supplementary Tables and Figures

Supplementary Tables

Table S1. List of DNA sequences used for fluorescently labeled dsRNA (5’-3’)

GUS 448 bp	TGATTGATGAAACTGCTGCTGTCGGCTTTAACCTCTCTT TAGGCATTGGTTTCGAAGCGGGCAACAAGCCGAAAGA ACTGTACAGCGAAGAGGCAGTCAACGGGGAAACTCAG CAAGCGCACTTACAGGCGATTAAAGAGCTGATAGCGC GTGACAAAAACCACCCAAGCGTGGTGATGTGGAGTATT GCCAACGAACCGGATACCCGTCCGCAAGGTGCACGGG AATATTTCGCGCCACTGGCGGAAGCAACGCGTAAACTC GACCCGACGCGTCCGATCACCTGCGTCAATGTAATGTT CTGCGACGCTCACACCGATACCATCAGCGATCTCTTTG ATGTGCTGTGCCTGAACCGTTATTACGGATGGTATGTC CAAAGCGGCGATTTGGAAACGGCAGAGAAGGTACTGG AAAAAGAACTTCTGGCCTGGCAGGAGAAACTGCATCA GCCGATTATCATCACCGAATACGGCGTGGATACGTTA
GUS 790 bp	ACTCATTACGGCAAAGTGTGGGTCAATAATCAGGAAGT GATGGAGCATCAGGGCGGCTATACGCCATTTGAAGCCG ATGTCACGCCGTATGTTATTGCCGGGAAAAGTGTACGT ATCACCGTTTGTGTGAACAACGAACTGAACTGGCAGAC TATCCCGCCGGGAATGGTGATTACCGACGAAAACGGCA AGAAAAAGCAGTCTTACTTCCATGATTTCTTTAACTATG CCGGAATCCATCGCAGCGTAATGCTCTACACCACGCCG AACACCTGGGTGGACGATATCACCGTGGTGACGCATGT CGCGCAAGACTGTAACCACGCGTCTGTTGACTGGCAGG TGGTGGCCAATGGTGATGTCAGCGTTGAACTGCGTGAT GCGGATCAACAGGTGGTTGCAACTGGACAAGGCACTA GCGGGACTTTGCAAGTGGTGAATCCGCACCTCTGGCAA CCGGGTGAAGGTTATCTCTATGAACTGTGCGTCACAGC CAAAAGCCAGACAGAGTGTGATATCTACCCGCTTCGCG TCGGCATCCGGTCAGTGGCAGTGAAGGGCGAACAGTTC CTGATTAACCACAAACCGTTCTACTTTACTGGCTTTGGT CGTCATGAAGATGCGGACTTACGTGGCAAAGGATTCGA TAACGTGCTGATGGTGCACGACCACGCATTAATGGACT GGATTGGGGCCAACTCCTACCGTACCTCGCATTACCCT TACGCTGAAGAGATGCTCGACTGGGCAGATGAACATG GCATCGTGGTGATTGATGAAACTGCTGCTG

GUS 981 bp	TGTGGGCATTCAGTCTGGATCGCGAAAACTGTGGAATT GATCAGCGTTGGTGGGAAAGCGCGTTACAAGAAAGCC GGGCAATTGCTGTGCCAGGCAGTTTTAACGATCAGTTC GCCGATGCAGATATTCGTAATTATGCGGGCAACGTCTG GTATCAGCGCGAAGTCTTTATACCGAAAGGTTGGGCAG GCCAGCGTATCGTGCTGCGTTTCGATGCGGTCACTCATT ACGGCAAAGTGTGGGTCAATAATCAGGAAGTGATGGA GCATCAGGGCGGCTATACGCCATTTGAAGCCGATGTCA CGCCGTATGTTATTGCCGGGAAAAGTGTACGTATCACC GTTTGTGTGAACAACGAACTGAACTGGCAGACTATCCC GCCGGGAATGGTGATTACCGACGAAAACGGCAAGAAA AAGCAGTCTTACTTCCATGATTTCTTTAACTATGCCGGA ATCCATCGCAGCGTAATGCTCTACACCACGCCGAACAC CTGGGTGGACGATATCACCGTGGTGACGCATGTCGCGC AAGACTGTAACCACGCGTCTGTTGACTGGCAGGTGGTG GCCAATGGTGATGTCAGCGTTGAACTGCGTGATGCGGA TCAACAGGTGGTTGCAACTGGACAAGGCACTAGCGGG ACTTTGCAAGTGGTGAATCCGCACCTCTGGCAACCGGG TGAAGGTTATCTCTATGAACTGTGCGTCACAGCCAAAA GCCAGACAGAGTGTGATATCTACCCGCTTCGCGTCGGC ATCCGGTCAGTGGCAGTGAAGGGCGAACAGTTCCTGAT TAACCACAAACCGTTCTACTTTACTGGCTTTGGTCGTCA TGAAGATGCGGACTTACGTGGCAAAGGATTCGATAACG TGCTGATGGTGCACGACCACGCATTAATGGACTGGATT GGGGCCAACTCCTACCGTACCTCGCATTACCCTTACGC TGAAGAGATGCTCGACTGGGCAGATGAACATG
GUS 1451 bp	TACGCCATTTGAAGCCGATGTCACGCCGTATGTTATTG CCGGGAAAAGTGTACGTATCACCGTTTGTGTGAACAAC GAACTGAACTGGCAGACTATCCCGCCGGGAATGGTGAT TACCGACGAAAACGGCAAGAAAAAGCAGTCTTACTTCC ATGATTTCTTTAACTATGCCGGAATCCATCGCAGCGTA ATGCTCTACACCACGCCGAACACCTGGGTGGACGATAT CACCGTGGTGACGCATGTCGCGCAAGACTGTAACCACG CGTCTGTTGACTGGCAGGTGGTGGCCAATGGTGATGTC AGCGTTGAACTGCGTGATGCGGATCAACAGGTGGTTGC AACTGGACAAGGCACTAGCGGGACTTTGCAAGTGGTG AATCCGCACCTCTGGCAACCGGGTGAAGGTTATCTCTA TGAACTGTGCGTCACAGCCAAAAGCCAGACAGAGTGT GATATCTACCCGCTTCGCGTCGGCATCCGGTCAGTGGC

