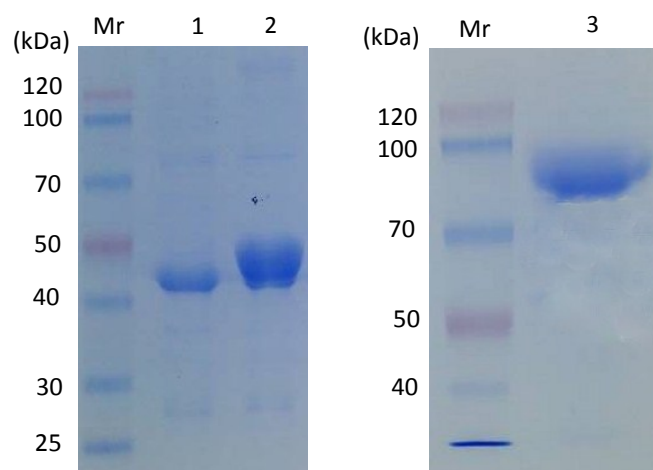


Supplementary Information

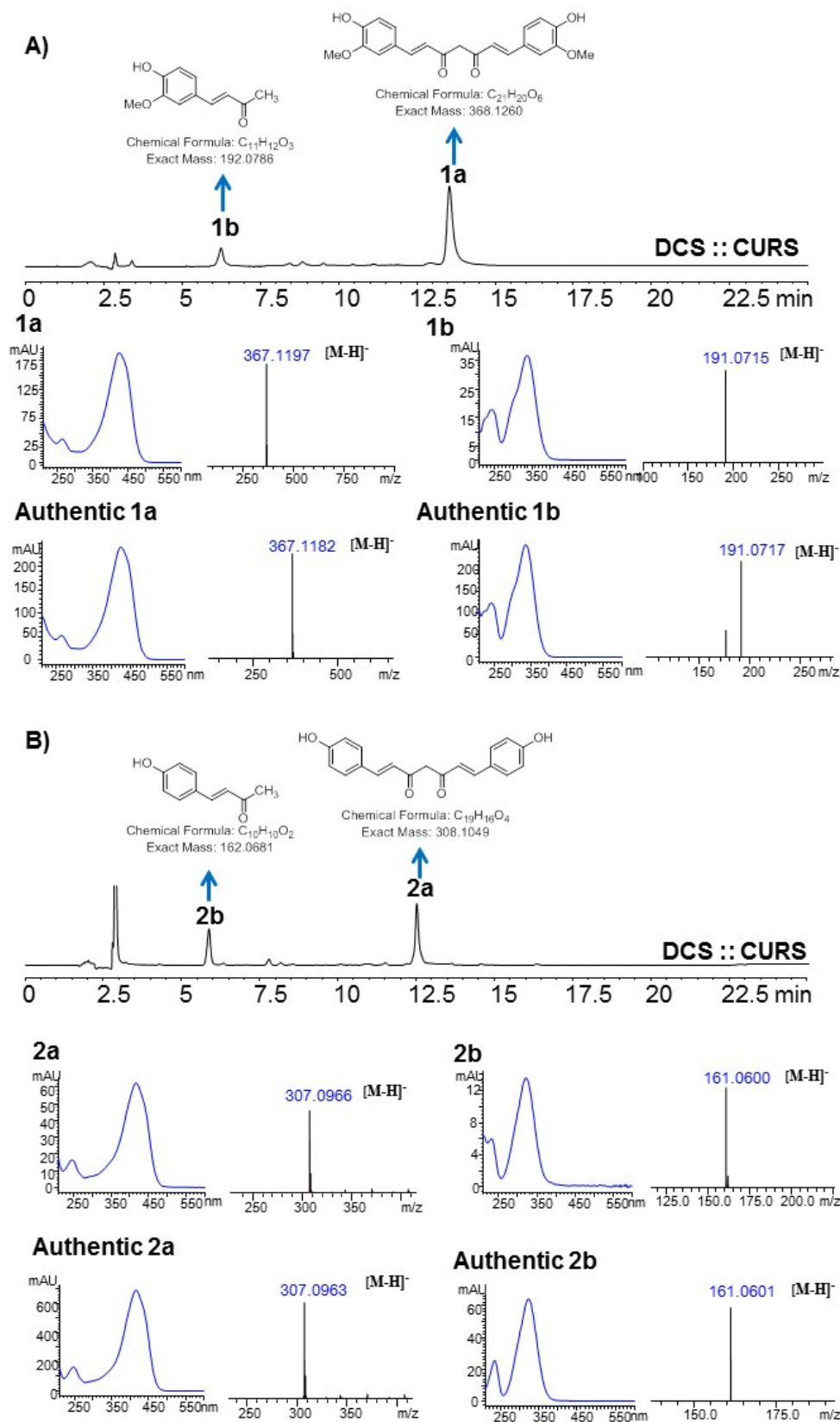
S1. Primers used for PCR amplification

Gene	Primer sequence (5' to 3')
CURS (forward)	<u>CGCGGATCC</u> ATGGGTAGCCTGCAGGCGATG (the <i>Bam</i> HI site is underlined)
CURS (reverse)	<u>CCCAAGCTT</u> CTACGGTATTGGTAGACTGCGTAGCACG (the <i>Hind</i> III site is underlined)
DCS (forward)	<u>CGCGGATCC</u> ATGGAAGCGAACGGCTACCGCATAACTC (the <i>Bam</i> HI site is underlined)
DCS (reverse)	<u>CCCAAGCTT</u> CTAGTTCAGTCTGCAACTATGGAGGACG (the <i>Hind</i> III site is underlined)
