

Supplementary Data 2.

Donor sequences for module editing. See also Supplementary Table 11.

Name	Sequence
donor_PKSv1 (6,933 bp)	CGGCCGTGGCCCGAGACCGGCCAGCCGCGCCGCTCGGGATATCGGCGTTGCGCGTCAGCGGCACCAACGCG CCACACCATCCTGGAGCAGGCGCCCGAGGAGACGGCGGAAAGCACGGACGCGGACGCTCCGGCCGCCCC GCCGTCTGACCGCCCGTCTGCCCTGGACCTCTCCGCCAAGAGCGAGGCCGCGCTGCGCGAGAACGCACG CCGCCTCGCCGCCACCTCGACGGCGCGCCCGCCCGCTGGCCGACATCGGCCGCTCCCTGGCGACCGGCCG GGCCGCCCTGGAGCGCCGCGCCGTATCTGTCGGCGCCGACCGCGACGGCTTCCGCACCGCCCTGGACGCCCT GGCCCGCGCGAGTCCGCGCCGGGCTGGTTCGAGGGCGCGGTGGCCGGTGGCAGGACCGCGTTCTCTTCA CCGGCCAGGGCAGCCAGCGGTGGGCATGGGCCGCGAGCTGTACAAGACGTACCCGGCCTTCGCCGAGGCG CTGGACGCGGTCTGCGACGGCTCGCCCCGCACCTCGAACGACCGCTGAAGGACGTGCTGTTCGGCTCCGAG GCCGAGCCGCTGGACCGTACCGGTTTACCCAGCCCGCGCTGTTTCGCGCTCGAAGTGGCCCTGTTCCGGCTC CTCGAGCATGGGGTGTGCGGCCGAGCGCCCTGGCCGGGCACTCCATCGCGGAGCTCGCCCGCGCGCACGT CGCCGGGTGCTGTCCCTGGCGGACGCTCGAGCTCGTGGCCGCCCGCGGCCGCTGATGCAGGAAGTGC CCGCCGGCGCGCGATGACCGCGATCGAGGCGAGCGAGGACGAGATCCTCCCGTGTCTGGGCGACCGCGTC GGCATCGCCGCCCTCAACGGTCCCACGTCCGTGGTCTCTCCGGCGACGAGGACGCGGTACCCGAGATCGC GTGCCGGTTTCGAGGCGCAGGGCCGACGACCAAGCGCTTACGGTACCGCAAGTACCTCCCGGAGCA TGGACGGCATGCTCGACGCCTTCCGCACCGTGGTGGAGAAGCTGACGTTCCACGCCCCGCGGATCCCCGTGG TCTGCACCGGTGACATCACGAGCCCCGAGTTCTGGGTGCGGCACGTCCGCGACGCCGTACGGTTCTTGACA AGGTCCGCACGCTCGAAGCACAGGGCGTACACACATACCTCGAAGTGGGCCCCGACGGCGTGTCTGCCGCC ATGGCGCAGGAGTGCCTGACACGGACGCGCGCGGCTTCGCGGTGTCGCGAGGACACCGCGCGCGGCGAC CGAGGCACTACACACGGCGTCCGCCGCGCCACGTGCGCGGTACGGCGGTGCGACTGGGCCGCGTACTTCG CGGGCACCGGCGCGGCCGTGTGGACCTGCCGACGTACGCCTTCCAGCACGAGCGGTTCTGGCTGGAGCCC GGCGCCACCACCGGTGACGCGACGGCCATCGGTCTGGAGTGGCGGACACCCGCTGTCTGGCGCCGCGGT GCCGTGGCGATGAGCGACGGCTTCTGTTACCGGGCGGCTCGGGCTCGACAGCCACCGCTGGCTGGCCG ACCACGCCGTGTCTGGCACCGCGTGTGTCGGCGCGCCGCTCGTCTGAGCTGGCGATCCCGCGCGGTGACC AGGTCTGGCTGCGAGTACCTCGCCGAAGTCTGCCGTGGAGACCCCGCTGGTGTCTGCCGCCCGCGGGGGTG CGCATCCAGGTGAGGTGCGGGGCGCGGGACGCCGAGGCCGCGCGGCTTACCGTCTCTCCCGTACCGA CGACGCCCGGACACGAGCTGGACCCGGCACGCCACCGCGCGCTCGCCGACACGCGCCCCGCGCGACCC CGCCGAGCTGACCACTGGCCGCCGCGCGCGCGGCGAGCGCATCGACACCGACGACCTCTACACGGAGCTG GCCGCCCGCGGCTGCGGCACGGGCCGCTTCTCCAGGGGCTGACCGCCGCTTGGCGCAGCGCGACGAACT GTTCCGCGAGGTGCGGCTGGCCGAGGACGCCGACCCGGCGCGCGCGGCTTCCGCGTCCACCCGGCGCTGT CGACGCGGTGTGACGCGCTGACCGGACGCTCCGGCGCCCGCTGACCGCCGCTGGCAGGGCGTGACCC TGCACCGGTCGGCGCCGACGCGCTGCGCGTACGCGATCTCGCCGGTGGCGAGGACACCGTCTGGTGTG CTCGCCGACGCCACCGGTACGCGGTGCGCACCGCTGACGCGCTGACCTCCGCCGCTGCCGAGAGCGA CGCCGACCTCGGTGCGGTGCGCTCTTCCGCCACCAGCAGGCGCTGTTCCGGCTGGACTGGGTGGCACCGCG GGCGTACACCGCGAGCCGGGCGCGCGGACGCCGCGGTAAGTCCGGCGCGACGCTTCCGGCTGGGCG CGGAGGCGTCCGCGACGCTTCTCCGGACCTGCGCCGCTCGCGCGGCTGTCGCGCGGCTGTCGACGCGGGGAC CCGGCGCCCGGCTGGTGTGGCTTCTTCCCGCGCCAGGACGGCGAGGACCTCGCCGCCGCCACCCAC CGGGCCGCGTCCGTGCGCTGGAGCTGGTGCAGGGCTGGCTGGCCGACACCCGCTTACCGACGCCAAGCT GGCCTCTGTACCCGGGGCGGATCGCCGCCGGCCCCGACGAGGACGTACCCGACCTGGCGCACTCCGCGT TGTGGGGCTGTGCGCTCCGCCGAGACCGAGAACCAGGACCGCTTCTGTCGACCTCGACGGCACCG ACGCTTCCACGGCCGCTTGCACGGCGCGTACCGCGGGAACCGAACTGGCGCTGCGCGACCGCGAG ATCTGTGTCGCGCCTGGCCCGCACACCGCGGCCGACCTGAAGGGCCGACACCCCGGTGCCCGCCT GGACGCCGAGGGCACCGTACTGATACCGGGCGCACCGGCGGCTGGGGCGCTGCTCGCCCGCACCTGG TCACCGACACGGCGTCCGCCACCTGCTGTACACAGCCGCCGCGGCCCGAGGCCCGCGCGCGACGAG CTGCGGAGGAACCTGCGCGCTGGCGCGCTGCGCGGCTGACCATCGCGGCTGCGCGCGGCGGAGG GCTGGCCGCCACCTGGCCGCCGTCCCGGCCGCCACCCGCTACCGCGCTGTCGACACCGCGGTGTCT GGACGACGCCACCGTGGCCGCCCTACGCCCCGAGAGTGGACCGCGTGTGCGCCCCAAGGTGGACGCGG CGTGGAACTGACAGAGCTACCCGCGACCTCGACCTGTCCGCTTCTGCTGTTCTCCGCCATCGCCGCA CCCTGGGCGCGCCGCCAGGCCAACTACGCGCGGCAACGCTTCTTCGACGCGCGCTCGCCGCCACCGG CACGCCAGGGCTGCCCGCACCTCCCTGGTCTGGGGCTGTGGGCCCGGTCCGGCGCATACCCGGCGCA CTGACCGAGACCGACCTGCTGCGGTGGCCCGCAGCGCATGGGCGCCCTCGGCGACGACGAGGGCATGGC GCTCTTCGACGCGCCCGCGCACCGCGCGGCGTCTCGTCCCGGCCGCGTGGACCTGGCGGCGTGGC CTCCGCGACGGCACCGGCCGCTGCGCGGCTGTGCGCGGCTGATCCGCGGACACCGCGCGCGCACCG CCGCCGCGGGCTCTCCGCCACCGGCTCTCGCTGTCCGAGCGGCTGCTCGCGTTCCCCCGGCGGAGCGCC GGCGCACCTGCTCGACCTGGTCCGCACCAAGGTGTCGCGGTGCTCGGACACCGCGGCCCGGAGGCCGTC GAGCCGCGCGGGCCTTCAAGGAGCTGGGCTTCGACTCGCTGATCGCGGTGAGCTCCGCAACCGGCTCTCC GCGGCCACCGGCTGAAGCTGCCACCAACCATGCTTTCGACTACCCCAACTCCGCTTCTCGCCGACCA CTGCGCGGCGAGCTCTGGGCGACCTCGTCGACGAGGACGCGGACGAGGCCGACCGGCTGGCCACCGCGC GCCGACGACGACCCCATCGCATCGTCGCGATGAGTGGCGTACCCCGGCGACGTGGATTGCCCCGAGG AGCTGTGGCGGTGGTACCGGGCGCGGAGGACGCCATACCGGCTTCCCGTCAACCGCGGCTGGGAGTCG CTGACTGGGCGTCCGAGGCGAGCCGGGCGACTATGCCGGGCGGGCGGCTTCTGACGAGGCCGACCT GTTGACGCCGCTTCTTCGGGATCTCGCGCGCGGAGGCCCTCGCCATGACCCGACGACGCGGTGCTGT GGAGACGCTCTGGAGGCGTTCGAGCGCGCGGGCATCGACCCGACGAGGCGCGCGGCCGACGCTCGGC GTCTTCGTCGGCGCTCTACAGCGCTACGAAGTGGGCTGGAGCAGGCCGCTGCGGAGGTGCGGGGCCA TGTGATGACCGGAACCGCGCGAGCGTATCTCCGGGCGCATCTCTACGCCCTCGGCTCGAAGGCCCGC CGTACCGTGCACACCGCTGCTCTCTCCGCTGAGGCGGCTGACTGGCCGCGCGGCTGCGGAGG CGAGTGTCTCATGGCGCTCGCGGGCGGCTACCGTTCATGACGACCCCGGCGACGTTCCGCCGAGTTACGCCG CCAGCGCGGGTGGCTCCGACGCGCGCGTCAAGGCGTTCGCGGCGGCGCGGACGCGACCGGCTGGGGCG AGGGCGTGGCATGCTGCTGTCGAGCGGCTTCCGATGCGCGGCGCAACGGACACCCGCTCTCGCGCTCG TCCGCGCTCCGCGTCAATCAGGACGGTGGCAGCAAGGCTGACCGCCCAAGCGCGCGCAGCAGCAG CGGTCATCCGCAAGGCGTGGCCGGCGCGGGCTACCAACCGCGAGGTGACGCTGTCGAGGCGCACGG CACCGGACACCTGGGCGACCGATCGAGGCGAGGCCCTGCTCGCCACGTACGGCCAGGACCGCCCCG

