Drosophila Diptericin Inhibitor TPS-17
(E)-3-(c-3,c-4-dihydroxycyclopent-r-1-yl)propenamide

BACKGROUND
Innate immunity comprises evolutionarily conserved self-defense mechanisms against microbial infections. In mammals, innate immunity interacts with adaptive immunity and has a key role in the regulated immune response. Therefore, innate immunity is a pharmaceutical target for the development of immune regulators. Using Drosophila ex vivo culture systems (Yajima et al. Biochem. J. 371, 205-210, 2003), a cyclopentanediol analogue is isolated from Aspergillus sp. as an immunosuppressive substance (Sekiya et al. Biochem. Pharm. 75, 2165-2174, 2008). This compound selectively suppresses activation of the imd pathway in Drosophila in vivo and the target molecules of the compound lie between the Imd adaptor protein and dTAK1 kinase in the imd pathway. In human cells, the compound suppresses TNF-α, but not IL-1β, stimulation-induced activation of NF-κB, suggesting that its target molecules are upstream of TAK1 in mammalian innate immunity. The compound, TPS-17, is developed from the cyclopentanediol analogue (Kikuchi et al. Eur.J.Med.Chem 46. 1263-1273, 2011).

Molecular Formula
\( C_{8}H_{13}NO_{3} \)
Volume
500 μg
Molecular Weight
171.2
CAS No.
924656-08-6
Solubility
DMSO
Structure
![Structure](image)

\(^{1}H\) NMR
Consistent with structure
Mass Spectrum
Consistent with structure
LCMS
No data

Protocol
The compound is dissolved in DMSO and added to the culture medium.

Experimental data
IC50 value of TPS-17 on the inhibition of the imd pathway in Drosophila ex vivo culture system is 3 μg/ml.
TPS-17 does not suppress heat shock-mediated expression of lacZ in Drosophila ex vivo culture system or Drosophila S2 cell viability (ID50 >50 μg/ml).

Storage
Store below -20°C (below -70°C for prolonged storage).
Aliquot to avoid cycles of freeze/thaw.

References
2) M. Sekiya, K. Ueda, K. Okazaki, H. Kikuchi, S. Kurata, and Y. Oshima."A Cyclopentanediol Analogue Selectively Suppresses the Conserved Innate Immunity