

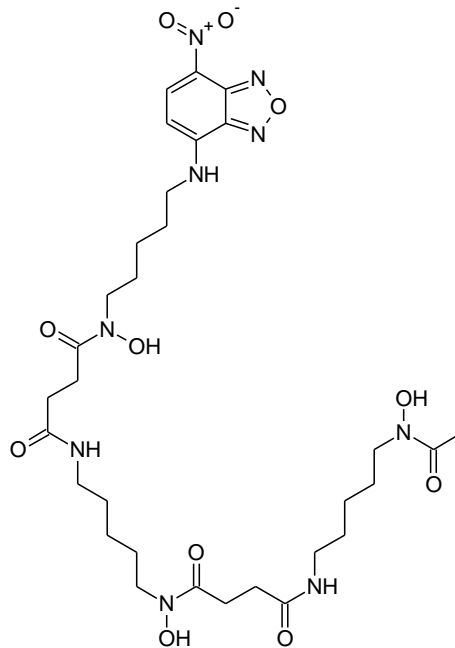
PRODUCT INFORMATION

NBD-DFO

Cat. No. ME047.1 (1 mg)

Cat. No. ME047.2 (5 mg)

7-Nitrobenz-2-oxa-1,3-diazole-desferrioxamine



- A high-affinity Fe³⁺ specific fluorescent indicator/chelator
- A fluorescent analogue of the natural siderophore Desferrioxamine B
- The fluorescence is quenched upon complexation with Fe³⁺
- Quantitative assessment of Fe³⁺ by selective scavenging of Fe³⁺
- Assessment of the location and the dynamics of cellular iron uptake
- Assessment of iron reduction
- Unique permeation properties across membranes

Product Information

NBD-DFO is the fluorescent analogue of the siderophore desferrioxamine B (DFO), coupled to Nitrobenz-2-oxa-1,3-diazole (NBD). NBD-DFO is a highly-specific Fe^{3+} hydroxamate indicator/chelator^{Lit. 1-3}. It's fluorescence is quenched by Fe^{3+} ions. The lipophilic siderophore, which demonstrates excellent permeation across membranes was used for detecting iron ions in cell-free systems, for recording the transport of iron into microorganisms and plants, for detecting pathogenic microorganisms and for monitoring Fe^{3+} mobilization from cells.

Product Data

product name:	NBD-DFO
chemical name:	7-Nitrobenz-2-oxa-1,3-diazole-desferrioxamine
molecular formula:	$\text{C}_{31}\text{H}_{49}\text{N}_9\text{O}_{11}$
molecular weight:	723g/mol
absorption maximum:	$\lambda_{\text{max}} (\log \epsilon) = 480 \text{ nm} (4.18), 370 (3.68)$
emission maximum:	548 nm
affinity for Fe^{3+} :	$\log K_{\text{app}}: 31.0 !! (1:1 \text{ complex with } \text{Fe}^{3+})$
stability:	-20°C , stored dry and protected from light
appearance:	yellow solid
purity:	> 97% (1H NMR, 500 MHz)

Considerations for Use

The product is used as a fluorescence marker/indicator or chelator for Fe^{3+} in biological samples, especially to study iron uptake by plants. The dye is fluorescent only when non-ferrated and can thus be used as a probe to follow iron removal from the siderophore. 1-5 mM stock solutions of NBD-DFO in DMSO can be prepared and aliquots should be kept at -20°C . When stored properly at -20°C , the solutions can be used for at least 2 – 3 months. **Attention:** avoid any contact with metallic surfaces!

References

- 1) S. D. Lytton et. al., Anal. Biochem. (1992) Sep; 205(2): 326-333
- 2) E. Bar-Ness et al., Plant Physiol. (1992) 99, 1329
- 3) S. D. Lytton et al., Molecular Pharmacology (1991), 40, 584-590
- 4) O. Ardon, J. et. al., Bacteriology, Apr. 1998, p. 2021-2026
- 5) David Cantu et. al., PlosOne, September 2009, Vol 4, Issue 9, p 1-9

Last updated: 12/2020