

Supplemental Materials

Document S1:

Supplementary Figures

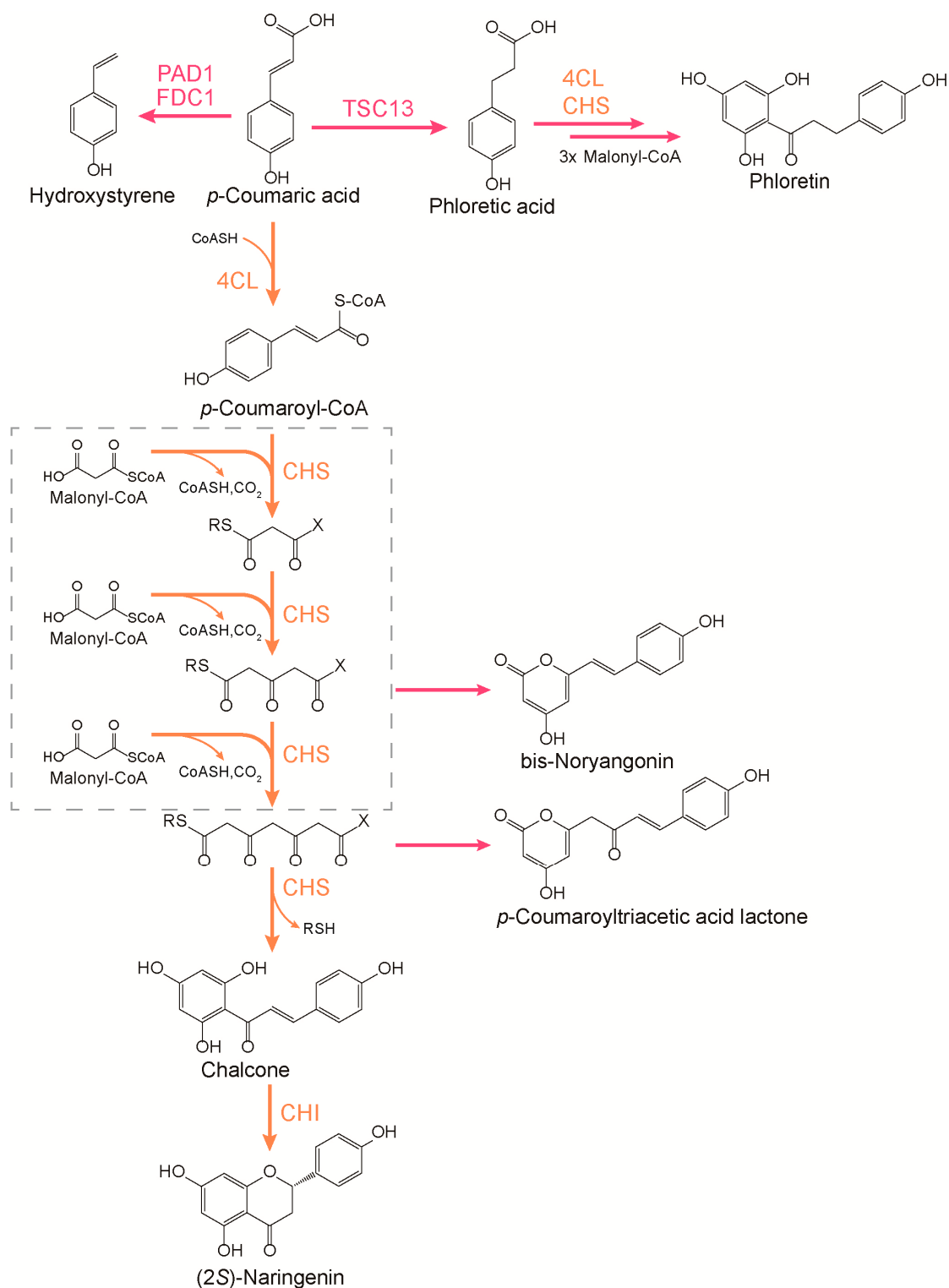


Figure S1. Synthesis of by-products during (2S)-naringenin synthesis. Pad1, Phenylacrylic acid decarboxylase; Fdc1, Ferulic acid decarboxylase; Tsc13, Enoyl reductase.

Supplementary Tables

Tables

Table S1. Strains used in this study

Strains	Genotype	Source
<i>S. cerevisiae</i> <i>CEN.PK2-1D</i>	<i>MATα, ura3-52, trp1-289, leu2-3,112, his3Δ1, MAL2-8C, SUC2</i>	[1]
C800	<i>CEN.PK2-1D, gal80::kanMX</i>	[1]
SQ01	C800, XI-2::(<i>GAL7p-FjTAL-DIT1t</i>)	This study
SQ02	C800, XI-2::(<i>INO1p-FjTAL-DIT1t</i>)	This study
SQ03	C800, XI-5::(<i>CYC1t-AtC4H-TDH1p</i>)+(PKG1p-AtPAL2-CIT2t)+ (<i>SDH1t-AtATR2-TDH3p</i>)+(SED1p-CYB5-PDB1t)	This study
SQ04	C800, XI-5::(<i>CYC1t-AtC4H-GAL10p</i>)+(GAL1p-AtPAL2-CIT2t) +(<i>SDH1t-AtATR2-TDH3p</i>)+(SED1p-CYB5-PDB1t)	This study
SQ05	C800, XI-5::(<i>CYC1t-AtC4H-GAL10p</i>)+(GAL1p-AtPAL2-CIT2t) +(<i>SDH1t-AtATR2-TDH3p</i>)+(SED1p-CYB5-PDB1t), XI-2::(<i>GAL7p-FjTAL-DIT1t</i>)	This study
N01	C800, pY26-ADH1t-PhCHS-GAL10p-CCW12p-MsCHI-ADH2t- SED1p-Pc4CL-CYC1t	This study
N02	C800, pY26-ADH1t-PhCHS-CCW12p-FBA1p-MsCHI-ADH2t- GAL10p-Pc4CL-CYC1t	This study
N03	C800, pY26-ADH1t-PhCHS-GAL10p-FBA1p-MsCHI-ADH2t-S ED1p-Pc4CL-CYC1t	This study
N04	C800, pY26-ADH1t-PhCHS-GAL10p-GAL1p-MsCHI-ADH2t-S ED1p-Pc4CL-CYC1t	This study
N05	C800, pY26-ADH1t-PhCHS-GAL10p-CCW12p-MsCHI-ADH2t- TDH1p-Pc4CL-CYC1t	This study
N06	C800, pY26-ADH1t-PhCHS-FBA1p-PGK1p-MsCHI-ADH2t-TD H1p-Pc4CL-CYC1t	This study
N07	C800, pY26-ADH1t-PhCHS-GAL10p-GAL1p -MsCHI-ADH2t- GAL7p -Pc4CL-CYC1t	This study
N08	C800,	This study

