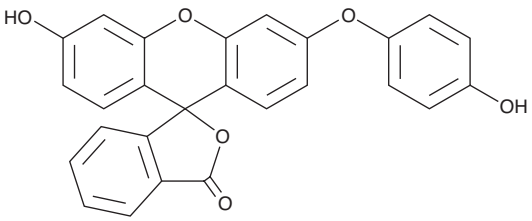
Product Information

HPF

Catalog No. 10159

Formal Name: (2-[6-(4'-hydroxy)phenoxy-3H-xanthene-3-on-9-yl]benzoic acid
MF: $C_{26}H_{16}O_6$
FW: 424.4
Purity: ≥98%
Stability: ≥1 year at -20°C
Supplied as: A solution in methyl acetate



Laboratory Procedures

For long term storage, we suggest that HPF be stored as supplied at -20°C. It will be stable for at least one year.

HPF is supplied as a solution in methyl acetate. To change the solvent, simply evaporate the methyl acetate under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as ethanol, DMSO, and dimethyl formamide purged with an inert gas can be used. The solubility of HPF in these solvents is approximately 20 mg/ml.

HPF is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, the methyl acetate solution of HPF should be diluted with the aqueous buffer of choice. HPF has a solubility of approximately 0.15 mg/ml in a 1:8 solution of ethanol:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

The biology of highly reactive oxygen radical species is of great interest in many biomedical research disciplines, including neurodeneration and aging, cancer, and infectious diseases.[1] There are a number of fluorescent reagents, such as 2,7-dichlorodihydro-fluorescein (DCDHF), that can be used to detect free radicals, but they have significant limitations due to their facile oxidation by light and numerous non-radical oxidants such as hydrogen peroxide (H_2O_2).[2] HPF is a cell-permeable aromatic amino-fluorescein derivative that has little intrinsic fluorescence. It undergoes oxidation only by highly reactive oxygen species (hROS) such as the hydroxyl radical, peroxynitrite, and hROS generated from a peroxidase/H_2O_2 system. It is inert to hypochlorite ion, nitric oxide, H_2O_2, superoxide, and other oxidants. Upon oxidation, HPF is converted to the highly fluorescent molecule fluorescein, allowing the simple direct detection of highly reactive biological radicals.[3]

References

1. Matés, J.M., Pèrez-Gómez, C., and Nuñez de Castro, I. Antioxidant enzymes and human diseases. *Clin. Biochem.* **32(8)**, 595-603 (1999).
2. Hempel, S.L., Buettner, G.R., O'Malley, Y.Q., *et al.* Dihydrofluorescein diacetate is superior for detecting intracellular oxidants: Comparison with 2',7'-dichlorodihydrofluorescein diacetate, 5(and 6)-carboxy-2',7'-dichlorodihydrofluores cein diacetate, and dihydrorhodamine 123 *Free Radic. Biol. Med.* **27(1)**, 146-159 (1999).
3. Setsukinai, K., Urano, Y., Kakinuma, K., *et al.* Development of novel fluorescence probes that can reliably detect reactive oxygen species and distinguish specific species. *J. Biol. Chem.* **278(5)**, 3170-3175 (2003).

Related Products

APF - Cat. No. 10157 • DAN-1 EE (hydrochloride) - Cat. No. 85070 • Dihydrorhodamine 123 - Cat. No. 85100 • 2,7-Dichlorodihydrofluorescein diacetate - Cat. No. 85155 • DAF-2 diacetate - Cat. No. 85165

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