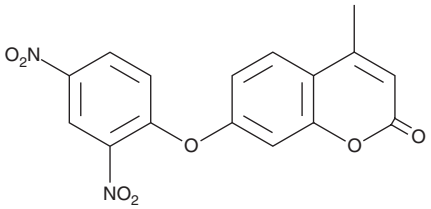
PRODUCT INFORMATION

7-(2,4-Dinitrophenoxy)-4-methyl-2H-chromen-2-one

Item No. 28472

CAS Registry No.: 314742-00-2
Formal Name: 7-(2,4-dinitrophenoxy)-4-methyl-2H-1-benzopyran-2-one
MF: $C_{16}H_{10}N_2O_7$
FW: 342.3
Purity: ≥98%
UV/Vis.: λ_{max}: 286, 314 nm
Ex./Em. Max: 323/445 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

7-(2,4-Dinitrophenoxy)-4-methyl-2H-chromen-2-one is supplied as a crystalline solid. A stock solution may be made by dissolving the 7-(2,4-dinitrophenoxy)-4-methyl-2H-chromen-2-one in the solvent of choice, which should be purged with an inert gas. 7-(2,4-Dinitrophenoxy)-4-methyl-2H-chromen-2-one is soluble in organic solvents such as DMSO, chloroform, and dimethyl formamide (DMF). The solubility of 7-(2,4-dinitrophenoxy)-4-methyl-2H-chromen-2-one in DMSO is approximately 5 mg/ml and approximately 30 mg/ml in chloroform and DMF.

7-(2,4-Dinitrophenoxy)-4-methyl-2H-chromen-2-one is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 7-(2,4-dinitrophenoxy)-4-methyl-2H-chromen-2-one should first be dissolved in DMF and then diluted with the aqueous buffer of choice. 7-(2,4-Dinitrophenoxy)-4-methyl-2H-chromen-2-one has a solubility of approximately 0.3 mg/ml in a 1:2 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

7-(2,4-Dinitrophenoxy)-4-methyl-2H-chromen-2-one is a turn-on fluorescent probe for the detection of hydrogen sulfide (H_2S).[1] 7-(2,4-Dinitrophenoxy)-4-methyl-2H-chromen-2-one undergoes thiolysis by hydrogen sulfide (HS^{1-}). It displays excitation/emission maxima of 323/445 nm, respectively, in DMSO and its fluorescence intensity increases in the presence of sulfur-containing molecules.[1-3] 7-(2,4-Dinitrophenoxy)-4-methyl-2H-chromen-2-one is selective for sulfur-containing molecules, including cysteine, glutathione (GSH), homocysteine, and selenocysteine and is not cytotoxic up to a concentration of 150 µg/ml.[1,2]

References

1. Chen, Y., Shang, X.-m., Li, C., *et al.* The synthesis, crystal, hydrogen sulfide detection and cell assement of novel chemsensors based on coumarin derivatives. *Sci. Rep.* **8(1)**, 16159 (2018).
2. Zhang, B., Ge, C., Yao, J., *et al.* Selective selenol fluorescent probes: Design, synthesis, structural determinants, and biological applications. *J. Am. Chem. Soc.* **137(2)**, 757-769 (2015).
3. Yang, X.F., Su, Z., Liu, C., *et al.* A thiol-selective fluorogenic probe based on the cleavage of 4-methylumbelliferyl-2',4',6'-trinitropheyl ether. *Anal. Bioanal. Chem.* **396(7)**, 2667-2674 (2010).

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