

## Reactive Oxygen Species Assay Kit for Superoxide Anion (DHE)

## Chemical Properties

CAS No. :

Formula:

Molecular Weight:

Storage: Keep away from direct sunlight  
Store at -20°C  
Actual storage temperature shall be subject to the COA.

## Biological Description

## Description

The TargetMol's Reactive Oxygen Species Assay Kit for Superoxide Anion (DHE) uses DHE as a fluorescent probe to detect intracellular superoxide anion levels. Superoxide anion ( $\cdot\text{O}_2^-$ ) is a negatively charged reactive oxygen species formed when an oxygen molecule gains an electron. It is a strong oxidant that can react with various biological macromolecules. In living organisms, it is mainly produced through metabolic processes in the mitochondrial respiratory chain and enzyme-mediated reactions such as those catalyzed by NADPH oxidase. It can also be induced by environmental stimuli such as UV radiation and drug metabolism. At appropriate levels, superoxide anion participates in normal physiological processes including immune defense and cell signaling. However, excessive levels can trigger oxidative stress, cause cellular damage, and are associated with the development of various diseases.

Dihydroethidium (DHE) is a lipid-soluble fluorescent probe that can freely cross the cell membrane and enter cells. Its detection principle is as follows: DHE itself emits weak blue fluorescence when not bound to superoxide anion (maximum excitation at 370 nm, maximum emission at 420 nm). When it reacts with intracellular superoxide anion, DHE undergoes a specific oxidation reaction to form ethidium, a strongly fluorescent product. Ethidium binds to DNA or RNA and emits red fluorescence upon excitation (maximum excitation at 300 nm, maximum emission at 610 nm; in practical applications, 535 nm can be used as the excitation wavelength). The intensity of red fluorescence correlates positively with the concentration of superoxide anion, enabling analysis of intracellular superoxide levels through fluorescence measurement. This kit is compatible with multiple detection instruments, including fluorescence microscopes, laser confocal microscopes, fluorescence spectrophotometers, and flow cytometers. When used with a 6-well plate at a detection volume of 1 mL per well, the kit provides 100 tests. When used with a 96-well plate at 100  $\mu\text{L}$  per well, it provides 1,000 tests.

**Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins**

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