Fig. S18.

Total ion chromatograms and mass spectra obtained from GC-MS analysis of TPS products extracted from *E. coli* carrying the *Tps* gene and the mevalonate pathway gene cluster. *Tps* genes introduced are as follows: *ZoTps1* (A), *AcTps1* (B), *AcTps2* (C), *AeTps1* (D). Numbers in the figure indicate the sesquiterpene peaks. The name and its peak area percent of each sesquiterpene are listed in supplemental tables (S1-S4). More than 20 sesquiterpene peaks were detected in the product of AeTPS1, thus the peaks exceeding 1.00 area % are numbered in (D). The peaks of geranyl acetate, geraniol and farnesol are marked with alphabet because these compounds would be produced by the non-enzymatic mechanisms from geranyl or farnesyl diphosphate. a: geranyl acetate, b: geraniol, c: farnesol. Mass spectra of the peaks of which the structure was analyzed by NMR (Fig. 3) are as follows: peak 3 in A, β-bisabolene (E), peak 2 in B, β-elemene which was transformed from germacrene A by heat during GC-MS analysis (F), peak 2 in C, β-elemene (G), peak 1 in C, β-panasinsene (H), peak 3 in C, β-caryophyllene (I), peak 6 in C, α-humulene (J), peak 2 in D, α-copaene (K), peak 7 in D, δ-cadinene (L), peak 3 in D, β-cubebene (M), peak 5 in D, germacrene D (N). As for the GC-MS analysis methods, see ref. [2].

[Total ion chromatogram of GC-MS]