	AGTGAAGGGCGAACAGTTCCTGATTAACCACAAACCGT TCTACTTTACTGGCTTTGGTCGTCATGAAGATGCGGACT TACGTGGCAAAGGATTCGATAACGTGCTGATGGTGCAC GACCACGCATTAATGGACTGGATTGGGGCCAACTCCTA CCGTACCTCGCATTACCCTTACGCTGAAGAGATGCTCG ACTGGGCAGATGAACATGGCATCGTGGTGATTGATGAA ACTGCTGCTGTCGGCTTTAACCTCTCTTTAGGCATTGGT TTCGAAGCGGGCAACAAGCCGAAAGAACTGTACAGCG AAGAGGCAGTCAACGGGGAAACTCAGCAAGCGCACTT ACAGGCGATTAAAGAGCTGATAGCGCGTGACAAAAAC CACCCAAGCGTGGTGATGTGGAGTATTGCCAACGAACC GGATACCCGTCCGCAAGGTGCACGGGAATATTTCGCGC CACTGGCGGAAGCAACGCGTAAACTCGACCCGACGCG TCCGATCACCTGCGTCAATGTAATGTTCTGCGACGCTC ACACCGATACCATCAGCGATCTCTTTGATGTGCTGTGC CTGAACCGTTATTACGGATGGTATGTCCAAAGCGGCGA TTTGGAAACGGCAGAGAAGGTACTGGAAAAAGAACTT CTGGCCTGGCAGGAGAAACTGCATCAGCCGATTATCAT CACCGAATACGGCGTGGATACGTTAGCCGGGCTGCACT CAATGTACACCGACATGTGGAGTGAAGAGTATCAGTGT GCATGGCTGGATATGTATCACCGCGTCTTTGATCGCGT CAGCGCCGTCGTCGGTGAACAGGTATGGAATTTCGCCG ATTTTGCGACCTCGCAAGGCATATTGCGCGTTGGCGGT AACAAGAAAGGGATCTTCACTCGCGACCGCAAACCGA AGTCGGCGGCTTTTCTGCTGCAAAAACGCTGGACTGGC ATGAACTTCGGTG
GUS 1775 bp	TCCTGTAGAAACCCCAACCCGTGAAATCAAAAAACTCG ACGGCCTGTGGGCATTCAGTCTGGATCGCGAAAACTGT GGAATTGATCAGCGTTGGTGGGAAAGCGCGTTACAAG AAAGCCGGGCAATTGCTGTGCCAGGCAGTTTTAACGAT CAGTTCGCCGATGCAGATATTCGTAATTATGCGGGCAA CGTCTGGTATCAGCGCGAAGTCTTTATACCGAAAGGTT GGGCAGGCCAGCGTATCGTGCTGCGTTTCGATGCGGTC ACTCATTACGGCAAAGTGTGGGTCAATAATCAGGAAGT GATGGAGCATCAGGGCGGCTATACGCCATTTGAAGCCG ATGTCACGCCGTATGTTATTGCCGGGAAAAGTGTACGT ATCACCGTTTGTGTGAACAACGAACTGAACTGGCAGAC TATCCCGCCGGGAATGGTGATTACCGACGAAAACGGCA AGAAAAAGCAGTCTTACTTCCATGATTTCTTTAACTATG

	CCGGAATCCATCGCAGCGTAATGCTCTACACCACGCCG AACACCTGGGTGGACGATATCACCGTGGTGACGCATGT CGCGCAAGACTGTAACCACGCGTCTGTTGACTGGCAGG TGGTGGCCAATGGTGATGTCAGCGTTGAACTGCGTGAT GCGGATCAACAGGTGGTTGCAACTGGACAAGGCACTA GCGGGACTTTGCAAGTGGTGAATCCGCACCTCTGGCAA CCGGGTGAAGGTTATCTCTATGAACTGTGCGTCACAGC CAAAAGCCAGACAGAGTGTGATATCTACCCGCTTCGCG TCGGCATCCGGTCAGTGGCAGTGAAGGGCGAACAGTTC CTGATTAACCACAAACCGTTCTACTTTACTGGCTTTGGT CGTCATGAAGATGCGGACTTACGTGGCAAAGGATTCGA TAACGTGCTGATGGTGCACGACCACGCATTAATGGACT GGATTGGGGCCAACTCCTACCGTACCTCGCATTACCCT TACGCTGAAGAGATGCTCGACTGGGCAGATGAACATG GCATCGTGGTGATTGATGAAACTGCTGCTGTCGGCTTT AACCTCTCTTTAGGCATTGGTTTCGAAGCGGGCAACAA GCCGAAAGAACTGTACAGCGAAGAGGCAGTCAACGGG GAAACTCAGCAAGCGCACTTACAGGCGATTAAAGAGC TGATAGCGCGTGACAAAAACCACCCAAGCGTGGTGAT GTGGAGTATTGCCAACGAACCGGATACCCGTCCGCAAG GTGCACGGGAATATTTCGCGCCACTGGCGGAAGCAACG CGTAAACTCGACCCGACGCGTCCGATCACCTGCGTCAA TGTAATGTTCTGCGACGCTCACACCGATACCATCAGCG ATCTCTTTGATGTGCTGTGCCTGAACCGTTATTACGGAT GGTATGTCCAAAGCGGCGATTTGGAAACGGCAGAGAA GGTACTGGAAAAAGAACTTCTGGCCTGGCAGGAGAAA CTGCATCAGCCGATTATCATCACCGAATACGGCGTGGA TACGTTAGCCGGGCTGCACTCAATGTACACCGACATGT GGAGTGAAGAGTATCAGTGTGCATGGCTGGATATGTAT CACCGCGTCTTTGATCGCGTCAGCGCCGTCGTCGGTGA ACAGGTATGGAATTTCGCCGATTTTGCGACCTCGCAAG GCATATTGCGCGTTGGCGGTAACAAGAAAGGGATCTTC ACTCGCGACCGCAAACCGAAGTCGGCGGCTTTTCTGCT GCAAAAACGCTGGACTGGCATGAACTTCGGTG
Phi6	See Niehl et al. 2018; Eskelin et al. 2022