	pY26-ADH1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-A RO7p-Pc4CL-CYC1t	
N09	C800, pY26-ADH1t-PhCHS-ERG20p-PGK1p-MsCHI-ADH2t-S ED1p-Pc4CL-CYC1t	This study
N10	C800, pY26-ADH1t-PhCHS-GAL10p-PGK1p-MsCHI-ADH2t-A RO7p-Pc4CL-CYC1t	This study
N11	C800, pY26-ADH1t-PhCHS-TDH1p-PGK1p-MsCHI-ADH2t-SE D1p-Pc4CL-CYC1t	This study
N12	C800, pY26-ADH1t-PhCHS-TDH1p-PGK1p-MsCHI-ADH2t-A RO7p-Pc4CL-CYC1t	This study
N13	C800, pY26-ADH1t-PhCHS-TDH1p-PGK1p-MsCHI-ADH2t-M ET6p-Pc4CL-CYC1t	This study
N14	C800, pY26-ADH1t-PhCHS-GAL10p-FBA1p-MsCHI-ADH2t-S ED1p-Pc4CL-CYC1t	This study
N15	C800, pY26-ADH1t-PhCHS-ERG20p-FBA1p-MsCHI-ADH2t-S ED1p-Pc4CL-CYC1t	This study
N16	C800, pY26-ADH1t-PhCHS-CCW12p-PGK1p-MsCHI-ADH2t-S ED1p-Pc4CL-CYC1t	This study
N17	C800, pY26-ADH1t-PhCHS-GAL10p-CCW12p-MsCHI-ADH2t- TDH1p-Pc4CL-CYC1t	This study
N18	C800, pY26-ADH1t-PhCHS-FBA1p-CCW12p-MsCHI-ADH2t-T DH1p-Pc4CL-CYC1t	This study
N19	C800, pY26-ADH1t-PhCHS-GAL10p-PGK1p-MsCHI-ADH2t-S ED1p-Pc4CL-CYC1t	This study
N20	C800, pY26-ADH1t-PhCHS-GAL10p-TDH1p-MsCHI-ADH2t-S ED1p-Pc4CL-CYC1t	This study
N21	C800, pY26-ADH1t-PhCHS-GAL10p-PGK1p-MsCHI-ADH2t- MET6p-Pc4CL-CYC1t	This study

N22	C800, pY26-ADH1t-PhCHS-GAL10p-TDH1p-MsCHI-ADH2t- MET6p-Pc4CL-CYC1t	This study
N23	SQ05, pY26-ADH1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-A RO7p-Pc4CL-CYC1t	This study
N24	SQ05, pY26-ADH1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-A RO7p-Pc4CL-Tsynth27	This study
N25	SQ05, pY26-ADH1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-A RO7p-Pc4CL-HOG1t	This study
N26	SQ05, pY26-SynTer8-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t- ARO7p-Pc4CL-CYC1t	This study
N27	SQ05, pY26-CPS1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-A RO7p-Pc4CL-CYC1t	This study
N28	SQ05, pY26-ADH1t-PhCHS-GAL10p-ALD5p-MsCHI-T-1300ste m6-ARO7p-Pc4CL-CYC1t	This study
N29	SQ05, pY26-ADH1t-PhCHS-GAL10p-ALD5p-MsCHI-DIT1t-A RO7p-Pc4CL-CYC1t	This study
N30	SQ05, pY26-CPS1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-AR O7p-Pc4CL-HOG1t	This study
N31	SQ05, pY26-CPS1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-A RO7p-Pc4CL-CYC1t, PRS424-SED1p-ThF3'H- TPS1t	This study
N32	SQ05, pY26-CPS1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-A RO7p-Pc4CL-CYC1t, PRS424-SED1p-ThF3'H- TPS1t, PRS425-SED1p-ThF3'H- TPS1t	This study

