

Supplementary Materials:

Table S1. The list of primers used in this study.

Gene name	Species (GenBank)	Primer sequences (5'→3')	Usage
<i>LaOMT1</i>	<i>L. aurea</i>	P1: 5'-ATGATGGGTGCTAGCCAAGATGATTATG-3' P2: 5'-TTATCAATAAAGACGTCGACAAATAGTCA-3'	<i>LaOMT1</i> ORF amplification
<i>LaOMT1</i>	<i>L. aurea</i>	P3: 5'-CAGCCATATGATGGGTGCTAGCCAAGATGATTATG-3' P4: 5'-CGCACTCGAGTCAATAAAGACGTCGACAAATAGTCAGTC-3'	<i>LaOMT1</i> protein expressions in <i>E. coli</i>
<i>LaOMT1</i>	<i>L. aurea</i>	P5: CAGCTCTAGAATGGGTGCTAGCCAAGATGATTATG-3' P6: CGCAGGATCCATAAAGACGTCGACAAATAGTCAGTC-3'	Subcellular localization
<i>LaOMT1</i>	<i>L. aurea</i>	P7: 5'-CAACACGCTCTGGTTCGGAAC-3' P8: 5'-CGACTGAGACTTGGGATATC-3'	qRT-PCR analysis
<i>LaTIP41</i>	<i>L. aurea</i>	P9: 5'-GCAACCATCCAAAAGTTAACTGCT-3' P10: 5'-AATGTGCAAGCAGGGCTAGTAA-3'	Reference gene for qRT-PCR analysis
<i>LaEXP1</i>	<i>L. aurea</i>	P11: 5'- ATTGAAACAACCTACACCGCAA-3' P12: 5'- GCTGTAAGAATGCTAATCGTTCA-3'	Reference gene for qRT-PCR analysis
<i>AtPEX7</i>	Arabidopsis (At1g29260)	P13: 5'-CGCTTCTAGAATGCCGGTGTTCAAAGCTCC-3' P14: 5'-AATCCCCGGGACTGGCTCTAGGATCCATCCC-3'	Subcellular localization for marker protein
<i>AtGAPC1</i>	Arabidopsis (At3g04120)	P15: 5'-CGCTTCTAGAATGGCTGACAAGAAGATTAG-3' P16: 5'-AATCCCCGGGGCCCTTTGACATGTGGACGAT-3'	Subcellular localization for marker protein
<i>AtAra6</i>	Arabidopsis (At3g54840)	P17: 5'-CGCTTCTAGAATGGGATGTGCTTCTCTCTT-3' P18: 5'-AATCCCCGGGTGACGAAGGAGCAGGACGAGGT-3'	Subcellular localization for marker protein