Table S2. List of DNA sequences of target genes used in the study (5'-3')

miRMIF1	UUGUUUUUCCUGUCUCCGGGU	21 bp siRNA
miRMIF1*	CCGGAGACAGGAAAAACAACG	
miRVlGFP	UGUUCUGCUGGUAGUGGUCGG	21 bp siRNA
miRVlGFP*	GACCACUACCAGCAGAACACC	
SHP_miR	UAUGACGAAUCAAUCACUUCG	21 bp siRNA
SHP_miR*	AAGUGAUUGAUUCGUCAUACA	
MoPmk1	UCAACCACAUUUAACACCACA	21 bp siRNA
MoPmk1*	UGGUGUUAAAUGUGGUUGAUA	
MoMIF1	ATGGCTTTTCGACCAAACCCTGTTGGTGTTGGCCCGAG CATCCCTGAGGAAGACGAGGAGCAGCCGCAGCCGCAG CCGCAGCACTTGCTGACCGGAGAAGCTGGTAAAAAGG ACAGGCATCCCCCACGTAGCAGGCTGCAACTACTGGCT CGTAGCTCTCTGCAACGTCTATCCTTTGCACATCGAAA AGCAGACCTGCTTCAGCGGCAACATCACCAGTCTTCAT CACAGACACACCGACAACACAACAAGATGTCGGACAG GCAGAGCCTCGATTCAACCAGCGACAACTGCGCCATGC GGGAAATTGAGCGCGGCCCACCCGGAGACAGGAAAAA CAACGCGCGGTCGAGAATGTCACAGGTTGACGTACTGG CCTCCAAGCGGCGGAGTACCTTTTTCGAAGACACCTTT GCTGCGTCAAAGGGAGAGAAGAGCGGTGCTAAGGCAG CGACTGCCATGACCGAGAGGATCCGGAGCGAAGCTAT CGTCATGGCTGAGGTCAAGACCAATGTCATTCTCAGCG ATGAGTTCACCTTTATAACCGAGCTGTCATACAACCTCT CGCTGCGCTACCAGCGACCAGTGTCAAGTATCGTGGTG TCGGTGCAGCACGGCGCGTGTATGATGTACGGCGGAAC TTTTGAGCCGGCGTACAGCATGACTATATTCGCCCTGC CGTCGCAGATGCGCCCAACGACCAACAAGCGGAATGC TGTCATGATACAGATGCACATGGATGAGGTCCTGGGCG TGCCCTCGTCTCGCGGCATCGTTCGCTTCGTGCCCATGC CCGAAGATAACGTCGCCGTCAGCGGACGGACGATTGG ATCTGAGATTACGGAGCTGGCTAGGGAGGCCGGCATTG ACCTTATCGACGACGATGAGGGAGAAACCCTTTCAAAG AGGAGGAGCGTGAAGCTCAAGAATCGACTAAGCGTCA GAAAGTCTTTTAGCAACTTCAAGGACCACAGCCGTAGC GGGTCCCGAGAACTTACACCGCCGCTGCCGTCGCCGCC GCTAGAGCCCGGCTACTCTCACGACGGCGTCCGTGAAA GGCTTGGCCCGGGACCAAACGACCCTATGCCGGTGAGG AAGACGAGAAGGCGAAAGAGCTTCGTCGCTAGCATCTT	413 bp dsRNA