Table S2. Plasmids used in this study

Plasmids	Source
pY26-ADH1t-PhCHS-GAL10p-CCW12p-MsCHI-ADH2t-SED1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-CCW12p-FBA1p-MsCHI-ADH2t-GAL10p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-FBA1p-MsCHI-ADH2t-SED1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-GAL1p-MsCHI-ADH2t-SED1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-CCW12p-MsCHI-ADH2t-TDH1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-FBA1p-PGK1p-MsCHI-ADH2t-TDH1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-GAL1p -MsCHI-ADH2t- GAL7p -Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-ARO7p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-ERG20p-PGK1p-MsCHI-ADH2t-SED1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-PGK1p-MsCHI-ADH2t-ARO7p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-TDH1p-PGK1p-MsCHI-ADH2t-SED1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-TDH1p-PGK1p-MsCHI-ADH2t-ARO7p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-TDH1p-PGK1p-MsCHI-ADH2t-MET6p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-FBA1p-MsCHI-ADH2t-SED1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-ERG20p-FBA1p-MsCHI-ADH2t-SED1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-CCW12p-PGK1p-MsCHI-ADH2t-SED1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-CCW12p-MsCHI-ADH2t-TDH1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-FBA1p-CCW12p-MsCHI-ADH2t-TDH1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-PGK1p-MsCHI-ADH2t-SED1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-TDH1p-MsCHI-ADH2t-SED1p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-PGK1p-MsCHI-ADH2t-MET6p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-TDH1p-MsCHI-ADH2t-MET6p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-ARO7p-Pc4CL-Tsynth27	This study
pY26-ADH1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-ARO7p-Pc4CL-HOG1t	This study
pY26-SynTer8-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-ARO7p-Pc4CL-CYC1t	This study
pY26-CPS1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-ARO7p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-ALD5p-MsCHI-T-1300stem6-ARO7p-Pc4CL-CYC1t	This study
pY26-ADH1t-PhCHS-GAL10p-ALD5p-MsCHI-DIT1t-ARO7p-Pc4CL-CYC1t	This study
pY26-CPS1t-PhCHS-GAL10p-ALD5p-MsCHI-ADH2t-ARO7p-Pc4CL-HOG1t	This study
PRS424-SED1p-ThF3'H- TPS1t	This study
PRS425-SED1p-ThF3'H- TPS1t	This study

Table S3. Primers used in this study

Primers	Sequence (5'-3')
X-2 us-F	CGTCTATGAGGAGACTGTTAGTTGG
X-2 us-R	GACCACTTCGAGAGCAAGTTGC
GAL7p-F	CAATGTGCCATAAACTCCGTGCACCATTTGCCAGCTTACTATCCTTCTTG
GAL7p-R	CTCAAGTATTCATTAATGGTGTTCATTTTTGAGGGAATATCAACTGTTTTTT T
FjTAL-F	ATGAACACCATTAATGAATACTTGAG
FjTAL-R	TTAATTGTTAATCAAATGATCCTTAACC
DIT1t-F	GGTTAAGGATCATTTGATTAACAATTAATAAAGTAAGAGCGCTACATTGG