Table S2. GenBank accession numbers of OMT proteins in Fig. 1

Protein names	Species	Accession number	Class type
LaOMT	<i>Lycoris aurea</i>		I
AtCOMT	<i>Arabidopsis thaliana</i>	NP_200227.1 (At5g54160)	II
AtCCoAOMT7	<i>Arabidopsis thaliana</i>	NP_567739.1 (At4g26220)	I
Cr16OMT	<i>Catharanthus roseus</i>	ABR20103.1	II
CrF4OMT	<i>Catharanthus roseus</i>	AAR02420.1	II
CiOMT2	<i>Carapichea ipecacuanha</i>	BAI79244.1	II
CaCOMT	<i>Chrysosplenium americanum</i>	AAA86982.1	II
Cj4OMT	<i>Coptis japonica</i>	BAB08005.1	II
Cj6OMT	<i>Coptis japonica</i>	BAB08004.1	II
CjCoOMT	<i>Coptis japonica</i>	BAC22084.1	II
HsOMT	<i>Homo sapiens</i>	NP_000745.1	I
HvF7OMT	<i>Hordeum vulgare subsp. vulgare</i>	CAA54616.1	II
Ms7OMT	<i>Medicago sativa</i>	AAC49927.1	II
MsCCoAOMT	<i>Medicago sativa</i>	AAC28973.1	I
MxSafC	<i>Myxococcus xanthus</i>	AAC44130.1	I
NpN4OMT	<i>Narcissus sp. aff. Pseudonarcissus</i>	AIL54541.1	I
NtCOMT	<i>Nicotiana tabacum</i>	CAA50561.1	II
ObEOMT1	<i>Ocimum basilicum</i>	AAL30424.1	II
OsCOMT	<i>Oryza sativa</i>	Os08g0157500	II
Ps7OMT	<i>Papaver somniferum</i>	ACN88562.1	II
Ps4OMT1	<i>Papaver somniferum</i>	AAP45313.1	II
Ps4OMT2	<i>Papaver somniferum</i>	AAP45314.1	II
PtCCoAOMT	<i>Populus tremuloides</i>	AAA80651.1	I
PdOMT	<i>Prunus dulcis</i>	CAA11131.1	II
PfOMT	<i>Mesembryanthemum crystallinum</i>	AY14552.1	II
PpOMT	<i>Pyrus pyrifolia</i>	BAA86059.1	II
RnOMT	<i>Rattus norvegicus</i>	NP_036663.1	I
SlAnthOMT	<i>Solanum lycopersicum</i>	NP_001289828.1	I
SbCCoAOMT	<i>Sorghum bicolor</i>	XP_002436550	I
SynOMT	<i>Synechocystis sp. Strain PCC 6803</i>	WP_010873795.1	I
TtCOMT	<i>Thalictrum tuberosum</i>	AAD29842.1	II
Tf4OMT	<i>Thalictrum flavum subsp. glaucum</i>	AAU20768.1	II
VpCOMT	<i>Vanilla planifolia</i>	AAS64572.1	II
VpOMT5	<i>Vanilla planifolia</i>	ADZ76154.1	I
VpOMT4	<i>Vanilla planifolia</i>	ADZ76153.1	I
VvCCoAOMT	<i>Vitis vinifera</i>	CAA90969.1	I
VvFAOMT	<i>Vitis vinifera</i>	C7AE94.1	I
ZmCOMT	<i>Zea mays</i>	AAB03364.1	II
ZvCOMT	<i>Zinnia violacea</i>	AAA86718.1	II
ZvCCoAOMT	<i>Zinnia violacea</i>	AAA59389.1	I

Figure S1. Nucleotide and predicted protein sequence of LaOMT1.

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1      ATGGGTGCTAGCCAAGATGATTATGCACTAATCCACAAGAATATTTTGCATAGTGAAGAT
1      M G A S Q D D Y A L I H K N I L H S E D
61     CTTCTTAAGTACATATTGGAGACTAGTGTTTACCCAAGAGAGCATGAACAGCTCAAGGGG
21     L L K Y I L E T S V Y P R E H E Q L K G
121    TTGAGGGAGGTGACTGAGAAACATGAATGGAGTACGGCGCTTGTCGCAGCCGATGAAGGA
41     L R E V T E K H E W S T A L V A A D E G
181    TTATTTCTTTCTATGTTGTTAAAGCTCATGAATGCCAAGAGAACCATTGAGATTGGTGTA
61     L F L S M L L K L M N A K R T I E I G V
241    TACACGGTTATTCTCTGCTCACAACCGCTTTGGCTTTACCAGAAGATGGAAAGATAACG
81     Y T G Y S L L T T A L A L P E D G K I T
301    GCAATTGACGTCAACAAGTCCTACTTTGAGATAGGACTGCCATTTATTTCAGAAAGCAGGA
101    A I D V N K S Y F E I G L P F I Q K A G
361    GTTGAGCATAAGATCAATTTTCATTGAATCAGAAGCACTTCCTGTTCTTGATCATATGCTT
121    V E H K I N F I E S E A L P V L D H M L
421    CAAGAGATGAAGGAAGAAGACCTCTACGACTTTGCATTTGTTCGATGCAGACAAACCAAAC
141    Q E M K E E D L Y D F A F V D A D K P N
481    TATGCTAATTACCACGAGCGATTAGTGAAGCTTGTTCAGGGTTGGAGGAGCAATCGTCTAC
161    Y A N Y H E R L V K L V R V G G A I V Y
541    GACAACACGCTCTGGTTCGGAAGTGTAGCATTTCAGAAATATCCAGGCCTTCATCCAGAA
181    D N T L W F G T V A F P E Y P G L H P E
601    GAGGAGGAGTGTAGGTCTCTTTCAGAAACCTGAATAAGCTCTTGGCAGCTGATCCCCGT
201    E E E C R V S F R N L N K L L A A D P R
661    GTCGAGATATCCCAAGTCTCAGTCGGCGATGGACTGACTATTTGTCGACGTCTTTATTGA
221    V E I S Q V S V G D G L T I C R R L Y *
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Figure S2. Expression and purification of N-terminal 6 × histidine-tagged LaOMT1 protein. *E. coli* BL21 (DE3) harbouring pET-28a or pET28a-LaOMT1 was incubated with or without 1 mM IPTG (isopropyl-β-d-thiogalactopyranoside) at 30 °C for 16 h. Protein samples were separated on a 10% SDS-PAGE followed by Coomassie blue staining. M, molecular mass standards; lane 1, total proteins in 20-μl aliquots from *E. coli* BL21 culture harboring pET28a; lane 2, total proteins in 20-μl aliquots from *E. coli* BL21 culture harboring pET28a induced by IPTG; lane 3, total proteins in 20-μl aliquots from *E. coli* BL21 culture harboring pET28a-LaOMT1; lane 4, total proteins in 20-μl aliquots from *E. coli* BL21 culture harboring pET28a-LaOMT1 induced by IPTG; lane 5, 10 μg recombinant LaCOMT1 protein purified by affinity chromatography. Arrow indicates the position of the fusion protein of LaOMT1.