	TGGGTGGCCCAGGGAGGACAGCCAGACTCTCGCCAAC CGACCACCGATACCGCTGTAA	
MoPmk1	CCTTTTTCCGCCCCTCCTTTCCCGACCGACCCAGCCAGA CCCAACCTGTCCTGGGCCGACTGACCGACCTACTTGTT ATTACCTACCTACCGACAGGAACATCCCCTACCTTACC TTACAACCACGTACCAACGATCATTAACGACTGGACTG GACGGGGTTTGATTAATTGTCACTGTCATTCTCGTTGGT CCATCCGTCCCAAGTCACCCAGGAGAGAAAAGGCACG CGGGTCAGGTTGCCTGCCTAACCAGAATTGAAAGGTCC CTCTTCAGTAAAAAAGACGGCGCTTGGACGGCTTTCCT GCCTGGGTCTTGACGATCAAGCACGGTGGCCGAGCTTT CTATTTTATTTTATTTTTTATTCTTATTATTTTTTTCACAT CTGCCCTGCAGCCCAAGGAAGCAGCTGCACAATCTCCG CTGCCGCCTCCATCGAGACTAGGTTATTGAACTACTGC ACTACCTACACCACAGCTTTATTGGCACGTTGCGACTG TACTTGCTGCGGCCAGGAACCAACAAAGGCACCAAACT TTTTGAATTATTTTCTATCTTTTTTCCCCATTTGCCTTTT GTTTTTTGTACTTGTCCCTGGGAATTTCGCCACTTCCCA TTGAGCGCAGGTCCCTGAGCCCAAGTCGACAACCTTCG GTGCACCGTCGCACCTTACCCGCAATTCAACAGCCCAA GTCTCCCCGCTAGACAAACCCCGCTCCGCGGCTTTCCT GAACCAGAGCAGGCGGCATCATCGCCAGCTCCTTTCAG CGCCGCCATGTCTCGCGCCAATCCACCAAGCAACTCTT CGGGGTCTCGCAAGATCTCATTCAACGTAAGCGAGCAA TACGACATCCAGGATGTCGTGGGCGAGGGCGCTTATGG AGTCGTTTGCTCTGCGATCCATAAGCCTTCGGGCCAAA AGGTTGCCATAAAGAAGATCACCCCGTTCGATCATTCT ATGTTCTGCCTACGAACCCTCCGCGAGATGAAGCTGCT CCGGTACTTCAACCACGAGAACATCATTTCCATCCTCG ACATCCAGAAGCCCCGAAGCTACGAGACCTTCAACGA GGTGTACCTGATCCAGGAGCTCATGGAGACTGACATGC ACCGTGTCATCCGCACCCAAGACCTATCCGACGATCAC TGCCAGTACTTCATCTACCAGACTCTGCGTGCTCTCAAG GCAATGCACTCGGCAAACGTGCTTCACCGTGATCTGAA GCCCTCGAATCTCCTTCTCAACGCCAACTGTGATTTGAA GGTTTGCGATTTTGGTCTGGCTCGTTCTGCCGCCTCGCA AGAGGACAACTCGGGTTTCATGACAGAATACGTCGCTA CGCGTTGGTACCGTGCTCCCGAGATCATGTTGACCTTTA AGGAGTACACCAAGGCTATTGACGTGTGGTCTGTTGGC	448 bp dsRNA

	TGCATTCTGGCTGAAATGCTCAGCGGAAAGCCTTTGTT CCCCGGAAAGGACTACCACCACCAGCTCACGCTGATTC TTGACGTTCTCGGCACACCCACCATGGAGGACTACTAT GGTATCAAGTCCCGCCGTGCAAGGGAGTACATTCGCTC GCTGCCGTTCAAGAAAAAGGTTCCTTTCAGGACACTCT TCCCCAAGACTTCGGATCTCGCCTTGGACCTGTTGGAG AAGTTGCTTGCCTTTAACCCCGTCAAGCGCATCACCGT CGAGGAAGCTTTGAAGCACCCTTACCTTGAGCCGTACC ATGACCCCGATGATGAACCCACCGCACCGCCGATTCCC GAGGAGTTCTTTGATTTCGATAAGCACAAGGATAACCT GAGCAAAGAGCAGCTCAAGCAGTTCATCTACCAGGAA ATTATGCGGTAATGCGGCGAGCGGTCCATGGTCATTGG CTTGTTTGACAGGCAGCCCACAGGCATTGGCGTCGAGC GAAGGAACTAGACGTCTCGCAGTGGTGGCTGCGGCAG AGGCGTTCGCGTGCGGTAGCAGGGGTGAAATGGGACA GATCCCGTGGGATATGTTCAAGATGGCATATCAGGATG TGCATGGGGCTATCAGGGAGATCGATCTGCTGTAAGCT GCCAGAGCCTGCAAAAGATCATTCCTTGGTTTTTTCTA TATCCACTATCAACCACATTTAACACCACATCTTACATT TTCCACCTCATCCCTCACAATACCACATGCTGTCTTGAC ACCGACCATCCTCGACTTCAGACTTGTGTATCCTCAAGT TTACATGGAGGCTGCTGTGGCAATCACGTGCAAACTTG AAAGGCATAAGTTTGTTTACTGGTGAGGCGGGCGGGAT CTGTGTATTCGTGGATTGGCTGTGCCGAGCGGAGCTTT CAAGACAAAGGGAATAATTGTATATGAGCAATTTCTGA GTTTATTTTGCGGTGATTTACTATCGGCGCCATCCCCGC CGGCACTCACAATTAAGCCGTTGAGATATTTAGAATGT GCAGGAGACACGAGTGGGAAAATGAATACATGGATGC CAGCAGA	
SHP gene	GAACCAGAACTTTCAGTTCGTCTTGTTGGGAACCGGTC AAAGGCAACTAACAGGATGAGGTCTGTACTGATTCTTT GCGTTATTATTGCTGCTGCTGTGGCATGCCCAGTATCAA AAACAAAAGATTGCTCTTGCGGTCTGCCTAAAATATGT CCTTCAACGTGGAAAATTAAGACATTTGATTCCCAATG CGAAACATTAGCATTCCAAGGAACATGGTTTTTACAAA TGGCAACACCAACATACATTGACCAGCAAAACCCATTA AAAACCGGGCTGTTCTGTAACAGTTATCCTTGTACCAA CAATCAACTGATATTTAAGGATACCACACCATGTGATG ATACCGATTACAACACTGAATACGAAGTGATTGATTCG	490 bp dsRNA

TCATACAATATCTATACCCAATGTACAGAAACCCAAAT
AGCATTATTATGCCCAGCGTATGGCAGTTCCAGCAAAT
ATGCAATCTTTAATGTCGGTTCAGAAAAATATTATACA
AACCCAATTGCCGAAAAATATCCATTTGTTGACAAGGA
TTTATTCAGACATAAGATCGGCCAGGGTAGCTGTGAGA
GAGAATACACAGTCGCTGTAATCGGTGCTGATGACTGT
TGGAAAGAGTATATGGTGTTAGTCGTTATTAACCAGTA
TGACAACTTCTTTGGCGGAGATGAGTATATTACTTGGG
TATTGACAAGAGATGTTAACCCTGATTGGAGTACTTAT
GATAAAGCATACAAAGATATTGAGAGAAGTGGTCTCTG
CCCTAACTATTTGGTAAGTGTTGATCATTCGTTGGAATC
AATGACAGGACCTTCAATGGCACCAAGTGTGGCAGTAC
CTTCAATGGCACCAACTATGCCTGGTGATGTTGATAGC
ATGGTACAAAAAACATCTGTCTCTACAACATCAGCAAC
AAAATCAATTAGTACCGACTGCGGTAGTACTGTAACTT
CGTCATCCACTTCAACAACTACGACATCGACTGTGATA
ATTGATAAAAGCTCAGATTTCTCTAGCCTGTATGAGCT
CGGACAGTGTGATTTATACAAAGATATCCAAATCTACA
AAAACCTGGATAAAGAAACAATTAGACGTGCCTTGTCT
GGAAAATATTACATGACCCAAGCTACACCTTGTTCGTA
TTACAATAGCCCAAATTCGAGAGTCGGTATTTTAAATA
CGTGTTTCCCTGCATGCGGTATGCAACTCTGTTTTGATG
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ATGGTTATGGATCGTGGTTACGATATGAGGACCGGTGA
AGTGCAATTGACGAGAAGTTATATTTCTTCAGTCTATTC
TGACGACCATCCATTTGGTACTGTCACGTATGCATTCCA
TTCTGAAGGATATTATGAGGGACCAATTGATGAAATGG
ATTGTCTACCATTAGATGGAATGATTTGCAAACCACCC
TCAGATATATACAAGAACCAAATCATAGCAAGTATTAT
TGGATACAAAGACAATGATTACTTAATATTTTGCATTG
CAAACAAATACAAGAACCCGCTCTTTAGTTCGACACCA
GTAAACCAAGTCATTGCTTATACAAGGGAGAGAGTTCC
AAGCAAGGAAACTATAAAATCTATGACTCAAGAATTAT
TGCAATGTGGTTATAATCCAAATTATTTGATCAAAATA
GATCAGACTATGTATATGGATGATGATTACGTATTTGA
AAGTTCATATTATGAATCACAAACTTCATGTTGGAGTA
GTAGTAGCAGTAGTTGTAGTAGCAGCACGAGTAGTTCA
ACTACTATTTCATCTTCGTCGAGTTCGTCTGTTAGCATT
TCGTGTGATTAATTCATTTAAAACAATATAATATAATAT

	GTCATTACAGTCAGTTTAATAAATAAATAAAAATATCA TGCATTATTAAAAAAAAAAAAAAAAAGAACAAATATT TGAAAAAAAAAAA	
eGFP gene	ATGGTGAGCAAGGGCGAGGAGCTGTTCACCGGGGTGG TGCCCATCCTGGTCGAGCTGGACGGCGACGTAAACGGC CACAAGTTCAGCGTGTCCGGCGAGGGCGAGGGCGATG CCACCTACGGCAAGCTGACCCTGAAGTTCATCTGCACC ACCGGCAAGCTGCCCGTGCCCTGGCCCACCCTCGTGAC CACCCTGACCTACGGCGTGCAGTGCTTCAGCCGCTACC CCGACCACATGAAGCAGCACGACTTCTTCAAGTCCGCC ATGCCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTT CAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTG AAGTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCT GAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTG GGGCACAAGCTGGAGTACAACTACAACAGCCACAACG TCTATATCATGGCCGACAAGCAGAAGAACGGCATCAA GGTGAACTTCAAGATCCGCCACAACATCGAGGACGGC AGCGTGCAGCTCGCCGACCACTACCAGCAGAACACCCC CATCGGCGACGGCCCCGTGCTGCTGCCCGACAACCACT ACCTGAGCACCCAGTCCGCCCTGAGCAAAGACCCCAAC GAGAAGCGCGATCACATGGTCCTGCTGGAGTTCGTGAC CGCCGCCGGGATCACTCTCGGCATGGACGAGCTGTACA AGTAA	476 bp dsRNA
circRNAORF	GGGAGUAAGCUCGUGCUGCUUCAUGUGGUCGGGGUA GCGGGCUUACAGUA	50 nt

Table S3. List of primers used in the study

Primer name	Primer sequence (5'-3')	Application
T7_GUS488_F	CCCTTTAATACGACTCACTATAGGGAGATG ATTGATGAAACTGCTGCTG	dsRNA synthesis
T7_GUS488_R	CCCTTTAATACGACTCACTATAGGGAGATA ACGTATCCACGCCGTATTC	dsRNA synthesis
T7_GUS790_F	CCCTTTAATACGACTCACTATAGGGAGAAC TCATTACGGCAAAGTGTGG	dsRNA synthesis
T7_GUS790_R	CCCTTTAATACGACTCACTATAGGGAGACA GCAGCAGTTTCATCAATCA	dsRNA synthesis
T7_GUS981_F	CCCTTTAATACGACTCACTATAGGGAGATG TGGGCATTCAGTCTGGAT	dsRNA synthesis
T7_GUS981_R	CCCTTTAATACGACTCACTATAGGGAGACA TGTTCATCTGCCCAGTCG	dsRNA synthesis

T7_GUS1451_F	CCCTTTAATACGACTCACTATAGGGAGATACGCCATTTGAAGCCGATG	dsRNA synthesis
T7_GUS1451_R	CCCTTTAATACGACTCACTATAGGGAGACACCGAAGTTCATGCCAGTC	dsRNA synthesis
T7_GUS1775_F	CCCTTTAATACGACTCACTATAGGGAGATCCTGTAGAAACCCCAACCC	dsRNA synthesis
T7_GUS1775_R	CCCTTTAATACGACTCACTATAGGGAGACACCGAAGTTCATGCCAGTC	dsRNA synthesis
dseGFP_T7_F	CCCTTTAATACGACTCACTATAGGGAGAACCACATGAAGCAGCACGAC	dsRNA synthesis
dseGFP_T7_R	CCCTTTAATACGACTCACTATAGGGAGAGTCCATGCCGAGAGTGATC	dsRNA synthesis
SHPT7_Fw	TAATACGACTCACTATAGGGAGACGTTATTATTGCTGCTGCTGTG	dsRNA synthesis
SHPT7_Rv	TAATACGACTCACTATAGGGAGAACAGCTACCCTGGCCGATCTT	dsRNA synthesis
T7MoMIF_Fw	TAATACGACTCACTATAGGGGACCGGAGAAGCTGGTAAAAAG	dsRNA synthesis
T7MoMIF_Rv	TAATACGACTCACTATAGGGCCTCAGCCATGACGATAGCTT	dsRNA synthesis
Pmk1T7_F	TAATACGACTCACTATAGGGGGTCTGTTGGCTGCATTCTG	dsRNA synthesis
Pmk1T7_R	TAATACGACTCACTATAGGGTCGCCGCATTACCGCATAAT	dsRNA synthesis
qMoPmk1_2_Fw	CCACCTCATCCCTCACAATAC	qPCR
qMoPmk1_2_Rv	CACAGCCAATCCACGAATAC	qPCR
qMoGPD_F	CCTCGTCCATCTTCGACGC	qPCR
qMoGPD_R	GACACGACGGCTGTAGCC	qPCR
qMoEF1a_F	CATCTTAACGTCGTCGTCATC	qPCR
qMoEF1a_R	AGTGGCCGGTAGTCGTGG	qPCR
qBdUbi10_Fw	TGGACTTGCTTCTGTCTGGGTTCA	qPCR
qBdUbi10_Rv	TGGTACACAGGCATAACACTGACG	qPCR

