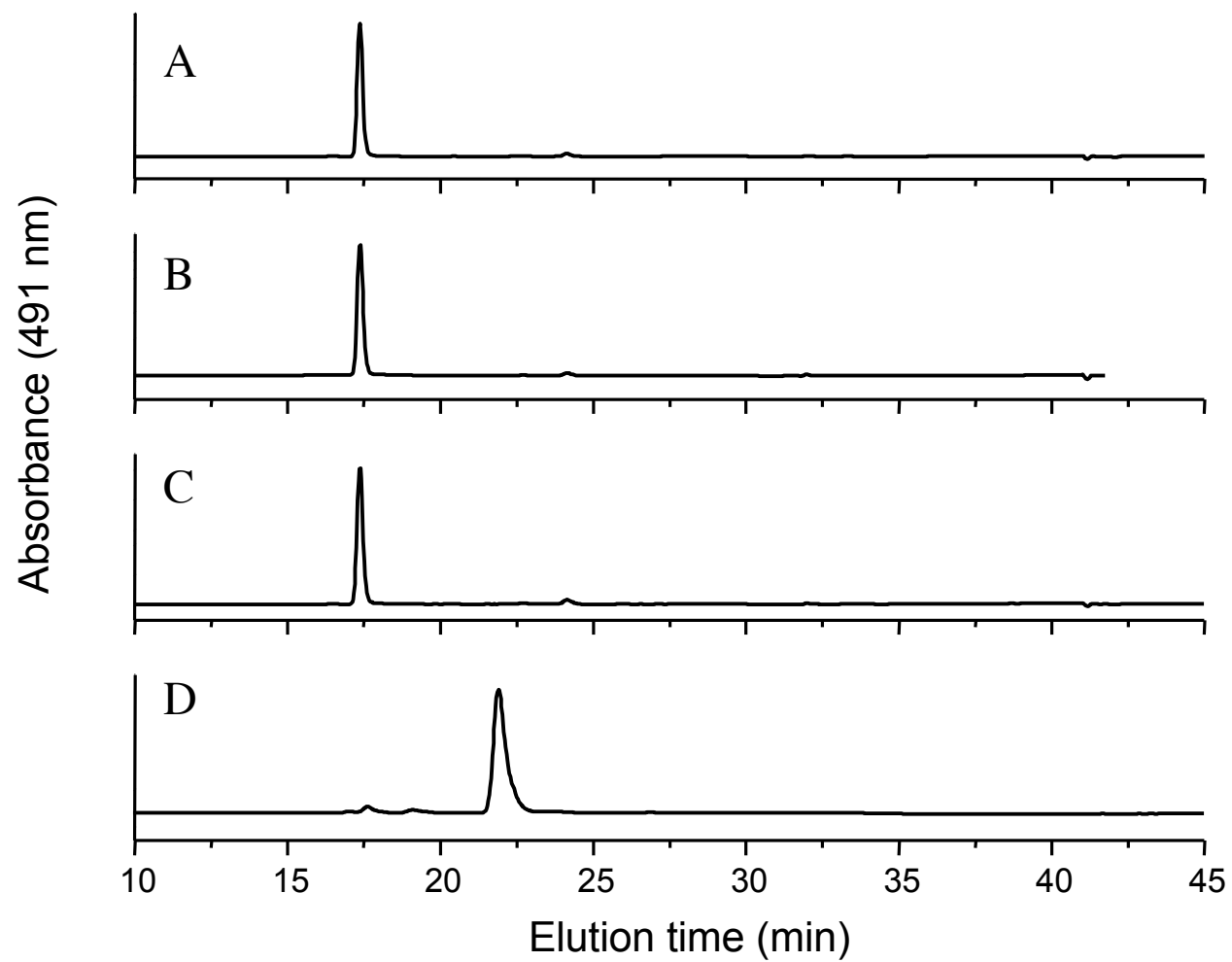
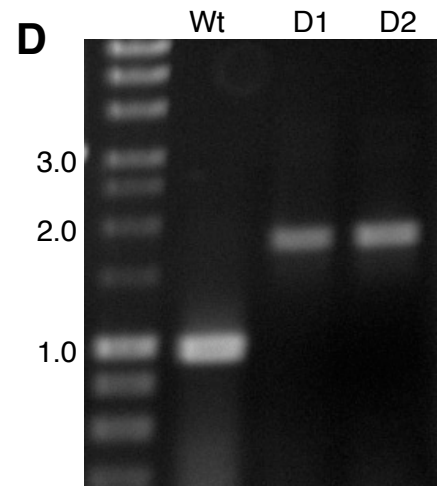
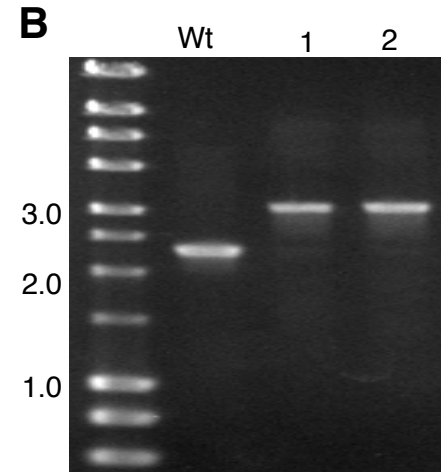
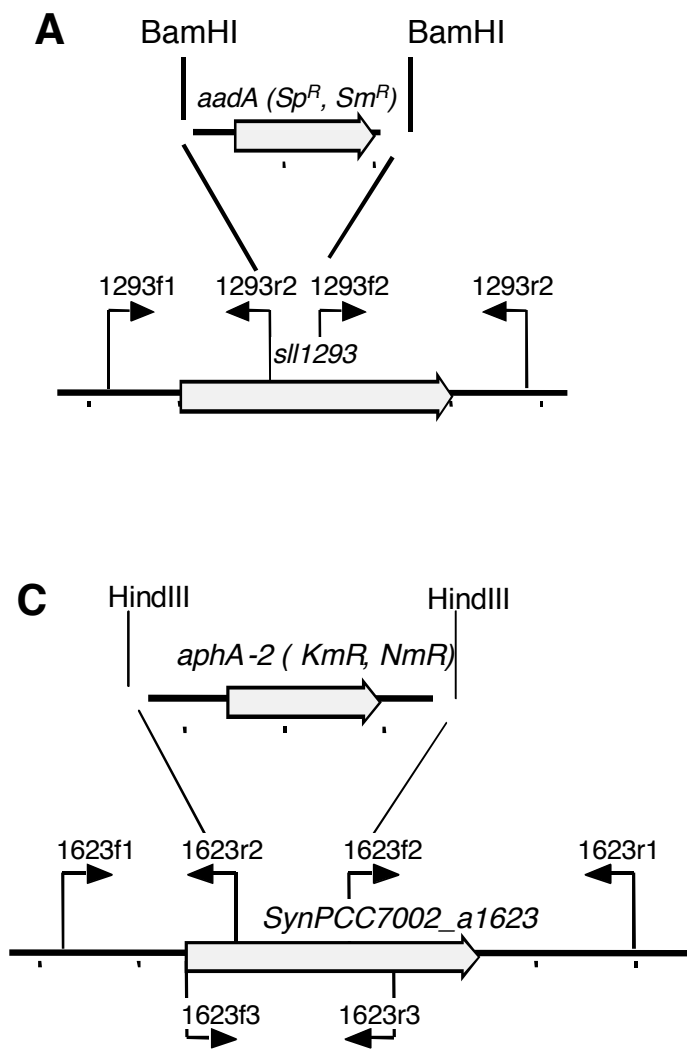


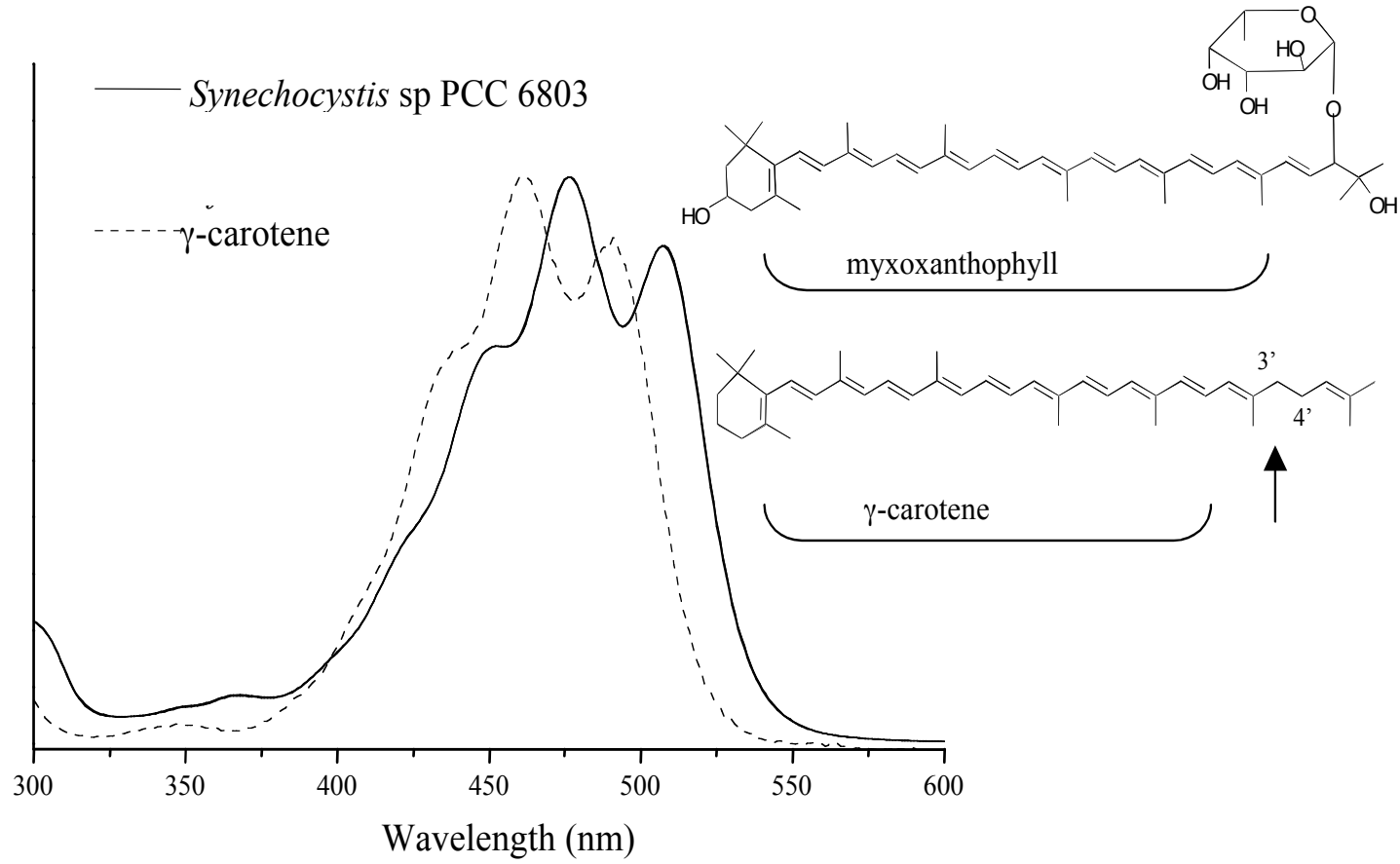
Suppl. Fig. 1



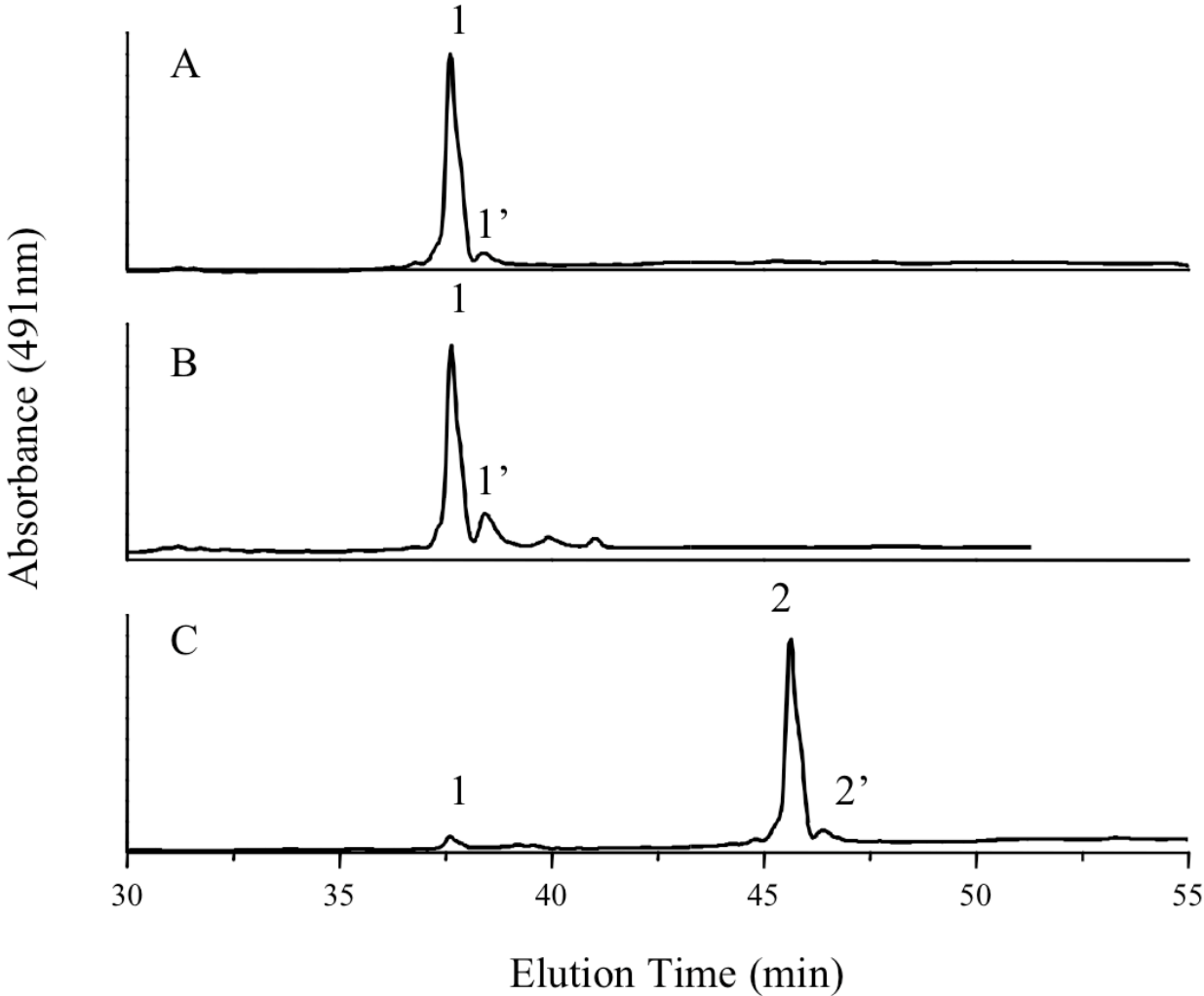
Suppl. Fig. 2



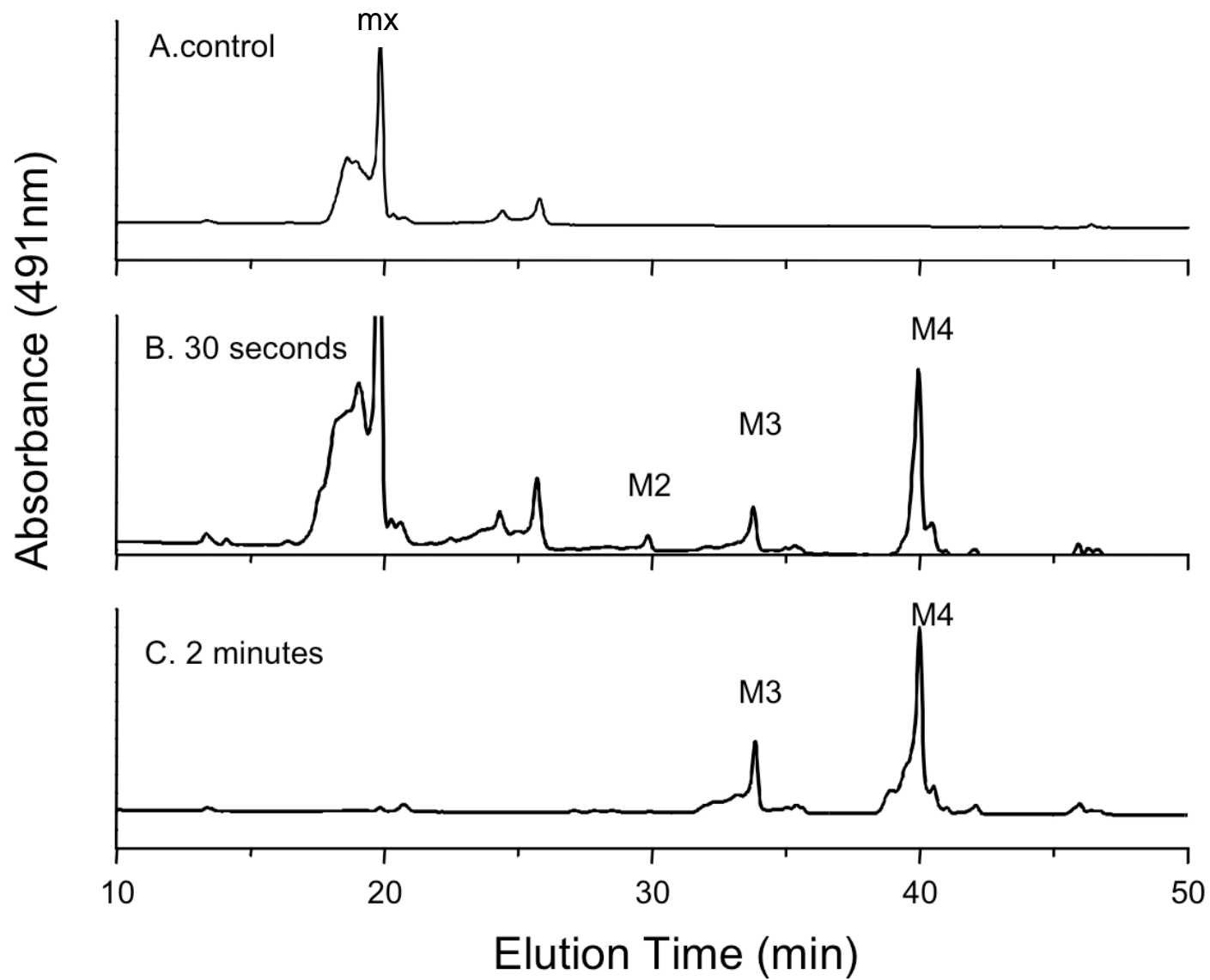
Suppl. Fig. 3