DIT1t-R	TATGAAGCAGCCAATACCTGTTTTACAACTTGTTACTCCGCAACGCTTTTC
INO1-F	CAATGTGCCATAAACTCCGTGCACCAGAAGACGATGAGGCCGGTGC
INO1-R	CTCAAGTATTCATTAATGGTGTTCATTGTTACTTCTTTTTCACTGGAAAAAA AAGG
XI-5 us-F	GCGGAGAAGTCGTTGATAGCATTTC
XI-5 us-R	TGGTGCACGGAGTTTATGGCAC
XI-5 ds-F	TTGTAAACAGGTATTGGCTGC
XI-5 ds-R	GATCATAGATCCGGCACTTAGAG
CYC1t-R	CAATGTGCCATAAACTCCGTGCACCAGCAAATTAAAGCCTTCGAGCGTC
CYC1t-F	TATTGTTATGAAGCCAAGAACTGTTAAACAGGCCCTTTTCCTTTGTCTGA
AtC4H-F	TTAACAGTTTCTTGGCTTCATAACAATAATAG
AtC4H-R	ATGGATTTGTTGTTGTTGGAAAAGTC
TDH1p-R	AGACTTTTCCAACAACAACAATCCATTTTGTGTTGTGTAAATTTAGTGA AGTACTG
TDH1p-F	AGGGAAACACTTCCTTTTTCTGGCCCTGAAACCACACCGTGGGGCCTTG
PGK1p-F	GGGCCAGAAAAAGGAAGTGTTTC
PGK1p-R	CAACATGGCTTCAATTTGATCCATTGTTTTATATTGTTGTAAAAAGTAGATA ATTAC
AtPAL2-F	ATGGATCAAATTGAAGCCATGTTG
AtPAL2-R	GGGGTGTAAGTAGGATGTAATCCAAATTAAACAAATTGGAATTGGAGCA CCG
CIT2t-F	TTGGATTACATCCTACTTTTACACCC
CIT2t-R	GCCGGAATAGTGCAAATTGTATG
SDH1t-R	GATTCATACAATTTGCACTATTCGGGCGACAGCACCTTGACAGCAATTC
SDH1t-F	GGTAGATACTTGAGAGATGTTTGGTAATTTGAACCTCATTGTATTTACGG
AtATR2-F	TTACCAAACATCTCTCAAGTATCTACCG
AtATR2-R	ATGAAGAACATGATGAACTACAAGTTG
TDH3p-R	CAACTTGTAGTTCATCATGTTCTTCATTTTGTGTTTATGTGTGTTTATTCGA AAC
TDH3p-F	AGCAATCAGTGGTGTATGGAAGGTAGAATAAAAAACACGCTTTTTTCAGTTC GAG
SED1-F	TCTACCTTCCATACACCACTGATTG
SED1-R	CATCTTAATAGAGCGAACGTATTTTATTTTG
CYB5-F	AATAAAATACGTTTCGCTCTATTAAGATGATGCCTAAAGTTTACAGTTACCAA G
CYB5-R	CTCTCCTTCCTATTGGATTGAAGTTTATTCGTTCAACAAATAATAAGCAAC AC
PDB1t-F	AACTTCAATCCAATAGGAAGGAGAG
PDB1t-R	ATGAAGCAGCCAATACCTGTTTTACAACCTTTCGCTTAGGTTCCATGCC
GAL1,10p-R	AGACTTTTCCAACAACAACAATCCATTTATATTGAATTTTCAAAAATTCTT ACTTTTT
GAL1,10p-F	ACAACATGGCTTCAATTTGATCCATTATAGTTTTTTCTCCTTGACGTAAAGT ATAG
pRS424-F	TATAGCATGAGGTCGCTCAGCTCCAGCTTTTGTTCCTTTAG
ADH1t-R	AACAAAAGCTGGAGCTGAGCGACCTCATGCTATACC
PhCHS-F	GTTCTGAAACTGTCTCCCCAGCTTTGGATGGTTACGGTGGAAGAATACC
CCW12-F	GCTGGCTATTGGCGTCTGATTTTC

