

Catalog No. TPS-19

## Drosophila Dipterecin Inhibitor TPS-19 (E)-N-methyl-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- $\alpha$ , but not IL-1  $\beta$ , stimulation-induced activation of NF- $\kappa$ B, suggesting that its target molecules are upstream of TAK1 in mammalian innate immunity. The compounds, TPS-19, is developed from the cyclopentanediol analogue (Kikuchi et al. *Eur.J.Med.Chem* 46. 1263-1273, 2011).

**Molecular Formula** C<sub>9</sub>H<sub>15</sub>NO<sub>3</sub>

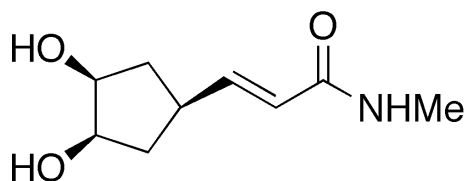
**Volumu** 500 ug

**Molecular Weight** 185.2

**CAS No.** 1295633-61-2

**Solubility** DMSO

**Structure**



**<sup>1</sup>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** IC<sub>50</sub> value of TPS-19 on the inhibition of the imd pathway in *Drosophila ex vivo* culture system is 1 ug/ml.  
TPS-19 does not suppress heat shock-mediated expression of *lacZ* in *Drosophila ex vivo* culture system or *Drosophila* S2 cell viability (ID<sub>50</sub> >50 ug/ml).

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

**References**

- 1) M. Yajima, M. Takada, N. Takahashi, H. Kikuchi, S. Natori, Y. Oshima, and S. Kurata: "A Newly Established in Vitro Culture Using Transgenic *Drosophila* Reveals Functional Coupling between the Phospholipase A2-generated Fatty Acid Cascade and Lipopolysaccharide-dependent Activation of the immune deficiency (imd) Pathway in Insect Immunity" *Biochem. J.*, 371, 205-210 (2003).
- 2) M. Sekiya, K. Ueda, K. Okazaki, H. Kikuchi, S. Kurata, and Y. Oshima."A



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**Anti phospho TDP-43 (pS409/410)**

Cyclopentanediol Analogue Selectively Suppresses the Conserved Innate Immunity Pathways, *Drosophila* IMD and TNF- $\alpha$  Pathways" *Biochem. Pharmacol.*, 75, 2165-2174 (2008).

- 3) H. Kikuchi, K. Okazaki, M. Sekiya, Y. Uryu, Y. Katou, K. Ueda, S. Kurata, Y. Oshima: "Synthesis and innate immunosuppressive effect of 1,2-cyclopentanediol derivatives" *Eur.J.Med.Chem* 46. 1263-1273 (2011).

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