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donor_PKSv1_XU
(6,945 bp)

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(8,252 bp)

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donor_PKSv2_XU
(8,240 bp)

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donor_PKSv3 (496 bp)	GCGCTGCGCGCCAGGCGGCCAACGGAGCGCTGCCGTTCTGCTCAGCGGACTCGTTGGGTGCCCGCGCG GCTGCCCGCAGGGTGCGACGGCGTCCGGCGCCCTCGCACGGCGA CTGATCGGGCTGCGCACC GGCCG AGCGGGAGGCCGTA CTCTGGA ACTGGTCCG CACCCAGGCCGCGGTAGTCTCGGCTTCGCGGACGCCGAC GCCATCGGGGTGCGCCGCGGCTTCCTGGAGATGGGCTTCGACTCGCTCACCGCCGTGAGCTGCGCAACCGG CTCAACGCGGCCAGCGGCCTGCGGCTGTCCCCGACGCTGCTCTTCGACCACGGCACGCCCGCGCTCGTCGCC GGGCACATGCTGACGCAGCTGGTGGACGCGGTGGCCGGTCTGCCGTACGGGACGAGCCGGCCGGTGGCGA ACAGCAGACGGGCGTCTTCGGCGCGATGATGCGGGAGGCCGGGAGACGGGCAGGCAGGAGGAGTTCA
donor_PKSv3_medTE (493 bp)	GCGCTGCGCGCCAGGCGGCCAACGGAGCGCTGCCGTTCTGCTCAGCGGACTCGTTGGGTGCCCGCGCG GCGTGCCCGCAGGGTGCGACGGCGTCCGGCGCCCTCGCACGGCGA CTGATCGGGCTGGGGGAGGCCGAGC AGCTCGGCATGCTGGAGCTGGTGGCTACGACAGTGGGCCACCGTGCATACGCGGGCGGGCGTGGC GTCGAGGGCCGAGCGTTCTTCCGCGAGCTGGGCTTTGATTGCTGACGCGCGGTGGAGCTGCGGAATCTGTTG GGTGGGGTGACGAGCTGCGGTTGCCGCGACGTTGGTCTTCGACTATCCGACGCCGCTGGTGGTGGCGAG TTCTTGCTGACGCAGCTGGTGGACGCGGTGGCCGGTCTGCGGTACGGGACGAGCCGGCCGGTGGCGAACA GCAGACGGGCGTCTTCGGCGCGATGATGCGGGAGGCCGGGAGACGGGCAGGCAGGAGGAGTTCA
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donor_PKSV4(KAL)
(3,433 bp)

donor_PKSv5
(5,809 bp)

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donor_PKSV5_XU
(8,775 bp)