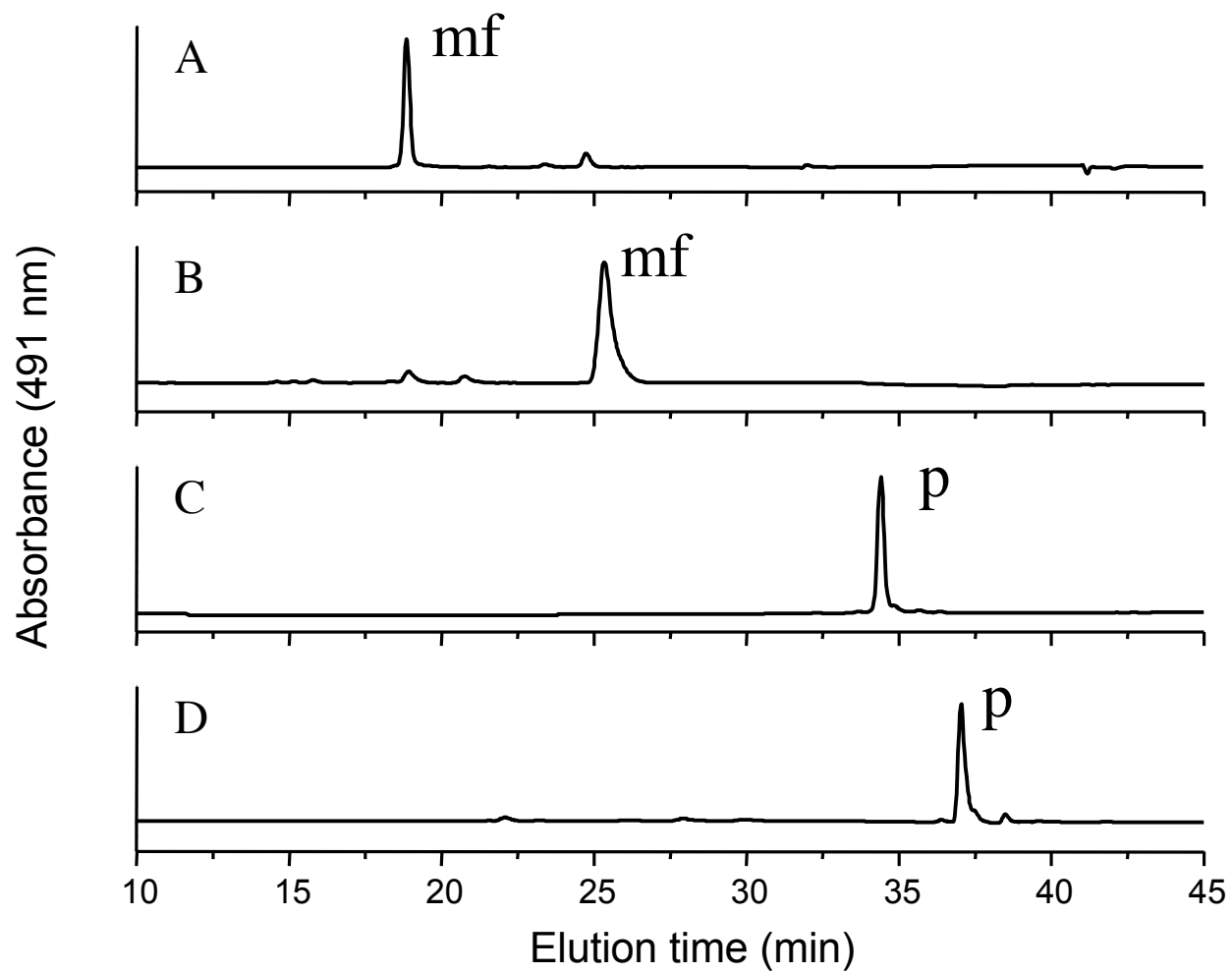
Suppl. Fig. 4



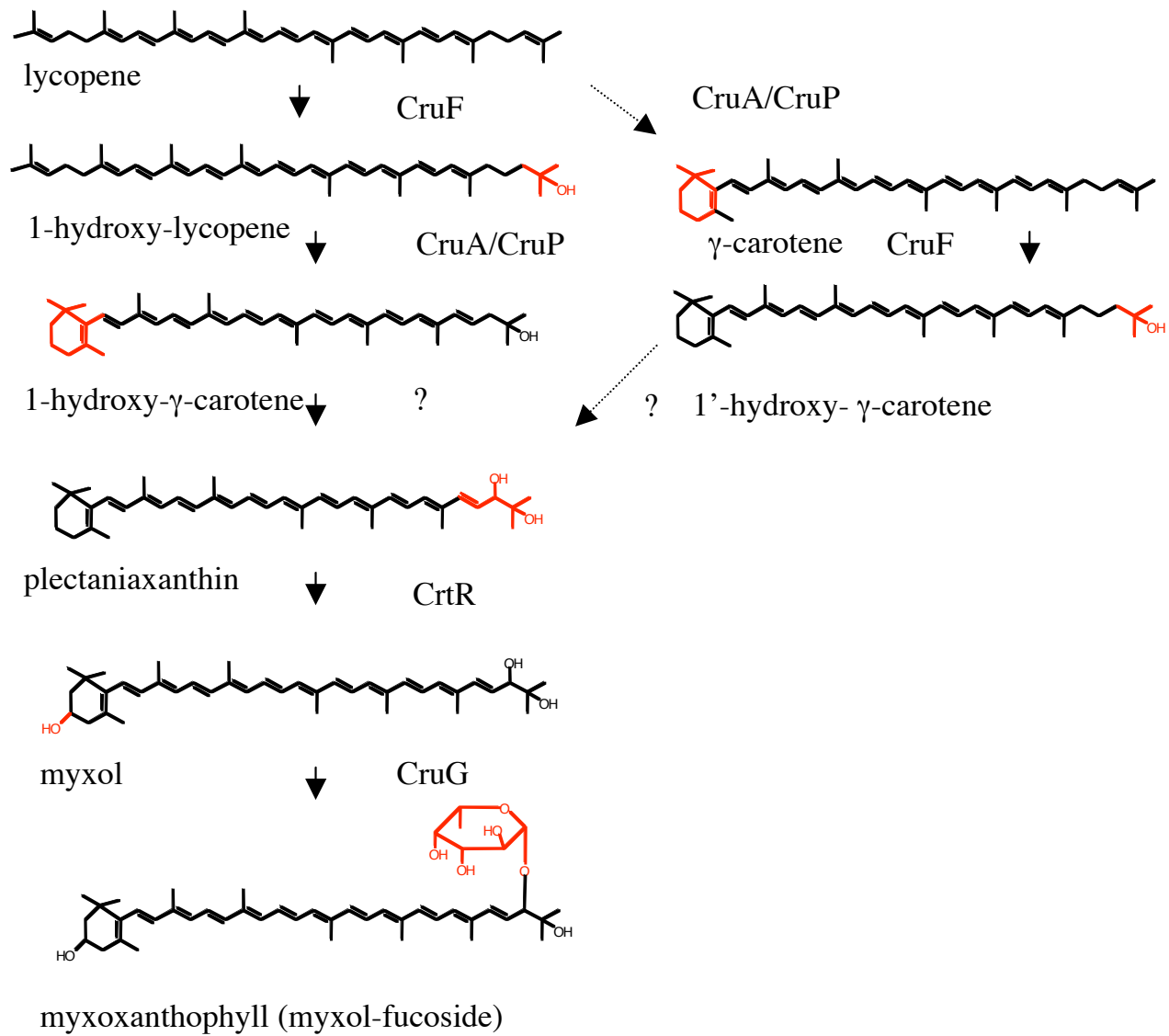
Suppl. Fig. 5



Suppl. Fig. 6



Suppl. Fig. 7



Supplemental Table 1

Suppl. Table 1: Primers for *in vitro* gene disruption constructs and expression

Organism	Gene/ORF, purpose	Primer name	Primer sequence	Restriction site
