3050 Spruce Street, St. Louis, MO 63103 USA
Tel: (800) 521-8956 (314) 771-5765 Fax: (800) 325-5052 (314) 771-5757
email: techservice@sial.com sigma-aldrich.com

Product Information

Dihydroethidium

Catalog Number **D7008**
Storage Temperature –20 °C

CAS RN 104821-25-2

Molecular Formula: $C_{21}H_{21}N_3$
Molecular Weight: 315.4

Synonyms: 2,7-Diamino-10-ethyl-9-phenyl-9,10-dihydrophenanthridine; 3,8-Diamino-5,6-dihydro-5-ethyl-6-phenylphenanthridine; Hydroethidine

Product Description

This compound has been used to label live cells. Once internalized, the hydroethidine is dehydrogenated to ethidium, which then intercalates into DNA. Ethidium bromide selectively labels dead cells with red fluorescence. Dihydroethidium stains the cytoplasm of living cells blue (excitation 370 nm, emission 420 nm) and chromatin of living cells red (excitation 535 nm, emission 610 nm). Dihydroethidium gives uniform labelling of cells within 30-40 minutes.[1]

Dihydroethidium can be prepared by sodium borohydride reduction of ethidium bromide.[1]

Triton® X–100 has been found to be the best reagent to lyse cells after staining, as determined by fluorimetry. The suitability of hydroethidine as a vital stain has also been confirmed by flow cytometry and image analysis of intact cells.[1]

Dihydroethidium has been shown to exhibit increased fluorescence in six models of apoptosis.[2] It has also been used to detect superoxide generation in the mitochondria of living cells.[3]

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

This product is soluble in chloroform (20 mg/ml), yielding a clear, dark pink solution. It is also soluble in dimethyl sulfoxide (DMSO) and N,N–Dimethyl-formamide (DMF).

Storage/Stability

This product should be kept under argon. It is both light and air sensitive. It will oxidize to ethidium on storage unless kept under argon.

References

1. Saiki, I. et al., Quantitative fluorescent microassay for identification of antiproliferative compounds. *J. Natl. Cancer Inst.*, **77(6)**, 1235-1240 (1986).
2. Frey, T., Correlated flow cytometric analysis of terminal events in apoptosis reveals the absence of some changes in some model systems. *Cytometry*, **28(3)**, 253-263 (1997).
3. Budd, S. L, et al., Mitochondrial membrane potential and hydroethidine-monitored superoxide generation in cultured cerebellar granule cells. *FEBS Lett.*, **415(1)**, 21-24 (1997).

MF,PHC 5/11-1