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donor_PKSV6_dstTE (1,151 bp)	<u>TCAACGCGCCAGCGCTGTCGCCGCTGTCCCCGACGCTGCTCTTCGACCACGGCACGCCCGGCTCGTCGCCG</u> GGCACATGTGACGGACCTGGACCAGGCGGCGCCACGGGCGGGGACACAGCGGCGGTACGAGAGCGAGC GGCGGCCGCTAGGTGCGACAGTCCGCGCCGACCCGAGCGCACCCGGAAGGCCGCGGCCCGCGACGAGCCCG AAGCCGTGCCGAGCACTCCCCGGCACCCGAGGCGGGCCCCCGCGCCACCCTCCCGGCCGCGGACCCCGG CCCCGACCGGCTCGCCGAGCTGTACGACGAGGCGCACGGCAGGGCGCGGACGACCTGATCGCTCGCCG CCTGCGCACCATGGCGAGTTCCGCGCCTCGTTACCGACGAGGCGCAACTGGGCGGGCGCGCGCCCCGTT CACGCTGTCCCGGGGCGACGACCCGGTGAGCGTGGTGCTCTTACCTCGTTCTGTCGGCCGCTCCAGCGCTA CGACTACGCCCCGTTTCGGCAGTACTTCCGCGACCGGCGCGACGTACGCTGATCACCCACCCCGGCTTCT GGAGGGCGAGTTGCTGCCGCGCGACAAGGAGGCGCTGGTGGCGCTGCACGCGGACACCGTGCTGCGGCACG CCGCGCGCAAGCCGTTCTGTGCTCGCCGGCCACTCTCCGGCGGTCTCGTCGCGCACGCCGTGGCACGGGAGC TGGAGAGCCGCGGCGCCGGGCCCCGCGGGCGTGGTGCTCGTCGACACGTACGTCGAGGAGAAGGCGCTCGGC GACATGGCCGCGCGATGGGCAAGCAGCTCAGCGACCGCTACGACGCGGTGCCCGGAGCCGAGGCGGACG ACAACGACTGGGGCGACGCTGGGTGACCGCCATGGCCCGCTACATGTTCTCGGCTGCTTCCCGACGCCA TCCAGGCGCGACTCTCCTGGTGCGGGCGGGCGAGCCGCTCGTGAGTACCAAGGAGTACGACTGGCGG CCGTCTGGAAGCTGGAGCACACCGCGGTGGACGTACCCGGAACGCACTTACGGTGATGGAAGAGCACTC GCACACCACGGCGCGCGCCGTGGAGAGTGGCTCGACAAGCTCTGACTTACGATGATGGAGCAGCACGCC GGGACGACGGC
donor_PKSV6_amphACP-TE (1,363 bp)	<u>CTGGACGGTCCCCGGCGAGTCGCTCCTGATTCCCTGCACCTGGACACCGCCCCGCTGCGGGCCCCAGGCCGA</u> CGCGGGCGCGCTGCCGGCCGCTTCCGCGGCCGTGGTGCGCGGCTCCCGGCGGCGCACCGTCGAGGCCGCCCC GGTGACCTCGCCGGCCCCCTCGCTGGCGCAGCGTCTCGCGGGGTCGACACCGCGGGCGGGGAGAAGCTGC TCACCGAGCTGGTCGTGGCTTACCGCGGGGCTGCTCGGCCACGCCGACCCCGCCCGCTCGACCCCGAGC GCGGCTTCTTGAGCTGGGCTTCGACTCGCTGGTCTCGGTACGCTGCGCAACCAGCTCGGCGAACTCCTCG GGCTGCGCCTGCCGACGTGCGTGGTCTTCGACAGCAAGACGCCGCTGAAGCTGGCCCGCCACCTCAACGAG GAACTGGGCGACCTGTCCGCTCCGGCCCCGCTCCGGCACCGCCGTCGCCGGCACCCAGGTGCATCCCGAC GACACCTGGTCGGCCTGTCCACAACGCGGTGCGCGGCGGCAAGCTCGTCGAGGCGATGCGGATGCTGAA GGCGGTGCGCAACACCCGGCCACCTTCGAGACGCGCGGACCTGGAGGAGCTGTCCGAGGCCGTCACCC TGGCCACGGGGCCCGGCTCCCCGCGGCTGATCTTCGTACGCGCGCCGGCGCCACCGCGGTGTCCACCACT ACGCGCGCATCGCCGCCCCACTTCCGCGGCAAGCGCCATGTGTGCGCGATACCGCTGATGGGCTTCGCCCCG GCGAGCTGCTGCCCGCCACCACTGAGGCGGCGGCCGGATCGTCGCCGAGAGCGTCTGATGGCGAGCGAC GGCGAACCGTTCTGTGATGGTGGGCCACTCCACCGCGGTTCCCTCGCCTACCTCGCGGCCGGGGTGTGGAG GACACCTGGGGCGTGAAGCCGGAGGCGGTGCTCTGCTCGACACGGCGTCCATCCGGTACAACCCCTCGGA GGGCAACAACCTCGACAGACGACCCGCTTCTACCTCGCCGACATCGACTCGCCGTCCGTGACGCTCAACAG CGCCCGATGTCCGCGATGGCGCACTGGTTCATGGCGATGACGGACATCGACGCGCCCGCCACGACCGCCC CCACCTGCTCTGCGCGCCACACAGGCCAACAACGGCTTCATGCTGGACACCTCCGCGGTGCCGGCGGACG TGGTGCGTGACATCGAGGCCGACCATCTGTCCCTGGCCATGGAGCACTCGGATCTGACCGCCGAGGCCATAG AGAACTGGCTGCCGAACCTCCGCGCGGCGAGGCTGACTTACGATGATGGAGCAGCACGCCGGGACGAC GGC

LPTY motifs are highlighted in yellow.

LxxL motifs are highlighted in green.

GTNAH motifs are highlighted in cyan.

Homology arms for Gibson assembly are underlined.