DCS-Gly-Ser-Gly(reverse)	CGCCTGCAGGCTACCCATGCCAGATCCGTTTCAGTTTGCAACTATG
CURS-Gly-Ser-Gly(forward)	CATAGTTGCAAACTGAACGGATCTGGCATGGGTAGCCTGCAGGCG
DCS::CURS (forward)	<u>CGCGGATCC</u> ATGGAAGCGAACGGCTACCGCATAACTC (the <i>Bam</i> HI site is underlined)
DCS::CURS (reverse)	<u>CCCAAGCTT</u> CTACGGTATTGGTAGACTGCGTAGCACG (the <i>Hind</i> III site is underlined)

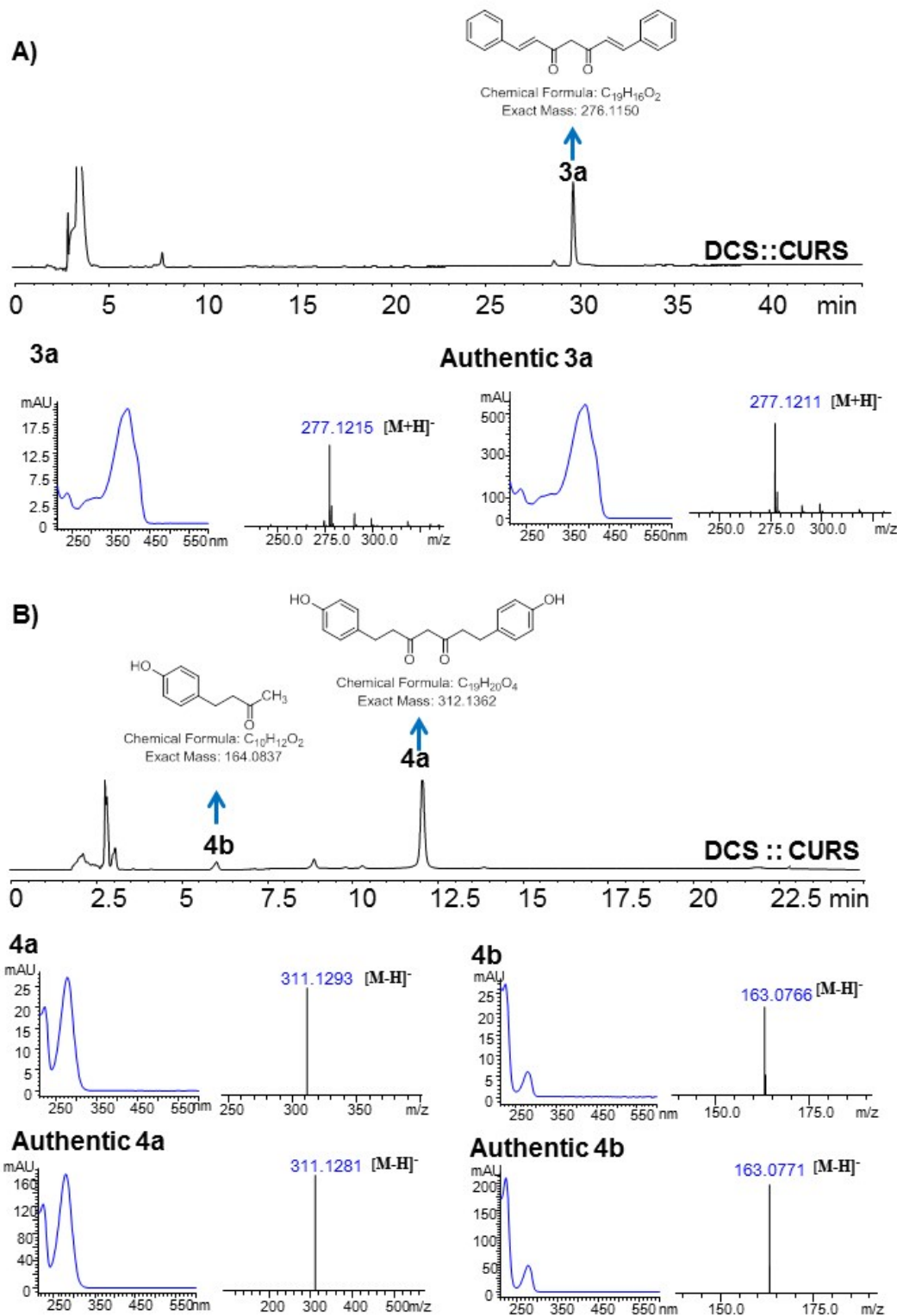
S2. SDS-PAGE for His-tagged recombinant proteins: Markers (lane Mr); DCS (lane 1); CURS (lane 2); DCS::CURS (lane 3).