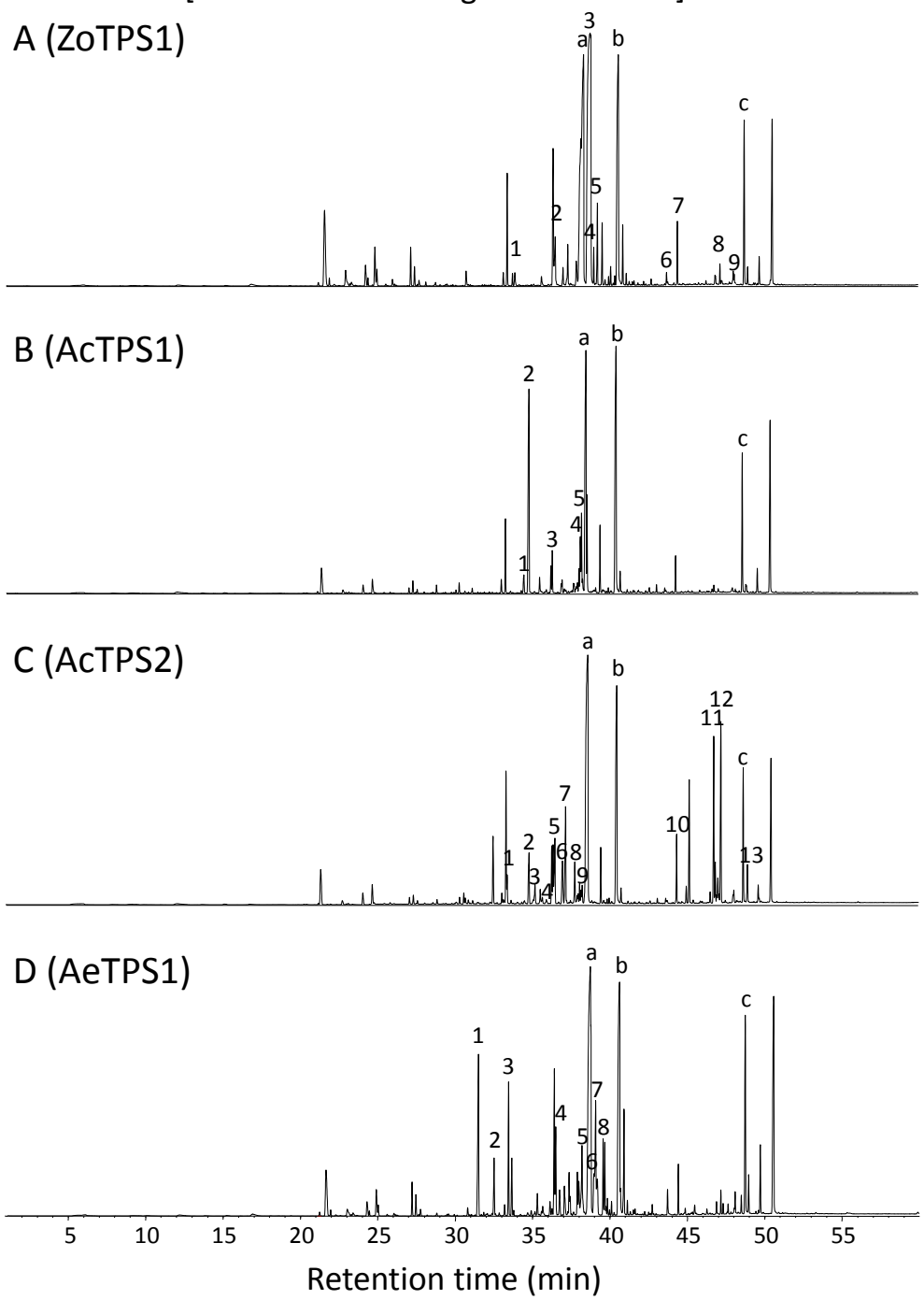


Table S1. Sesquiterpene contents in the ZoTPS1 product

No.	Sesquiterpene	area %
1	zingiberene	0.39
2	β-farnesene	1.64
3	β-bisabolene	14.00
4	γ-bisabolene	0.57
5	β-sesquiphellandrene	1.62
6	α-trans-sesquicyclogeraniol	0.20
7	nerolidol	1.10
8	2-(1,5-dimethyl-4-hexenyl)-4-methyl-3-cyclohexen-1-ol	0.27
9	levomenol	0.28

Table S2. Sesquiterpene contents in the AcTPS1 product

No.	Sesquiterpene	area %
1	2,4-diisopropenyl-1-methyl-1-vinyl-, (1S,2R,4R)- (-)- cyclohexane	1.03
2	β-elemene (germacrene A)	13.50
3	β-farnesene	1.51
4	β- selinene	2.29
5	γ- selinene	3.89

Table S3. Sesquiterpene contents in the AcTPS2 product

No.	Sesquiterpene	area %
1	β-panasinsene	0.79
2	β-elemene (Germacrene A)	2.14
3	β-caryophyllene	0.79
4	4,11,11-trimethyl-8-methylene-bicyclo[7.2.0]undec-4-ene	0.21
5	α-neoclovene	2.55
6	α-humulene	1.98
7	trans-caryophyllene	3.47
8	β-neoclovene	1.34
9	α-selinene	0.54
10	nerolidol	1.74
11	neointermedeol	4.99
12	3,3,7,11-tetramethyltricyclo[5.4.0.0(4,11)]undecan-1-ol	6.11
13	2s,6s-2,6,8,8-tetramethyltricyclo[5.2.2.0(1,6)]undecan-2-ol	1.18

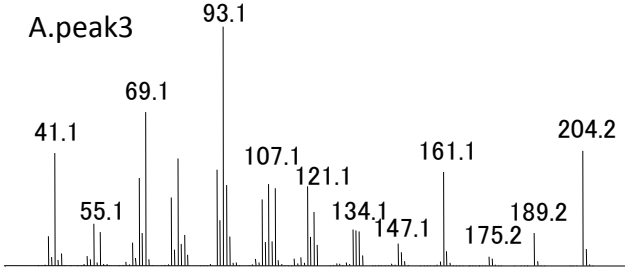
Table S4. Sesquiterpene contents in the AeTPS1 product

No.	Sesquiterpene (more than 1%)	area %
1	α-cubebene	5.12
2	α-copaene	1.39
3	β-cubebene	1.33
4	β-farnesene	2.23
5	germacrene D	1.06
6	γ-bisabolene	1.30
7	δ-cadinene	3.51
8	1,2,3,4,4a,7-hexahydro-1,6-dimethyl-4-(1-methylethyl)- naphthalene	1.44

[MS (EI) spectrum of GC-MS peak]

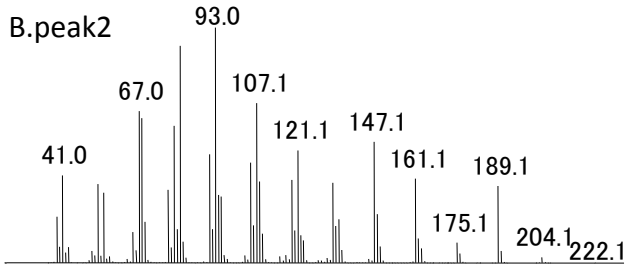
E (β-bisabolene)

A.peak3



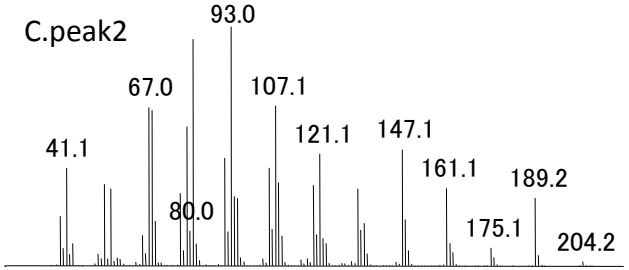
F (germacrene A)