PGK1p-F	CGGAAATCAGACGCCAATAGCCAGCGGGCCAGAAAAAGGAAGTGTTTC
Pc4CL-R	AAAAAGTAAGAATTTTTGAAAATTCAATATAAATGGGTGACTGCGTTGCCC CG
FBA1p-F	CGGAAATCAGACGCCAATAGCCAGCATAACAATACTGACAGTACTAAATAA TTGC
ADH2t-R	CTATACTTTAACGTCAAGGAGAAAAAACTATAATGAGAAATATCGAGGGAG ACGA
FBA1p-F	TACTTTAACGTCAAGGAGAAAAAACTATAATAACAATACTGACAGTACTAA ATAATTGC
PhCHS-F	CATATATAACCATAACCAAGTAATACATATTCAAAATGGTTACGGTGGAAGA ATACC
FBA1p-F	AACGGAAATCAGACGCCAATAGCCAGCATAACAATACTGACAGTACTAAAT AATTGC
FBA1p-F	GAGGGAAACACTTCCTTTTTCTGGCCCATAACAATACTGACAGTACTAAATA ATTGC
GAL1,10p-1 F	TATAGTTTTTTCTCCTTGACGTTAAAG
GAL1,10p-1 R	TTATATTGAATTTTCAAAAATTCTTACTTTTT
CCW12-R	CCAAAGCTGGGGAGACAGTTTC
CCW12-F	GCTGGCTATTGGCGTCTGAT
PGK1p-F	CAGACGCCAATAGCCAGCACGCACAGATATTATAACATCTGC
FBA1p-F	TGTTATAATATCTGTGCGTATAACAATACTGACAGTACTAAATAATTGC
PGK1p-F	ACGCACAGATATTATAACATCTGC
ADH2t-R	GGATAGTAAGCTGGCAAAATGAGAAATATCGAGGGAGACGA
GAL7p-F	TTTGCCAGCTTACTATCCTTCTTG
GAL7p-R	TTTTGAGGGAATATTCAACTGTTTTTTT
Pc4CL-R	GTTGAATATTCCCTCAAAAATGGGTGACTGCGTTGCC
PhCHS-F	ATGGTTACGGTGGAAGAATACCG
Pc4CL-F	ATGGGTGACTGCGTTGCC
MsCHI-F	ATGGCAGCAAGCATTACGGC
JID1t-R	ATCTTATACCAATTTTATGCAGGATGCTG
ERG20p-F	GTTATAATATCTGTGCGTCTCACACTTTGGTTCTTCGAC
PGK1p-R	CGTAATGCTTGCTGCCATTTATATTTGTTGTAAAAAGTAGATAATTAC
SED1-F	GCATAAAATTGGTATAAGATTCTACCTTCCATACACCACTGATTG
SED1-R	GCAACGCAGTCACCCATCTTAATAGAGCGAACGTATTTTATTTTGC
PGK1p-F	GTCAAGGAGAAAAAACTATAACGCACAGATATTATAACATCTGC
TDH1p-R	TTCTTCCACCGTAACCATTTTGTTTTGTGTGTAAATTTAGTGAAG
TDH1p-F	GTTATAATATCTGTGCGTTGAAACCACACCGTGGGG
MET6p-F	GCATAAAATTGGTATAAGATCATGAACCAGGGTCCCGCAC
MET6p-R	GCAACGCAGTCACCCATTTTGTATGTACTTTGAAATTATATTGG
FBA1p-R	GTAATGCTTGCTGCCATTTTGAATATGTATTACTTGATTATGG
ERG20p-F	GTAAGTGTGAGTATTGTTATCTCACACTTTGGTTCTTCGAC
FBA1p-F	ATAACAATACTGACAGTACTAAATAATTGC
CCW12p-R	CTTCCACCGTAACCATCCAAAGCTGGGGAGACAGTTTC
CCW12p-R	GTAATGCTTGCTGCCATCCAAAGCTGGGGAGACAGTTTC