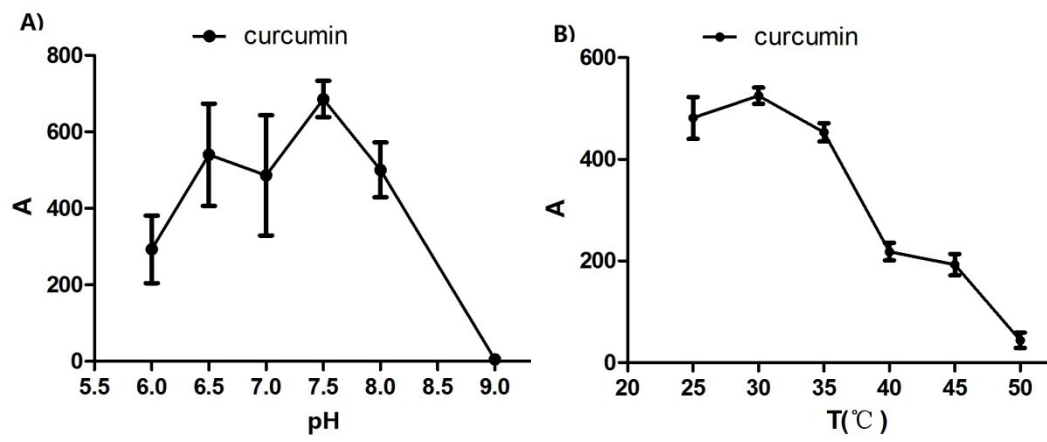
S3 HPLC chromatograms, UV, and MS data of the reaction products produced by DCS::CURS from malonyl-CoA and varied substrates (A) feruloyl-CoA (A_{360} nm), (B) 4-coumaroyl-CoA (A_{360} nm).



