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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

linkedin.com/company/szaboscandic

Dansylcadaverine

Cat. No.: HY-D1027

CAS No.: 10121-91-2

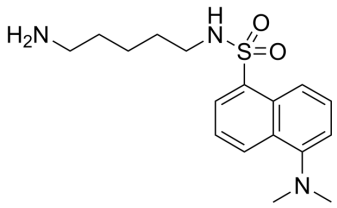
Molecular Formula: $C_{17}H_{25}N_3O_2S$

Molecular Weight: 335.46

Target: Autophagy

Pathway: Autophagy

Storage: -20°C, protect from light, stored under nitrogen
* In solvent : -80°C, 2 years; -20°C, 1 year (protect from light, stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 62.5 mg/mL (186.31 mM; Need ultrasonic)
H_2O : < 0.1 mg/mL (ultrasonic;warming;heat to 80°C) (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.9810 mL	14.9049 mL	29.8098 mL
5 mM	0.5962 mL	2.9810 mL	5.9620 mL
10 mM	0.2981 mL	1.4905 mL	2.9810 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Dansylcadaverine (Monodansyl cadaverine) is an autofluorescent compound used for the labeling of autophagic vacuoles. Dansylcadaverine, a high affinity substrate of transglutaminases, can block the receptor-mediated endocytosis of many ligands[1][2].

In Vitro

The inhibitory activity of dansylcadaverine reflects its ability to serve as a substrate for transglutaminases and to block competitively the crosslinking of fibrin molecules[2].
?Dansylcadaverine, a cationic fluorescent probe binds to bacterial lipopolysaccharide and lipid A, and is displaced competitively by other compounds which possess affinity toward endotoxins[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Kinase Assay [1]

To determine the time course of transglutamination, thymosin β_4 (120 μM) is incubated with Dansylcadaverine (5 mM) in 70 μL buffer consisting of 10 mM Tris-HCl, pH 7.4, 15 mM $CaCl_2$, 3 mM DTT. The reaction is started by addition of 0.1 U

	transglutaminase. Immediately after addition of the enzyme (t=0) and at indicated times,10 μL are taken from the mixture, diluted in 490 μL 0.1% TFA to stop the reaction and analyzed by HPLC[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Cell Assay	MCF7 cells (2.4×10^4) are seeded into 35 mm plates. After 24 h incubation, CuO NPs are added with an increasing concentration in the presence or absence of 3-Methyladenine (3-MA) for different time periods . The cells are then incubated with 50 mM Dansylcadaverine (MDC) at 37°C for 15 min and washed with 1×PBS three times with 5 min interval. Finally, the cells are observed under a fluorescence microscope[2]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Int J Biol Sci. 2021; 17(11):2970-2983.
- Int J Pharm. 17 October 2022, 122297.
- Biochim Biophys Acta Mol Cell Res. 2021 Dec 10;119173.
- Neurochem Res. 2022 Dec 5.
- Toxicol Appl Pharmacol. 2020 Dec 15;409:115271.

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REFERENCES

[1]. Huff T, et al. Thymosin beta(4) serves as a glutaminyl substrate of transglutaminase. Labeling with fluorescentdansylcadaverine does not abolish interaction with G-actin. FEBS Lett. 1999 Dec 24;464(1-2):14-20.

[2]. Laha D, et al. Interplay between autophagy and apoptosis mediated by copper oxide nanoparticles in human breast cancer cells MCF7. Biochim Biophys Acta. 2014 Jan;1840(1):1-9.

[3]. Gao L, et al. Autophagy blockade sensitizes human head and neck squamous cell carcinoma towards CYT997 through enhancing excessively high reactive oxygen species-induced apoptosis. J Mol Med (Berl). 2018;96(9):929-938.

[4]. Cornwell MM, et al. Inhibition of the adhesion of Chinese hamster ovary cells by the naphthylsulfonamides dansylcadaverine and N-(6-aminohexyl)-5-chloro-1-naphthylenesulfonamide (W7). Biochim Biophys Acta. 1983;762(3):414-419.

[5]. David SA, et al. Analysis of the binding of polymyxin B to endotoxic lipid A and core glycolipid using a fluorescent displacement probe. Biochim Biophys Acta. 1992;1165(2):147-152.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA