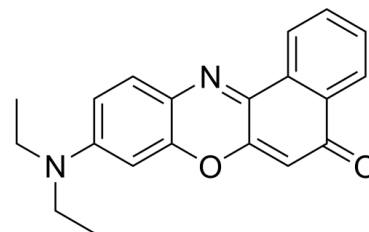


Data Sheet

Product Name:	Nile Red
Cat. No.:	CS-3527
CAS No.:	7385-67-3
Molecular Formula:	C ₂₀ H ₁₈ N ₂ O ₂
Molecular Weight:	318.37
Target:	Others
Pathway:	Others
Solubility:	DMSO : ≥ 50 mg/mL (157.05 mM); H ₂ O : 0.1 mg/mL (0.31 mM); Need ultrasonic)



BIOLOGICAL ACTIVITY:

Nile Red (Nile Blue A oxazine) is a selective and hydrophobic fluorescent stain for intracellular lipid droplets and neutral lipids. Nile Red is intensely fluorescent in all organic solvents and the fluorescence colors range from golden yellow to deep red^{[1][2]}. **In Vitro:** Nile red-stained, lipid droplet-filled macrophages exhibit greater fluorescence intensity than does Nile red-stained control macrophages, and the two cell populations could be differentiated and analyzed by flow cytometry. Better selectivity for cytoplasmic lipid droplets is obtained when the cells are viewed for yellow-gold fluorescence (excitation, 450-500 nm; emission, greater than 528 nm) rather than red fluorescence (excitation, 515-560 nm; emission, greater than 590 nm)^[1].

Nile red is strongly fluorescent, but only in the presence of a hydrophobic environment. Nile red is very soluble in the lipids it is intended to show, and it does not interact with any tissue constituent except by solution^[1].

Spectral and physicochemical properties of the lipophilic dye Nile red induce a yellow-gold-spectral shift in its excitation-emission peak, allowing it to fluoresce in the green emission spectrum only when in a lipid-rich environment, but not in more polar environments^[4]. **In Vivo:** When Nile red-stained *Caenorhabditis elegans* is viewed for green fluorescence, discrete lipid bodies can be observed throughout the intestine and other tissues either in clusters or evenly dispersed, depending on the animal's genotype or experimental treatment^[3].

References:

- [1]. Greenspan P, et al. Nile red: a selective fluorescent stain for intracellular lipid droplets. *J Cell Biol.* 1985 Mar;100(3):965-73.
- [2]. Gibrán S Alemán-Nava, et al. How to use Nile Red, a selective fluorescent stain for microalgal neutral lipids. *J Microbiol Methods.* 2016 Sep;128:74-79.
- [3]. Wilber Escorcía, et al. Quantification of Lipid Abundance and Evaluation of Lipid Distribution in *Caenorhabditis elegans* by Nile Red and Oil Red O Staining. *J Vis Exp.* 2018 Mar 5;(133):57352.
- [4]. Elizabeth C Pino, et al. Biochemical and high throughput microscopic assessment of fat mass in *Caenorhabditis elegans*. *J Vis Exp.* 2013 Mar 30;(73):50180.

CAIndexNames:

5H-Benzo[a]phenoxazin-5-one, 9-(diethylamino)-

SMILES:

O=C1C2=CC=CC=C2C3=NC4=CC=C(N(CC)CC)C=C4OC3=C1

Caution: Product has not been fully validated for medical applications. For research use only.

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