<i>Synechococcus</i> sp. PCC 7002	<i>A1623</i> , left flank	1623f1	TTCAGCTGATCGATCGCCG	
<i>Synechococcus</i> sp. PCC 7002	<i>A1623</i> , left flank	1623r2	ACCGCACAAAGCTTGATCACAAAC	<i>HindIII</i>
<i>Synechococcus</i> sp. PCC 7002	<i>A1623</i> , right flank	1623f2	ATTGTTACACAAGCTTTTGA T	<i>HindIII</i>
<i>Synechococcus</i> sp. PCC 7002	<i>A1623</i> , right flank	1623r1	GTTGTGGTGTAGCTTGCC	
<i>Synechococcus</i> sp. PCC 7002	<i>cruF</i> , left flank	CruFf1	CGCTGCAATACCGCCAATT C	
<i>Synechococcus</i> sp. PCC 7002	<i>cruF</i> , left flank	CruFr2	CATTGGCCATCTAGAGACG AAAAG	<i>XbaI</i>
<i>Synechococcus</i> sp. PCC 7002	<i>cruF</i> , right flank	CruFf2	CCCGTTTACCATTCTCTAT CTTG	
<i>Synechococcus</i> sp. PCC 7002	<i>cruF</i> , right flank	CruFr1	AAGCCCCAATTTAACGCC	
<i>Synechococcus</i> sp. PCC 7002	<i>cruG</i> , left flank	CruGf1	GCCTTTGGTTTAGCGGGCTT AC	
<i>Synechococcus</i> sp. PCC 7002	<i>cruG</i> , left flank	CruGr2	CATCCAGGCAGGGTTGAAT TC	<i>EcoRI</i>
<i>Synechococcus</i> sp. PCC 7002	<i>cruG</i> , right flank	CruGf2	GCCTACCGAATTCCTTAAC GAT	<i>EcoRI</i>
<i>Synechococcus</i> sp. PCC 7002	<i>cruG</i> , right flank	CruGr1	CAATGTCCTGGGCATCTTTT	
<i>Synechococcus</i> sp. PCC 7002	<i>cruF</i> expression	CruFxF	CTGTAATTTTCATATGGAAG AACTGC	<i>NdeI</i>
<i>Synechococcus</i> sp. PCC 7002	<i>cruF</i> expression	CruFxR	GGCAACGGATCCGTGGCAT TTACG	<i>BamHI</i>
<i>Synechocystis</i> sp. PCC 6803	<i>S11293</i> left flank	1293f1	CCATTTCAAAGGTTAGCAA TC	
<i>Synechocystis</i> sp. PCC 6803	<i>S11293</i> left flank	1293r2	TGAGTAGGGATCCGGCCGC AATGC	<i>BamHI</i>
<i>Synechocystis</i> sp. PCC 6803	<i>S11293</i> right flank	1293f2	CGAGTAGAGCGGATCCATT GTGGC	<i>BamHI</i>
<i>Synechocystis</i> sp. PCC 6803	<i>S11293</i> right flank	1293r1	TGAACCATGGTCAGTGGA C	

