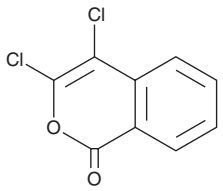
PRODUCT INFORMATION

3,4-Dichloroisocoumarin

Item No. 21194

CAS Registry No.: 51050-59-0
Formal Name: 3,4-dichloro-1H-2-benzopyran-1-one
Synonym: 3,4-DCI
MF: $C_9H_4Cl_2O_2$
FW: 215.0
Purity: ≥98%
UV/Vis.: λ_{max}: 233, 248, 273, 283, 326 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



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

Laboratory Procedures

3,4-Dichloroisocoumarin (3,4-DCI) is supplied as a crystalline solid. A stock solution may be made by dissolving the 3,4-DCI in the solvent of choice, which should be purged with an inert gas. 3,4-DCI is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 3,4-DCI in these solvents is approximately 10, 20, and 25 mg/ml, respectively.

3,4-DCI is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, 3,4-DCI should first be dissolved in DMF and then diluted with the aqueous buffer of choice. 3,4-DCI has a solubility of approximately 0.1 mg/ml in a 1:8 solution of DMF:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

3,4-DCI is a serine protease inhibitor.[1] It completely inhibits enzyme activity of 24 serine proteases including human leukocyte elastase, thrombin, plasmin, Factor Xa, and Factor XIIa *in vitro*. 3,4-DCI stimulates caseinolytic activity of bovine pituitary multicatalytic proteinase complex (MPC) by inducing a conformational change in the MPC that exposes the caseinolytic active site.[2] It has been used to functionally characterize the catalytic activities of multiple proteases including rat liver MPC and extracellular lipase.[3,4]

References

1. Haper, J.W., Hemmi, K., and Powers, J.C. Reaction of serine proteases with substituted isocoumarins: Discovery of 3,4-dichloroisocoumarin, a new general mechanism based serine protease inhibitor. *Biochemistry* **24(8)**, 1831-1841 (1985).
2. Pereira, M.E., Nguyen, T., Wagner, B.J., *et al.* 3,4-dichloroisocoumarin-induced activation of the degradation of β-casein by the bovine pituitary multicatalytic proteinase complex. *J. Biol. Chem.* **267(11)**, 7949-7955 (1992).
3. Djaballah, H., Harness, J.A., Savory, P.J., *et al.* Use of serine-protease inhibitors as probes for the different proteolytic activities of the rat liver multicatalytic proteinase complex. *Eur. J. Biochem.* **209(2)**, 629-634 (1992).
4. Ašler, I.L., Kovačić, F., Marchetti-Deschmann, M., *et al.* Inhibition of extracellular lipase from *Streptomyces rimosus* with 3,4-dichloroisocoumarin. *J. Enzyme Inhib. Med. Chem.* **28(5)**, 1094-1104 (2013).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

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