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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

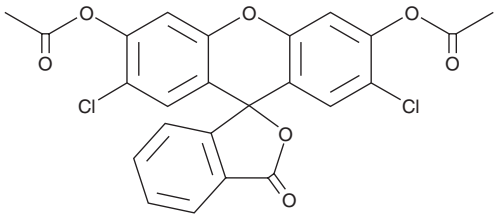
linkedin.com/company/szaboscandic

PRODUCT INFORMATION

2',7'-Dichlorofluorescein diacetate

Item No. 20656

CAS Registry No.:	2044-85-1
Formal Name:	3',6'-*bis*(acetyloxy)-2',7'-dichloro-spiro[isobenzofuran-1(3H),9'-[9H]xanthen]-3-one
Synonyms:	DCFDA, MFCD 37501
MF:	$C_{24}H_{14}Cl_2O_7$
FW:	485.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 301 nm
Em./Ex. Max:	492/515 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

2',7'-Dichlorofluorescein diacetate is supplied as a crystalline solid. A stock solution may be made by dissolving the 2',7'-dichlorofluorescein diacetate in the solvent of choice. 2',7'-Dichlorofluorescein diacetate is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF), which should be purged with an inert gas. The solubility of 2',7'-dichlorofluorescein diacetate in DMSO is approximately 33 mg/ml and approximately 25 mg/ml in ethanol and DMF.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 2',7'-dichlorofluorescein diacetate can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 2',7'-dichlorofluorescein diacetate in PBS, pH 7.2, and 0.1 M Na_2CO_3 is approximately 0.02 and 5 mg/ml, respectively. We do not recommend storing the aqueous solution for more than one day.

Description

2',7'-Dichlorofluorescein diacetate is as a cell-permeable fluorogenic probe to quantify reactive oxygen species (ROS) and nitric oxide (NO).[1,2] It is rapidly de-esterified in cells is oxidized to form fluorescent 2',7'-dichlorofluorescein.[3] 2'7-Dichlorofluorescein displays excitation/emission spectra of 492/515 nm.

References

1. Gabriel, C., Camins, A., Sureda, F.X., *et al.* Determination of nitric oxide generation in mammalian neurons using dichlorofluorescin diacetate and flow cytometry. *J. Pharmacol. Toxicol. Methods* **38(2)**, 93-98 (1997).
2. Owusu-Ansah, E., Yavari, A., and Banerjee, U. A protocol for *in vivo* detection of reactive oxygen species Protocol Exch. (2008).
3. Tetz, L.M., Kamau, P.W., Cheng, A.A., *et al*. Troubleshooting the dichlorofluorescein assay to avoid artifacts in measurement of toxicant-stimulated cellular production of reactive oxidant species. *J. Pharmacol. Toxicol. Methods* **67(2)**, 56-60 (2013).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM