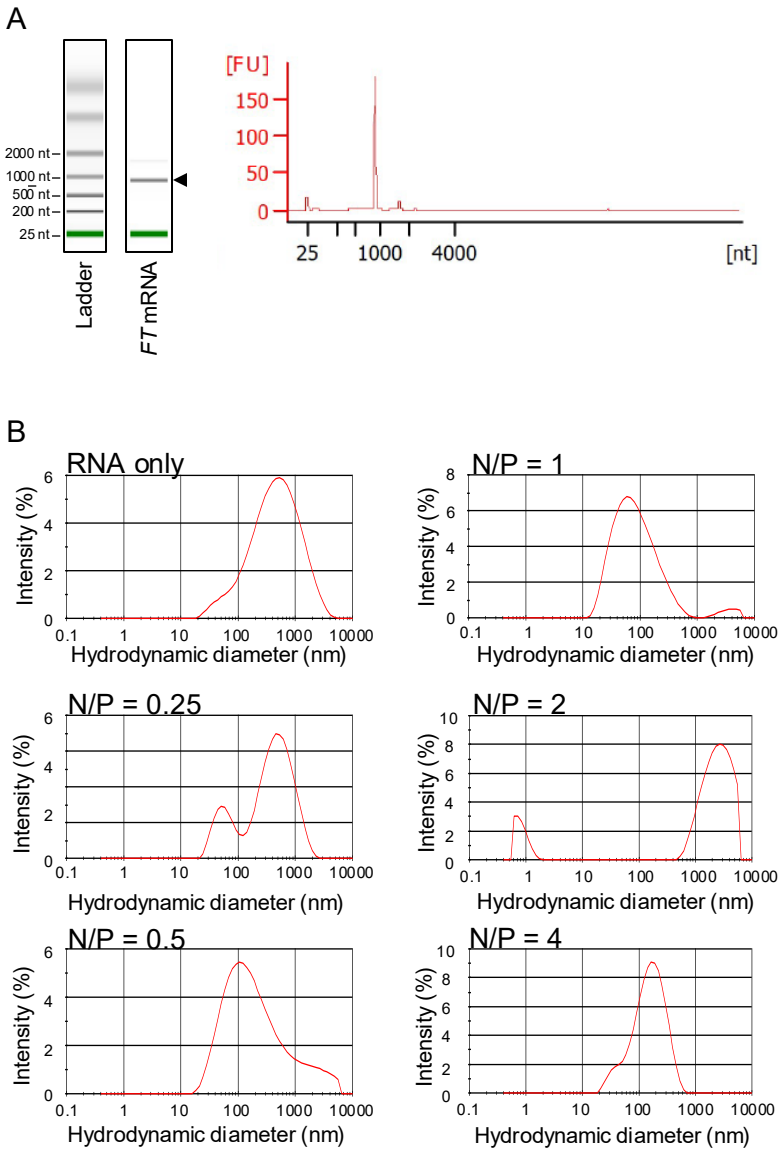
Supporting Information

Induction of flowering in Arabidopsis through functional peptide-mediated *FT* mRNA delivery

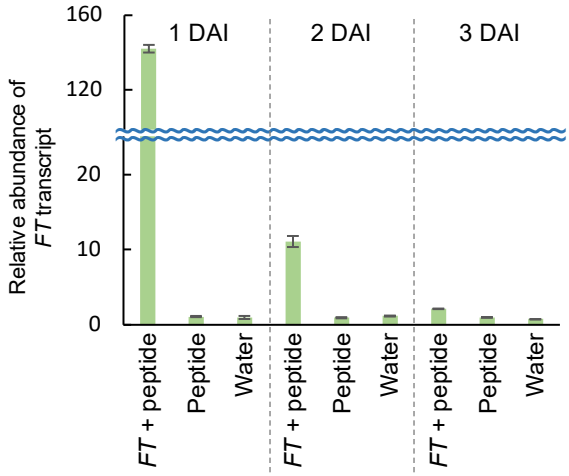
Masaki Odahara, Maai Mori, Shougo Ishio, Satoshi Kogawara, and Keiji Numata

Supplementary Table 1. List of primers used in the study

Name	Sequence (5'->3')
p1	CTAATACGACTCACTATAGGGCAAAAACAAGTAAAACAGAAACAATC
p2	AATATAATTATCGCATCACACAC
p3	CTAATACGACTCACTATAGGGCAAAAACAAGTAAAACAGAAACAATC
p4	GTAAAGTCTTCTTCCTCCGCAG
p5	GGAAGAAGACTTTACATGGTGAGCAAGGGCGAG
p6	AGTGGTACCTTACTTGTACAGCTCGTCCATGC
p7	ATGAGAGGTACTCTTACGCCGA
p8	CAAGTCTTCCCCAAGATAATGC
p9	TGAACATCGCTTGTCGTCAT
p10	CGACGATCCGGTACAGCTA
p11	TATCAGATGCCACTCCAGCTGAAC
p12	AACCCAACATGTAATTATTCACACTTG
p13	AAACGAGAAGCTCTCTGAAAAG
p14	AAGAACAAGGTAACCCAATGAAC
p15	TTGACCAAGATATTCCATCCTAATGTTC
p16	ACACAGACTGAAGCGTCCAAG
P17	AACCCTCACCTCCGAGAATA
P18	CTGCAGTGGGACTTGGATTT

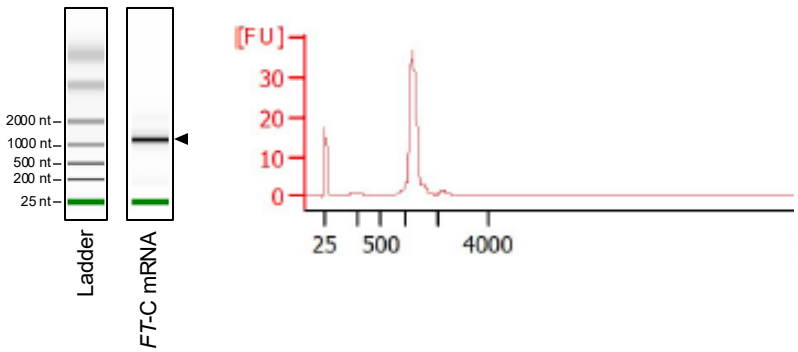


Supplementary Figure 1. **Synthesis of *FT* mRNA and complexation of *FT* mRNA with the peptide BP100-KH$_9$.**
A. Qualitative evaluation of the synthesized *FT* mRNA by electrophoresis using Bioanalyzer. Images of the electrophoresis and electropherogram of the synthesized *FT* mRNA are shown in the left and right panels, respectively. Arrowhead in the left panel indicates *FT* mRNA band. B. Size distribution of the *FT* mRNA-peptide complexes formed at N/P ratio 0.25 to 4 measured using hydrodynamic diameter.

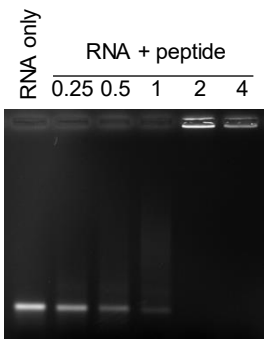


Supplementary Figure 2. Abundance of *FT* mRNA after the mRNA delivery in Arabidopsis seedlings.
FT mRNA was introduced into *A. thaliana* seedlings, and its abundance 1 to 3 days after introduction (DAI) was analyzed by quantitative reverse transcription-PCR. The amount of *FT* transcripts normalized with that of an internal control *PEX4* are shown with standard deviations (n = 3).

A



B

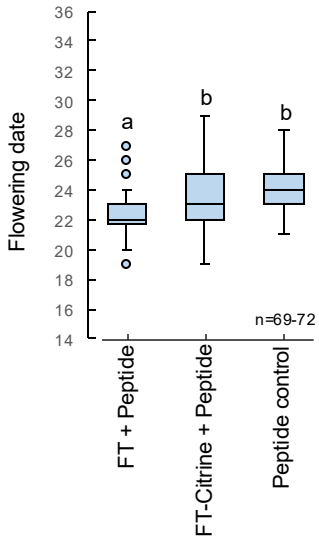


Supplementary Figure 3. Synthesis of modified *FT* mRNA and complexation with the peptide.

A. Qualitative evaluation of the synthesized *FT* mRNA with 5' Cap and polyA tail (*FT*-C) by electrophoresis using Bioanalyzer. Images of the electrophoresis and electropherogram of the synthesized *FT-C* mRNA are shown in the left and right panels, respectively. Arrowhead in the left panel indicates *FT* mRNA band.

B. Complexation of the modified *FT* mRNA with the peptide BP100-KH_9. The modified *FT* mRNA was complexed with BP100-KH9 at N/P ratio = 0,0.25, 0.5, 1, 2, 4.

Original gel images are shown in Fig. S6.



Supplementary Figure 4. Effect of FT-Citrine delivery on flowering.
Box plot shows flowering date of plants treated with peptide-mediated delivery of *FT* mRNA, *FT*-Citrine mRNA (FT-C), and the control treated with peptide only (Peptide control). The letters indicate statistically significant differences determined by one-way ANOVA test ($P<0.05$, Tukey's multiple comparison test).

>FT

ctaatacgactcactatagggcaaaaacaagtaaaacagaaacaatcaacacagagaaaccacc
tgtttgttcaagatcaaagATGTCTATAAATATAAGAGACCCTCTTATAGTAAGCAGAGTTGTT
GGAGACGTTCTTGATCCGTTTAATAGATCAATCACTCTAAAGGTTACTTATGGCCAAAGAGAGG
TGACTAATGGCTTGGATCTAAGGCCTTCTCAGGTTCAAAACAAGCCAAGAGTTGAGATTGGTGG
AGAAGACCTCAGGAACTTCTATACTTTGGTTATGGTGGATCCAGATGTTCCAAGTCCTAGCAAC
CCTCACCTCCGAGAATATCTCCATTGGTTGGTGACTGATATCCCTGCTACAACTGGAACAACCT
TTGGCAATGAGATTGTGTGTTACGAAAATCCAAGTCCCACTGCAGGAATTCATCGTGTCGTGTT
TATATTGTTTCGACAGCTTGGCAGGCAAACAGTGTATGCACCAGGGTGGCGCCAGAACTTCAAC
ACTCGCGAGTTTGCTGAGATCTACAATCTCGGCCTTCCCGTGGCCGCAGTTTTCTACAATTGTC
AGAGGGAGAGTGGCTGCGGAGGAAGAAGACTTTAGatggcttcttcctttataaccaattgata
ttgcatactctgatgagatttatgcatctatagtattttaatttaataaccattttatgatacg
agtaacgaacggtgatgatgcctatagtagttcaatatataagtgtgtaataaaaatgagaggg
ggaggaaaatgagagtgttttacttatatagtgtgtgatgcgataattatatt

>FT-Citrine

ctaatacgactcactatagggcaaaaacaagtaaaacagaaacaatcaacacagagaaaccacc
tgtttgttcaagatcaaagATGTCTATAAATATAAGAGACCCTCTTATAGTAAGCAGAGTTGTT
GGAGACGTTCTTGATCCGTTTAATAGATCAATCACTCTAAAGGTTACTTATGGCCAAAGAGAGG
TGACTAATGGCTTGGATCTAAGGCCTTCTCAGGTTCAAAACAAGCCAAGAGTTGAGATTGGTGG
AGAAGACCTCAGGAACTTCTATACTTTGGTTATGGTGGATCCAGATGTTCCAAGTCCTAGCAAC
CCTCACCTCCGAGAATATCTCCATTGGTTGGTGACTGATATCCCTGCTACAACTGGAACAACCT
TTGGCAATGAGATTGTGTGTTACGAAAATCCAAGTCCCACTGCAGGAATTCATCGTGTCGTGTT
TATATTGTTTCGACAGCTTGGCAGGCAAACAGTGTATGCACCAGGGTGGCGCCAGAACTTCAAC
ACTCGCGAGTTTGCTGAGATCTACAATCTCGGCCTTCCCGTGGCCGCAGTTTTCTACAATTGTC
AGAGGGAGAGTGGCTGCGGAGGAAGAAGACTTTACATGGTGAGCAAGGGCGAGGAGCTGTTCAC
CGGGGTGGTGCCCATCCTGGTCGAGCTGGACGGCGACGTAAACGGCCACAAGTTCAGCGTGTCC
GGCGAGGGCGAGGGCGATGCCACCTACGGCAAGCTGACCCTGAAGTTCATCTGCACCACCGGCA
AGCTGCCCGTGCCCTGGCCCACCCTCGTGACCACCTTCGGCTACGGCCTGATGTGCTTCGCCCG
CTACCCCGACCACATGAAGCAGCACGACTTCTTCAAGTCCGCCATGCCCGAAGGCTACGTCCAG
GAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAGTTCGAGG
GCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCT
GGGGCACAAGCTGGAGTACAACTACAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAG
AACGGCATCAAGGTGAACTTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCG
ACCACTACCAGCAGAACACCCCCATCGGCGACGGCCCCGTGCTGCTGCCCGACAACCACTACCT
GAGCTACCAGTCCGCCCTGAGCAAAGACCCCAACGAGAAGCGCGATCACATGGTCCTGCTGGAG
TTCGTGACCGCCGCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGTAAggtaccact

Supplementary Figure 5. DNA template sequences for synthesizing FT and FT-Citrine RNA.

Non-coding sequences are shown in uppercase letters, while coding sequences are in lowercase. T7 promoter sequences used for in vitro transcription are underlined.

Fig. 1A

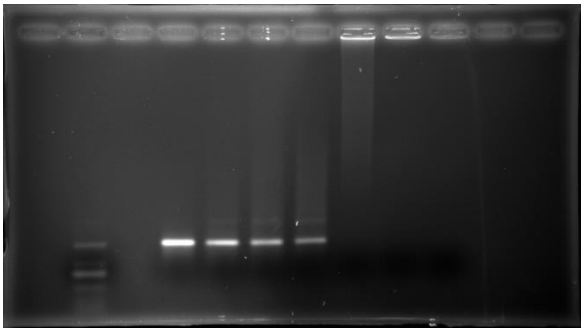


Fig. 1B

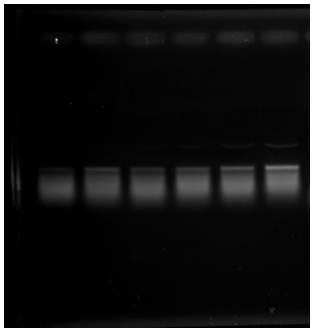
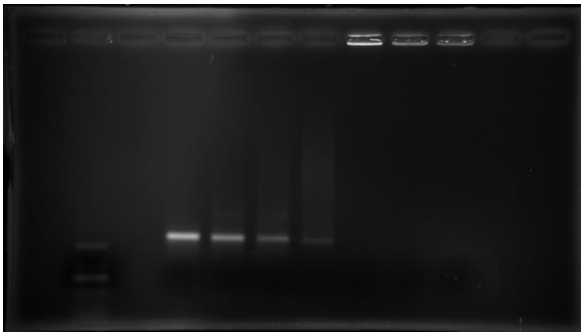


Fig. S3B



Supplementary Figure 6. Original gel images used in the figures.