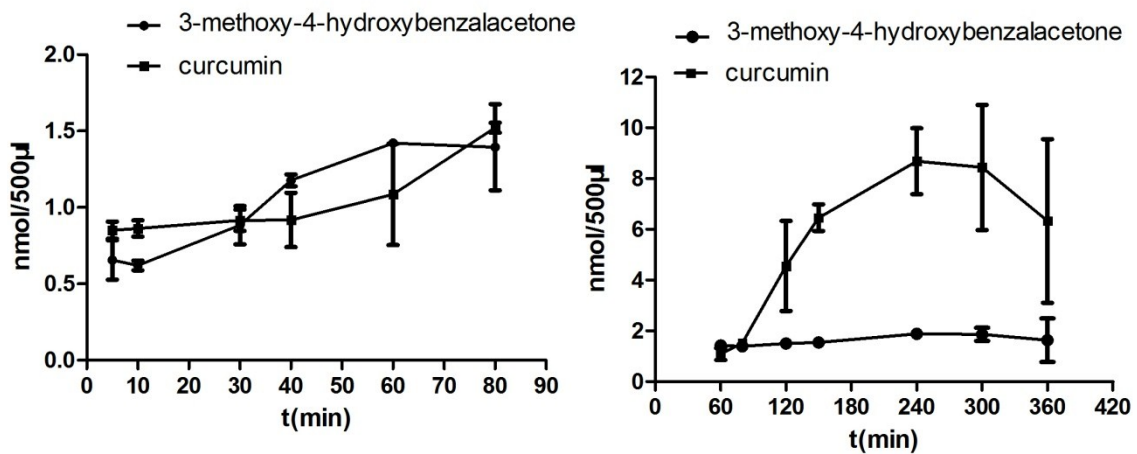
S4 HPLC chromatograms, UV, and MS data of the reaction products produced by DCS::CURS from malonyl-CoA and varied substrates (A) cinnamoyl-CoA (A_{360} nm), and (B) 3-(4-hydroxyphenyl) propionyl-CoA (A_{280} nm).



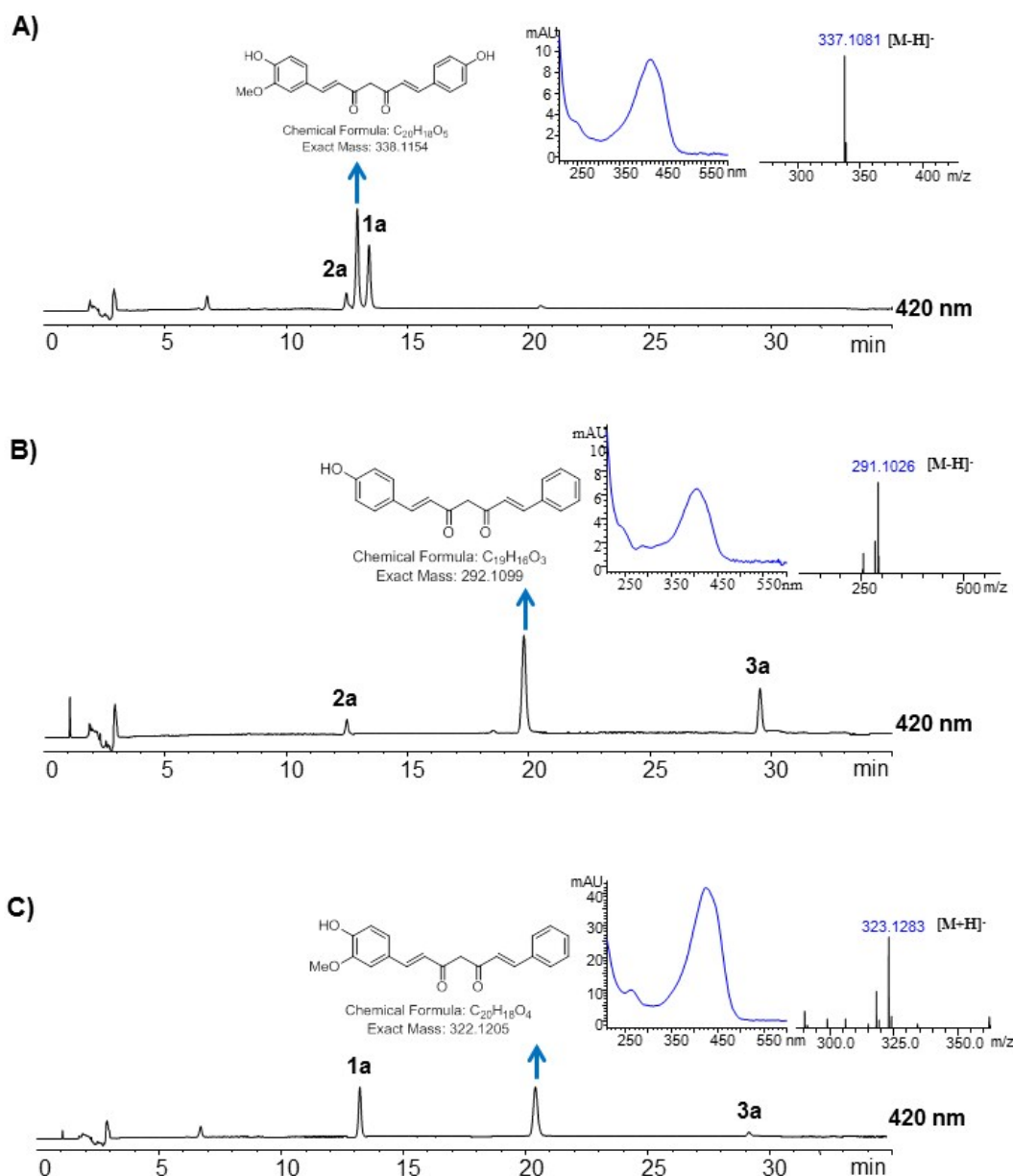
S5 pH (A) and temperature (B) dependence of the fusion protein DCS::CURS (feruloyl-CoA and malonyl-CoA as substrates)