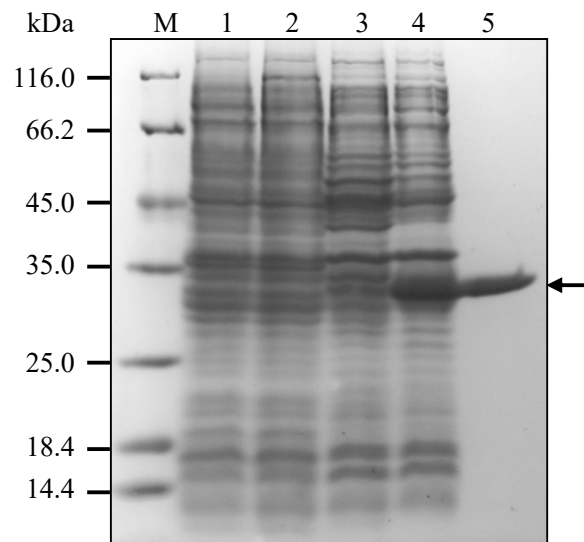


Figure S3. Mass spectrometry (MS) of new compounds produced by LaOMT1 enzyme in catalyzing the substrate caffeic acid (A), 3,4-dihydroxybenzaldehyde (B), and noberrilladine (C). 1, substrate caffeic acid; 2, ferulic acid produced by LaOMT1; 3, isoferulic acid produced by LaOMT1; 4, substrate 3,4-dihydroxybenzaldehyde; 5, isovanillin produced by LaOMT1; 6, vanillin produced by LaOMT1; 7, substrate noberrilladine; 8, 4'-*O*-methylnoberrilladine; 9, 3'-*O*-methylnoberrilladine.