B.peak2



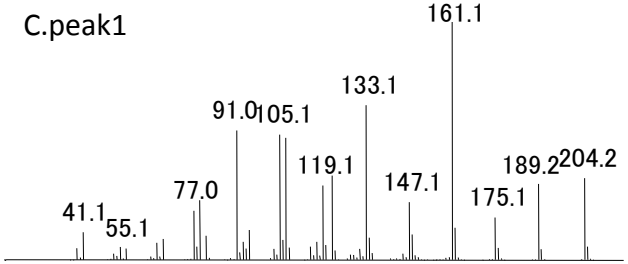
G (germacrene A)

C.peak2



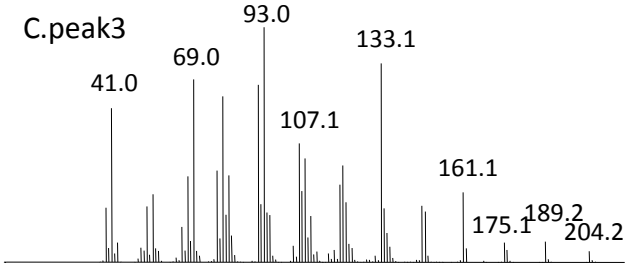
H (β-panasinene)

C.peak1



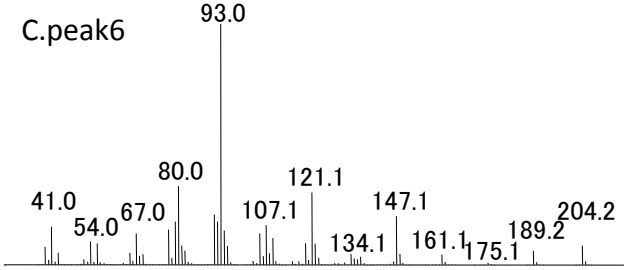
I (β-caryophyllene)

C.peak3



J (α-humulene)

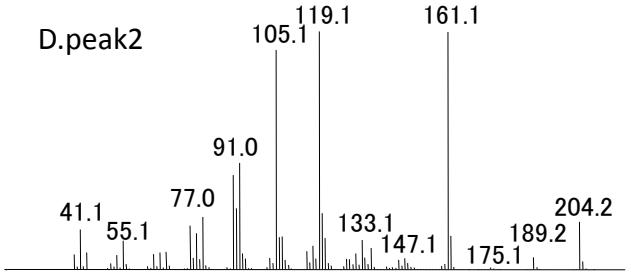
C.peak6



[MS (EI) spectrum of GC-MS peak]

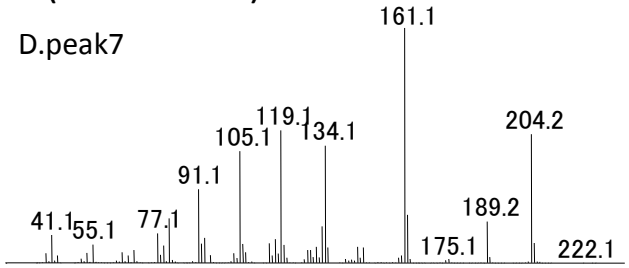
K (α-copaene)

D.peak2



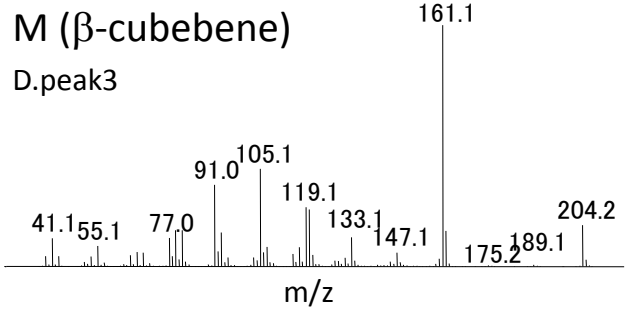
L (δ-cadinene)

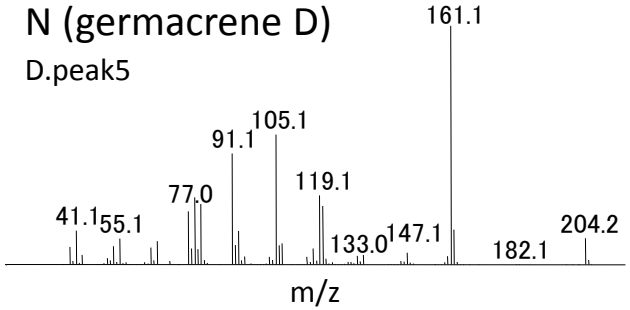
D.peak7



M (β-cubebene)

D.peak3



N (germacrene D)

D.peak5