S6 Time course of the fusion protein DCS::CURS (Left: time course from 5 to 80 min; right: from 60 to 360 min). DCS::CURS was incubated with 100 μ M feruloyl-CoA and 100 μ M malonyl-CoA, the major product curcumin and the minor product 3-methoxy-4-hydroxybenzalacetone was monitored by HPLC at 420 nm and 330 nm, respectively. And the two products were quantified using standard compounds. Results are mean \pm S.E. (n = 4).



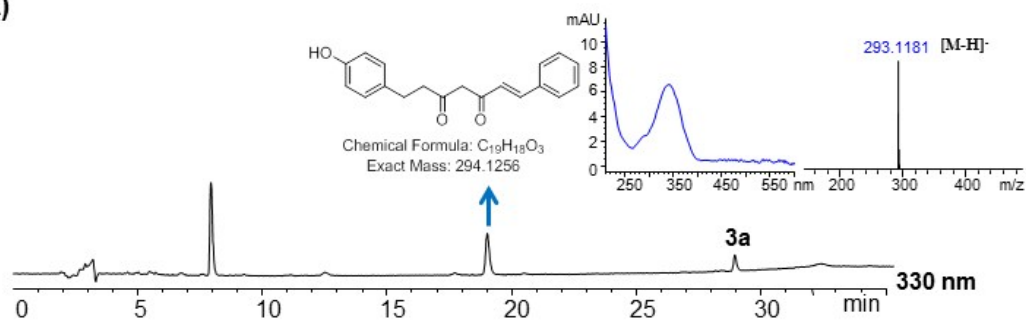
S7. The HPLC, UV, and MS spectra for asymmetric diarylheptanoids from (A) feruloyl-CoA, *p*-coumaroyl-CoA, and malonyl-CoA; (B) cinnamoyl-CoA, *p*-coumaroyl-CoA, and malonyl-CoA; (C) feruloyl-CoA, cinnamoyl-CoA, and malonyl-CoA.



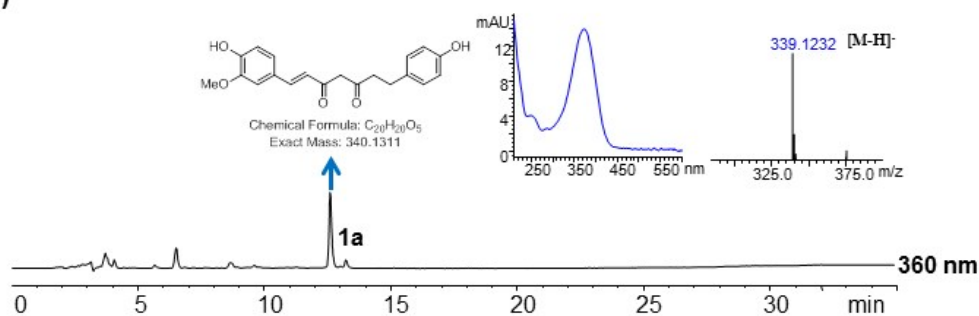
S8. The HPLC and MS spectra for asymmetric diarylheptanoids from (A) 3-(4-

hydroxyphenyl) propionyl-CoA, cinnamoyl-CoA, and malonyl-CoA; (B) 3-(4-hydroxyphenyl) propionyl-CoA, feruloyl-CoA, and malonyl-CoA; (C) 3-(4-hydroxyphenyl) propionyl-CoA, *p*-coumaroyl-CoA, and malonyl-CoA.

A)



B)



C)