TDH1p-F	GCATAAAATTGGTATAAGATTGAAACCACACCGTG GGGC
TDH1p-R	GCAACGCAGTCACCCATTTTGT TTTGTGTGTAAATTTAGTGAAG
FBA1p-R	TTCTTCCACCGTA ACCATTTTGAATATGTATTACTTGGTTATGG
FBA1p-F	GACGCCAATAGCCAGCATAACAATACTGACAGTACTAAATAATTGC
TDH1p-F	GTCAAGGAGAAAAAACTATATGAAACCACACCGTG GGG
TDH1p-R	GTAATGCTTGCTGCCATTTTGT TTTGTGTGTAAATTTAGTGAAGTAC
pRS424C-F	GTCTCCCTCGATATTTCTCATAGCTCCAGCTTTTGTTC CCTTAG
pRS424C-R	CCTGCCGAAGTAATCATGTAATTAGTTATGTCACGCTTACATTC
Pc4CL-F	GTGACATAACTAATTACATGATTACTTCGGCAGGTCGCCGCTCG
Pc4CL-R	AATACGTTTCGCTCTATTAAGATGGGTGACTGCGTTGCC CCG
SED1-R	GTCACCCATCTTAATAGAGCGAACGTATTTTTAT TTTGC
SED1-F	CAAAGTGTGAGTCTACCTTCCATACACCA CTGATTG
ERG20-F	GTGGTGTATGGAAGGTAGACTCACACTTTGG TTCTTCGAC
ERG20-R	ATTCTTCCACCGTA ACCATTTCTACGTAATATTTT GAGTTTATTGTGC
PhCHS-F	ATTACGTAGAAA TG GTTACGGTGGAAGAATACC
PhCHS-R	AAATCATAAGAAATTCGCTTAGGTAGCCAC ACTATGCAG
ADH1t-F	GTGGCTACCTAAGCGAATTTCTTATGATTTATG ATTTTATT
ADH1t-R	TTCCTTTTTCTGGCCCCGAGCGACCTCATGCTAT ACC
PGK1p-F	ATGAGGTCGCTCGGGCCAGAAAAAGGAAGTGTT TC
PGK1p-R	AATGCTTGCTGCCATTGTTTATATTTGTTGT AAAAAGTAGATAATTAC
MsCHI-F	CAACAAATATAAAACAATGGCAGCAAGCATTAC GG C
MsCHI-R	GACATAAGAGATCCGCTCAGTTACCGATTTT AAAGGCACCTTC
ADH2t-F	AAATCGGTA A CTGAGCGGATCTCTTATGTCTT TACG
ADH2t-R	GCTGGAGCTATGAGAAATATCGAGGGAGAC GA
DIT1t-F	CGGTA ACTGATAAAGTAAGAGCGCTACATTGG TC
DIT1-R	CTGGAGCTTTACTCCGCAACGCTTTTCTG
SDIT1t-F	TTGCGGAGTAAAGCTCCAGCTTTTGTTC CCTT TAG
SDIT1-R	TCTTACTTTATCAGTTACCGATTTTAAAGGC ACCTTC
T-1300 stem 6-F	CTTGTGGAAAAAAGGGGGAAAGGGCCCCCTT CAAAAGCTCCAGCTTTTG TTCCCTTTAG
T-1300 stem 6-R	TTTCCCCTTTTTTCCACAAGGGATATATATATATATATATATATATATATATCAGTTA CCGATTTTAAAGGCACCTTC
CPS1t-F	CTACCTAAGCGCAATGATTGAATAGTCAA AG
CPS1t-R	TCTGGCCCATTTGACACTTGATTTGACACTTC
SCPS1t-F	CAAGTGTCAAATGGGCCAGAAAAAGGAAGTGTT TC
SCPS1t-R	AATCATTGCGCTTAGGTAGCCACACTATGCAG
SynTer8-F	TAAAGACGTTGAGTCCGTTGAGAGTATCATCGAGTATCATCTTTC AAAGGG CCAGAAAAAGGAAGTGTTTC
SynTer8-R	CAACGGACTCAACGTCTTTATTTCTAGACAGTTATATATTAGGTAGCCACAC TATGCAG
HOG1t-F	AGTAATTTAATGTCCCTAACCACTCATTC
HOG1t-R	GGTACCGGCCTACGCTTGTCTGGGTGAGAC
SHOG1t-F	ACAAGCGTAGGCCGGTACCCAATTCGCC C
SHOG1t-R	GTTAGGGACATTAAATTACTTCGGCAGGTCGCCGCT CG
Tsynth27-F	AACTGTCTAGAAATAAAGAGTATCATCTTTCAAAGGCCGGTACCCAATT CG CC

Tsynth27-R	ACTCTTTATTTCTAGACAGTTATATATATATATATATATATATATATATATACCACCCATTA CTTCGGCAGGTCGCCGC
SED1p-R	CTTAATAGAGCGAACGTATTTTATTTTGCTTGTCT
ThF3'H-F	AATAAAATACGTTTCGCTCTATTAAGATGAGCATCCTGATCATCATCATCCT
ThF3'H-R	GATCGTCTCATTGTCATCGGGTTCATTAGCATTCAACAACCTTCATACGCACC
TPS1t-F	TGAACCCGATGCAAATGAGACG
URA3-F	GCAGATTGTACTGAGAGTGCACC
URA3-R	ACGCATCTGTGCGGTATTTTAC
Prs425-F	GAAATACCGCACAGATGCGTAAG
Prs425-R	GCACTCTCAGTACAATCTGCTC

