Print Date: Jul 8th 2022

Certificate of Analysis

www.tocris.com

Product Name: **Yoda 1** **Catalog No.: 5586** **Batch No.: 4**

CAS Number: 448947-81-7

IUPAC Name: 2-[5-[[(2,6-Dichlorophenyl)methyl]thio]-1,3,4-thiadiazol-2-yl]pyrazine

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{13}H_8Cl_2N_4S_2$.

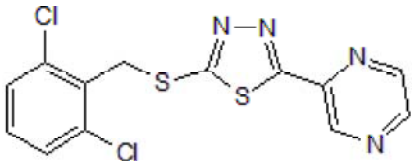
Batch Molecular Weight: 355.27

Physical Appearance: Yellow solid

Solubility: DMSO to 20 mM

Storage: Store at +4°C

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 99.9% purity

^{1}H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	43.95	2.27	15.77
Found	43.93	2.25	15.71

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Description:

Yoda 1 is a selective activator of mouse and human mechanosensitive channel piezo1. In HEK cells, Yoda 1 slows the inactivation phase of transient currents, sensitizes Piezo1 to activation by pressure, and partially activates channels in the absence of external pressure. In MDCK cells, Yoda 1 induces Ca^{2+}-dependent chromatin hypercondensation and alters Ca^{2+}-dependent myosin contractility, leading to nuclear shrinkage in cells. In red blood cells from sickle cell anemia (SCA) patients, Yoda 1 increases intracellular Ca^{2+} and phosphatidylserine exposure, which leads to KCa3.1 channel mediated Ca^{2+} influx and K^+ and water efflux, causing shri... Please see product specific page on www.tocris.com for full description.

Physical and Chemical Properties:

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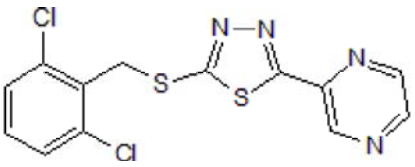
Physical Appearance: Yellow solid

Minimum Purity: ≥99%

Batch Molecular Structure:



Storage: Store at +4°C

Solubility & Usage Info:

DMSO to 20 mM

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Jetta *et al* (2019) Shear stress-induced nuclear shrinkage through activation of Piezo1 channels in epithelial cells. J.Cell Sci. ***132*** jcs226076. PMID: 31076516.

Mikhailov *et al* (2019) Mechanosensitive meningeal nociception via Piezo channels: Implications for pulsatile pain in migraine? Neuropharmacology ***149*** 113. PMID: 30768945 .

Cahalan *et al* (2015) Piezo1 links mechanical forces to red blood cell volume. Elife. ***4*** e07370. PMID: 26001274.