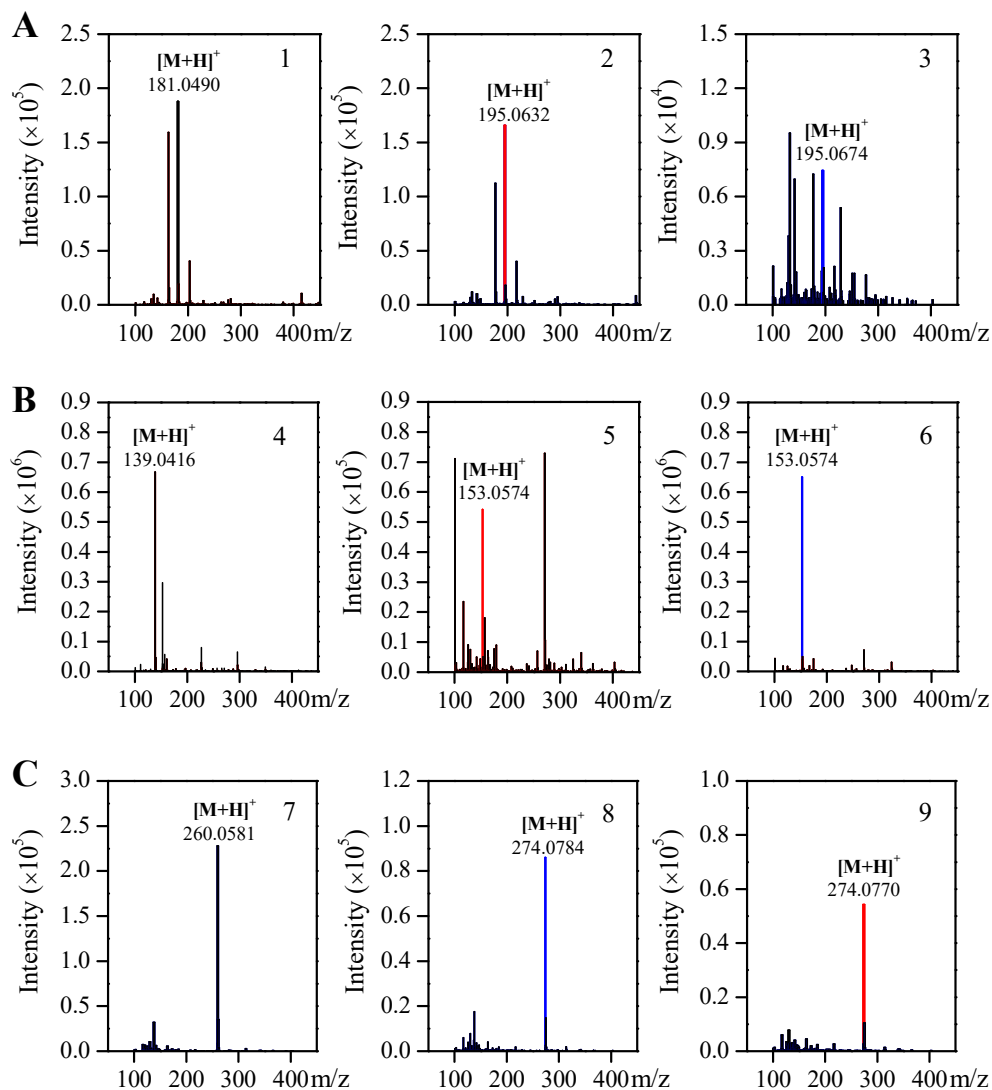


Figure S4. Measurement of the K_m and V_{max} of LaOMT1 for substrate caffeic acid.

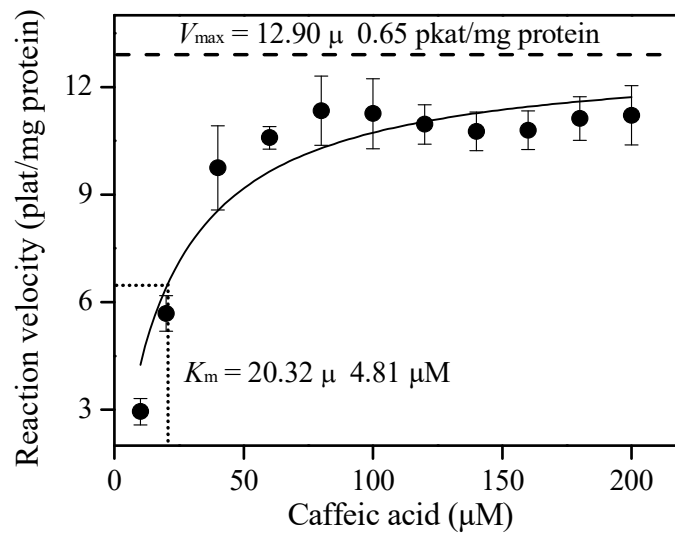


Figure S5. Measurement of the K_m and V_{max} of LaOMT1 for substrate 3,4-dihydroxybenzaldehyde.