Table S4. Exogenous genes used in this study

Exogenous gene	NCBI Reference Sequence	Enzyme	Organism	Reference
<i>FjTAL</i>	WP_012023194.1	tyrosine ammonia-lyase	<i>Flavobacterium johnsoniae</i>	[1]
<i>AtPAL2</i>	NP_190894.1	phenylalanine ammonia-lyase 2	<i>Arabidopsis thaliana</i>	[1]
<i>AtC4H</i>	NP_180607.1	cinnamate-4-hydroxylase	<i>Arabidopsis thaliana</i>	[1]
<i>AtATR2</i>	NP_001328167.1	P450 reductase 2	<i>Arabidopsis thaliana</i>	[1]
<i>Pc4CL</i>	P14912.1	4-coumaroyl-CoA ligase	<i>Petroselinum crispum</i>	[1]
<i>PhCHS</i>	AAF60297.1	chalcone synthase	<i>Petunia x hybrida</i>	[1]
<i>MsCHI</i>	P28012.1	Chalcone isomerase 1	<i>Medicago sativa</i>	[1]
<i>ThF3'H</i>	BAH22519.1	flavonoid 3' hydroxylase	<i>Tricyrtis hirta</i>	[2]

Table S5. Natural strong terminator and artificial strong terminator sequence

Terminator	Sequence (5'-3')	Source
Tsynth27	TGGGTGGTATATATATATATATATATATATAACTGTCTAGAAATAAAG AGTATCATCTTTCAAA	[3]
HOG1t	TTTAATGTCCCTAACCACTCATTCTTACTTCTTTTGATGTTTCTTTTT TTTATGGTACTCATAAAAGTATTTACGTATATAGTTGTATAGAGGAAA CAAAAAAAAAAAGATAAACTCAATTACAAAGTAAAGTGGACGTA TTTCGATCATGATTTTTTTCTGTTTTAACCGCATTGGATTTTCTTGTA AAACTGGAAGAAAAAGGAACTAAAAAGTCAAGAAAGACCTTTTT AAGACTCCAAGAACCGTCACTTATGGCGTATTGTTTGTATCAGCA CTTCTATCTTCGATAAAGGTTTGTCTGTCTTATATTGTTTACATTCAA GTCTAATTCTGTGCTTTTACCGAAGAGGAATTTTCATAAATACGGAG AAAATATAAAAAAAAAAGTAAATACAGAAAATAGAACAGTTGAAGC AGAAAAAGAGAACTTGCTAAATAGCTGTCTCACCCAGACAAGCGT	[4]

	A	
SynTer8	TATATATATATAACTGTCTAGAAATAAAAAATAAAGATGATGAGAGTAT CATCTTTCAAATTTCAAA	[5]
CPS1t	GCGCAATGATTGAATAGTCAAAGATTTTTTTTTTTTAAATTTTTTTTTT TTAATTTTTTTTTTTTTTTCATAGAACTTTTTATTTAATAAATCACGTC TATATATGTATCAGTATAACGTAAAAAAAAAAAAACACCGTCAGTTAAA CAAAACATAAATAAAAAAAAAAAAAAGAAGTGTCAAATCAAGTGTCAA AT	[6]
T-1300 stem 6	TATATATATATATATATATATATATATCCCTTGTGGAAAAAAGGGGGAAAG GGCCCCCTTTCAAA	[7]
DIT1t	TAAAGTAAGAGCGCTACATTGGTCTACCTTTTTGTTCTTTTACTTAA ACATTAGTTAGTTCGTTTTCTTTTTCTCATTTTTTTTATGTTTCCCCCCC AAAGTTCTGATTTTATAATATTTTATTTACACAATTCCATTTAACAG AGGGGGAATAGATTCTTTAGCTTAGAAAATTAGTGATCAATATATATT TGCCTTTCTTTTCATCTTTTCAGTGATATTAATGGTTTCGAGACACTG CAATGGCCCTAGTTGTCTAAGAGGATAGATGTTACTGTCAAAGATGA TATTTTGAATTTCAATTGACGTAATTAATGATACTATTAATAATACAGA GCGTATATGAAGTATTGCAAATAACATGCACAGTTCTTTTGGGATGA GAATGATAATGAAAGGCGAAGGCGGGCGTTTCAGAAAAGCGTTGCG GAGTAA	[8]

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