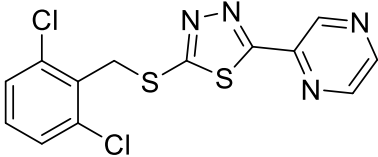


Product data sheet



| | |
|---|---|
| MedKoo Cat#: 562426 Name: Yoda1 CAS#: 448947-81-7 Chemical Formula: C ₁₃ H ₈ Cl ₂ N ₄ S ₂ Exact Mass: 353.9567 Molecular Weight: 355.25 |  |
| Product supplied as: | Powder |
| Purity (by HPLC): | ≥ 98% |
| Shipping conditions | Ambient temperature |
| Storage conditions: | Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks. |

1. Product description:

Yoda1, also known as GlyT2-IN-1, is an agonist of the mechanotransduction channel Piezo1. It acts by eliciting Ca²⁺ flux in Piezo1- but not vector-transfected cells.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

| Solvent | Max Conc. mg/mL | Max Conc. mM |
|---------------------------|-----------------|--------------|
| DMSO | 11.15 | 31.39 |
| DMF | 5.0 | 14.07 |
| DMF:PBS (pH 7.2) (1:2) | 0.3 | 0.84 |

4. Stock solution preparation table:

| Concentration / Solvent Volume / Mass | 1 mg | 5 mg | 10 mg |
|---------------------------------------|---------|----------|----------|
| 1 mM | 2.81 mL | 14.07 mL | 28.15 mL |
| 5 mM | 0.56 mL | 2.81 mL | 5.63 mL |
| 10 mM | 0.28 mL | 1.41 mL | 2.81 mL |
| 50 mM | 0.06 mL | 0.28 mL | 0.56 mL |

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Aglialoro F, Abay A, Yagci N, Rab MAE, Kaestner L, van Wijk R, von Lindern M, van den Akker E. Mechanical Stress Induces Ca²⁺-Dependent Signal Transduction in Erythroblasts and Modulates Erythropoiesis. *Int J Mol Sci.* 2021 Jan 19;22(2):955. doi: 10.3390/ijms22020955. PMID: 33478008; PMCID: PMC7835781.
2. Kuntze A, Goetsch O, Fels B, Najder K, Unger A, Wilhelmi M, Sargin S, Schimmelpfennig S, Neumann I, Schwab A, Pethő Z. Protonation of Piezo1 Impairs Cell-Matrix Interactions of Pancreatic Stellate Cells. *Front Physiol.* 2020 Feb 14;11:89. doi: 10.3389/fphys.2020.00089. PMID: 32116794; PMCID: PMC7033545.

In vivo study

1. Roh J, Hwang SM, Lee SH, Lee K, Kim YH, Park CK. Functional Expression of Piezo1 in Dorsal Root Ganglion (DRG) Neurons. *Int J Mol Sci.* 2020 May 28;21(11):3834. doi: 10.3390/ijms21113834. PMID: 32481599; PMCID: PMC7313462.
2. Wang J, La JH, Hamill OP. PIEZO1 Is Selectively Expressed in Small Diameter Mouse DRG Neurons Distinct From Neurons Strongly Expressing TRPV1. *Front Mol Neurosci.* 2019 Jul 19;12:178. doi: 10.3389/fnmol.2019.00178. PMID: 31379500; PMCID: PMC6659173.

Product data sheet



7. Bioactivity

Biological target:

Yoda 1 is a Piezo1 agonist.

In vitro activity

Yoda1 incubation weakly induced phosphorylation of p38 for at least 60 min, which was less clear for orbital shaking (Figure 2A). Phosphorylation of ERK was more prominent. Orbital shaking induced ERK phosphorylation for 60 min, whereas Yoda1 incubation induced transient ERK phosphorylation with a peak at 10 min. JNK was not phosphorylated by orbital shaking, whereas Yoda1 incubation induced JNK phosphorylation reaching a maximum at 60 min (Figure 2C).

Reference: Int J Mol Sci. 2021 Jan; 22(2): 955. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7835781/>

In vivo activity

Findings demonstrated that Yoda1-induced intracellular calcium increases in mouse DRG neurons and Yoda1-induced intracellular Ca^{2+} increases disappear in the absence of extracellular Ca^{2+} . This suggests that these Ca^{2+} increases are caused via activation of ion channel in plasma membranes, but not organelles in cells. These Ca^{2+} responses were inhibited by ruthenium red and GsMTx4, indicating that the channel, which was activated by Yoda1, is a mechanosensitive cation channel. However, the other mechanosensitive ion channel, TRPV4, is known to be in DRG neurons. In MC353-E1 cells, TRPV4-knockdown blocked Yoda1-induced Ca^{2+} response as well as GSK1016790A, a TRPV4 agonist. Yoda1-induced Ca^{2+} response can be either in TRPV4-dependent or independent manners. When both Piezo1 and TRPV4 were highly expressed, Yoda1 induced a TRPV4-dependent Ca^{2+} response via activation of Piezo1.

Reference: Int J Mol Sci. 2020 Jun; 21(11): 3834. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7313462/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.