Supplementary Figures

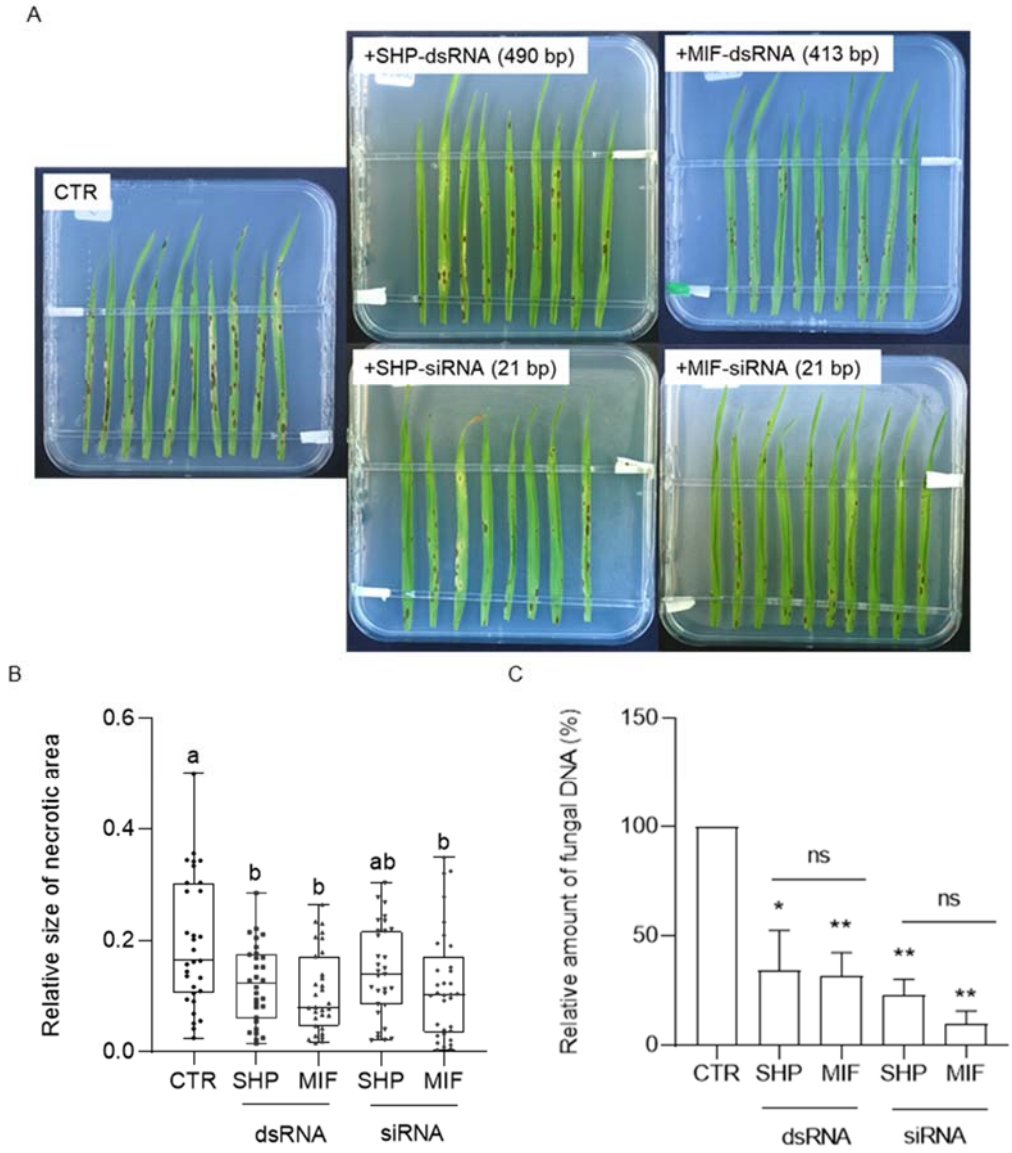

Figure S1. RNA-spray-mediated protection of *Bd* plants against *Mo* infection. (A) Infection symptoms on *Bd* leaves inoculated with a mixture of *Mo* conidia and dsRNA or siRNA. Intact three-week-old *Bd* plants were sprayed with a solution containing conidia (65 × 10^3 conidia mL^{-1}) and 10 ng/µL dsRNA/siRNA as indicated in the figure. Control plants were sprayed only with conidia solution (CTR). For disease symptom evaluation, second youngest leaves were placed on 1% agar plates at 5 dpi and unfolded with the help of a plastic stick for better image acquisition. A representative image is shown. (B) Relative size of the necrotic area compared to the whole leaf area calculated with ImageJ. Box plots show the mean with standard deviation of three independent repetitions. Statistical significance was assessed with one-way ANOVA ($p \leq 0.05$) and significance letters were assigned according to Tukey's multiple comparisons test. (C) The levels of fungal *Mo* housekeeping gene *MoGPD* were quantified by qPCR and

normalized using *Bd* housekeeping gene *BdUbi10*. The percentage of relative amount of fungi in comparison to the control from three independent repetitions was combined, represented as average with standard deviation. Statistical significance was assessed with *t*-test ($p \geq 0.05$) and one sample *t*-test to the control group ($p \leq 0.05$). (*: $p \leq 0.05$; **: $p \leq 0.01$).

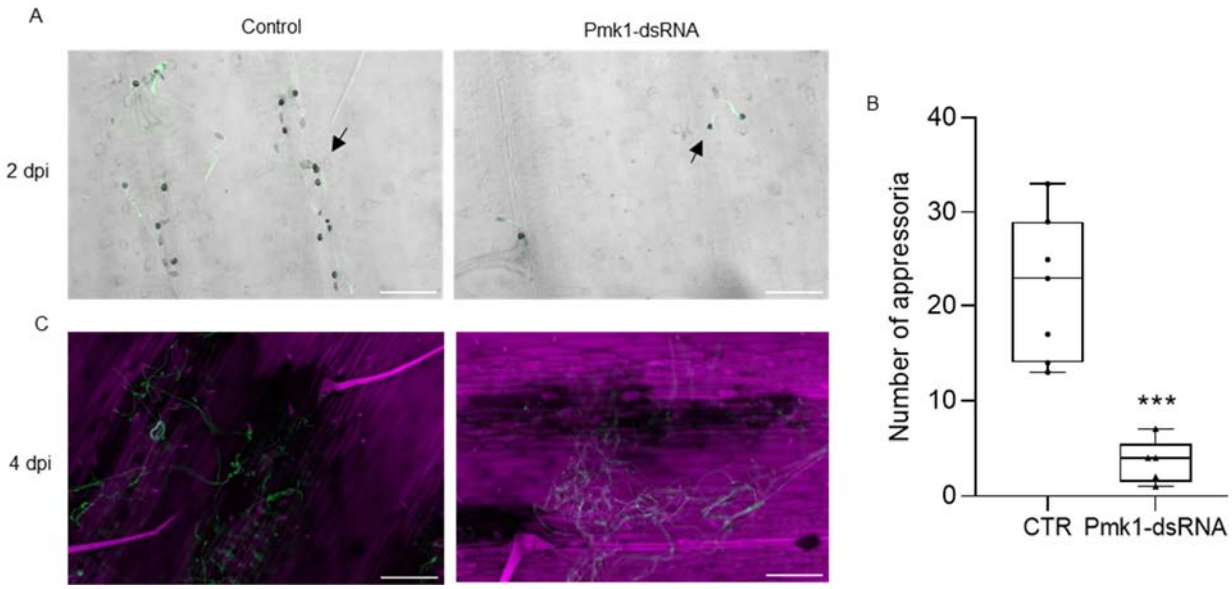

Figure S2. Conidia treated with Pmk1-dsRNA are impaired in leaf penetration. Detached *Bd* leaves were treated with a solution containing conidia in tween water (200 conidia in a 20 µL drop) or conidia with Pmk1-dsRNA (10 ng/µL). (A) Merge pictures of AF488-WGA staining [λexitacion (nm): 485 +/- 20; λemission (nm): 515] of *Mo* fungal structures at 2 dpt. Arrows indicate appressorium. One representative picture of each treatment is shown. (B) Appressoria quantification in control and Pmk1-dsRNA treated samples. Box plots represent average with standard deviation and statistical significance was assessed with *t*-test (***: $p \leq 0.001$). (C) Fluorescent pictures of AF488-WGA fungal structures and leaves counterstained with calcofluor white [λexitacion (nm): 365; λemission (nm): 420] at 4 dpt. One representative picture of each treatment is shown. Scale bar equals 100 µm.

