



Cite this: *Org. Biomol. Chem.*, 2019, **17**, 8259

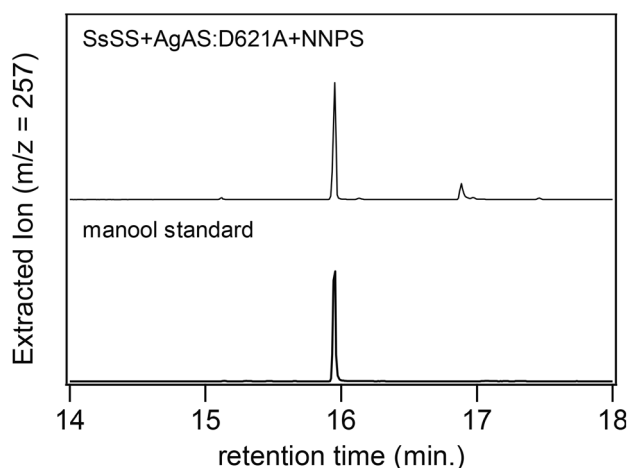
DOI: 10.1039/c9ob90139f  
rsc.li/obc

## Correction: *cis* or *trans* with class II diterpene cyclases

Meirong Jia and Reuben J. Peters\*

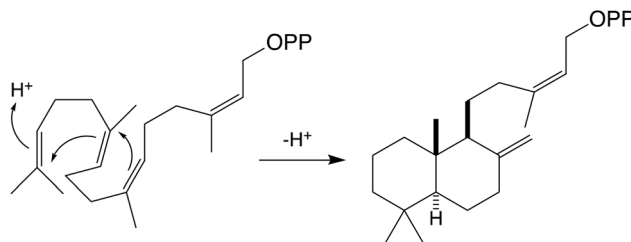
Correction for '*cis* or *trans* with class II diterpene cyclases' by Meirong Jia, et al., *Org. Biomol. Chem.*, 2017, **15**, 3158–3160.

Further investigation indicates that our assignment of the product resulting from AgAS:D621A reacting with the alternative substrate (*Z,Z,Z*)-neryleryl diphosphate (NNPP, **2**), produced by a previously identified NNPP synthase (NNPS),<sup>1</sup> was incorrect (page 3160 of print/pdf of the article). Specifically, upon further reacting this product with the subsequently acting sclareol synthase from *Salvia sclarea* (SsSS), which promiscuously reacts with a side variety of such precursors, catalyzing heterolytic lysis of the allylic diphosphate ester and addition of water to the ensuing tertiary carbocation to yield a tertiary hydroxyl derivative,<sup>2,3</sup> the final product was found to be manool (Fig. 1). This was further verified by NMR, with polarized optical spectra demonstrating that this manool was of 'normal' (+) configuration (data not shown). Given that manool is produced by SsSS from normal labda-8(17),13*E*-dienyl diphosphate,<sup>2</sup> and the configuration of the carbon–carbon double bond at carbon-13 (C13) is lost during the SsSS catalyzed reaction, this result strongly indicates that AgAS:D621A reacts with NNPP to produce normal labda-8(17),13*Z*-dienyl diphosphate in which the produced decalin bicycle has *trans* substituents across the C5–C10 bridgehead carbons. Accordingly, Scheme 2 in the published Communication should be replaced with Scheme 1 shown here. The authors apologize for this erroneous assignment.



**Fig. 1** The combined activity of NNPS + AgAS:D621A + SsSS produces manool. GC-MS chromatograms of (top) an extract from a culture of *E. coli* engineered to co-express all three enzymes and (bottom) an authentic sample of manool (as indicated).





**Scheme 1** Reaction catalyzed by AgAS:D621A with 2.

The Royal Society of Chemistry apologises for these errors and any consequent inconvenience to authors and readers.

## References

- 1 J. Zi, Y. Matsuba, Y. Hong, A. Jackson, E. Pichersky, D. J. Tantillo and R. J. Peters, *J. Am. Chem. Soc.*, 2014, **136**, 16951–16953.
- 2 M. Jia, K. C. Potter and R. J. Peters, *Metab. Eng.*, 2016, **37**, 24–34.
- 3 M. Jia, S. K. Mishra, S. Tufts, R. L. Jernigan and R. J. Peters, *Metab. Eng.*, 2019, **55**, 44–58.