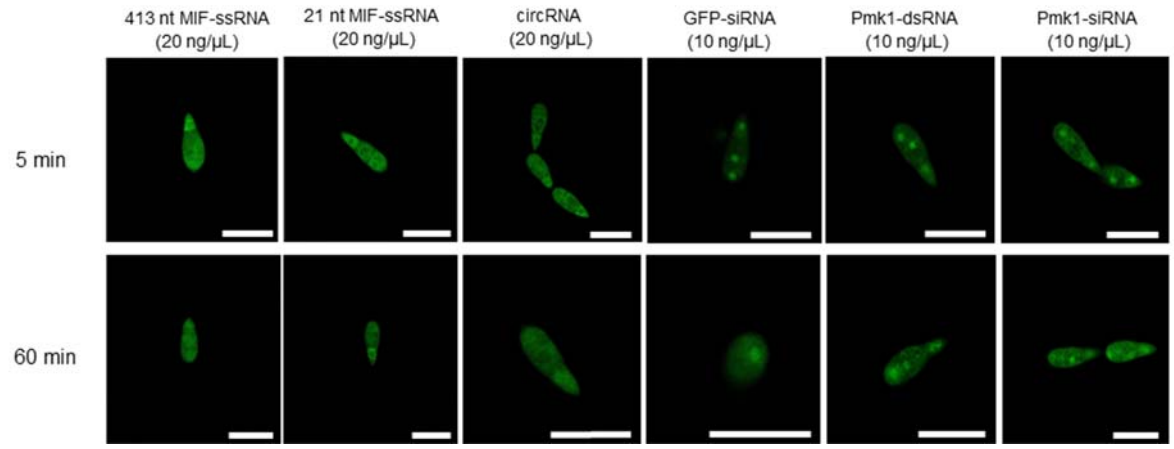

Figure S3. Imaging nuclear transfer of the chimeric GFP-MoHog1p in conidia of *Magnaporthe oryzae* in response to different stressors. Conidia (2000/100 µL) in Tween water were incubated with 20 or 10 ng/µL of the respective RNA. Pictures were taken with the AF488 laser at 5 and 60 min after treatment. Scale bar equals 20 µm. AF488 [λexcitation (nm): 492; λemission (nm): 561]. Ss- single stranded RNA; circ- circular RNA.

Figure S4. Spray-induced protection of *Brachypodium distachyon* against *Magnaporthe oryzae* infection. Intact three-week-old *Bd* seedlings were sprayed with a solution containing conidia (65×10^3 conidia mL^{-1}) and 0.03 ng/µL of the indicated dsRNA or siRNA. Infection symptoms were determined at 6 dpi.

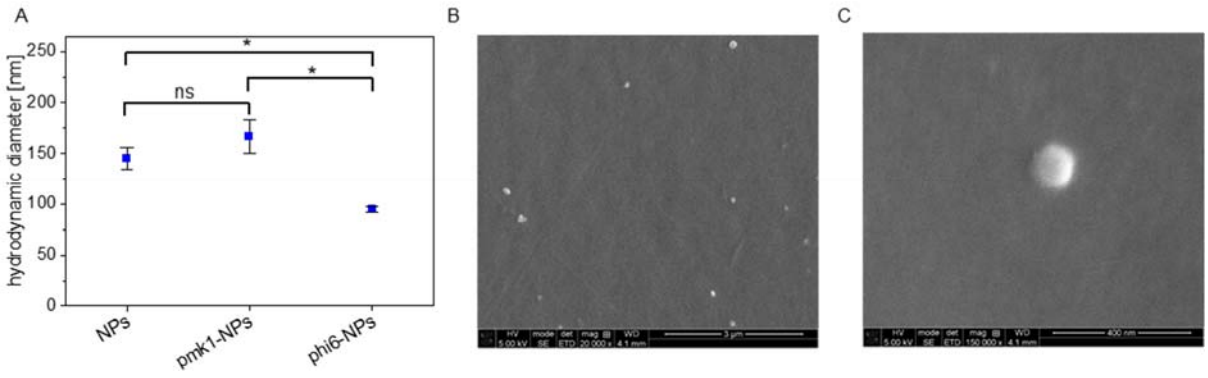

Figure S5. Properties of novel alginate-chitosan nanoparticles (NPs) with dsRNA cargo. (A) Mean hydrodynamic diameter of alginate-chitosan (NPs), Pmk1-dsRNA-alginate-chitosan (Pmk1-NPs) and Phi6-dsRNA-alginate-chitosan nanoparticles (Phi6-NPs) of n = 3 samples determined by dynamic light scattering. Statistical significance according to Welch's ANOVA ($p \leq 0.05$) and Dunnett's post-hoc test (*: $p \leq 0.05$). (B - C) Scanning electron microscope images of Phi6-dsRNA-alginate-chitosan NPs which were desiccated on polystyrene surface and spattered with a thin layer of tantalum followed by ruthenium. Scale bars are 3 µm and 400 nm for (B) and (C), respectively.