Singlet oxygen fluorescence probe（SOSG 单线态氧荧光探针）

Product name	Catalog No.	Storage upon receipt	Ex/Em of reaction product
Singlet oxygen fluorescence probe（**SOSG 单线态氧荧光探针**）	MPS230111	≤–20°C	504/525 nm
		Protect from light	
		Desiccate	

Introduction

The Singlet Oxygen Sensor Green reagent is highly selective for O_2 ; unlike other available fluorescent and chemiluminescent singlet oxygen detection reagents, it does not show any appreciable response to hydroxyl radical (•OH) or superoxide ($•O2^-$) (Figure 1). This new singlet oxygen indicator initially exhibits weak blue fluorescence, with excitation peaks at 372 and 393 nm and emission peaks at 395 and 416 nm. In the presence of singlet oxygen, it emits a green fluorescence similar to that of fluorescein (excitation/emission maxima ~504/525 nm). The Singlet Oxygen Sensor Green reagent is supplied as a cell-impermeant derivative.

Materials

Contents

Singlet Oxygen Sensor Green reagent is provided specially packaged in sets of 10 vials, each containing 100 µg.

Storage and Handling

Upon receipt, store the Singlet Oxygen Sensor Green reagent desiccated and protected from light at ≤−20°C until required for use. Prepare stock solutions in methanol; dissolve the contents of one 100 µg vial in 33 µL of methanol to make a stock solution of ~5 mM. Prepare working solutions of this reagent immediately before use, and discard any excess diluted reagent at the end of the work session.

employed to assess the efficacy of free radical scavengers, which are frequently used to improve the flavor and nutritional quality of foods. Note that the Singlet Oxygen Sensor Green reagent can also become activated at alkaline pH or in the presence of certain solvents, including (but not limited to) acetonitrile, DMSO, DMF, and acetone. Its fluorescent product may also degrade over time in some solutions. However, with proper controls, the intensity of the green-fluorescent signal can be correlated with O_2.

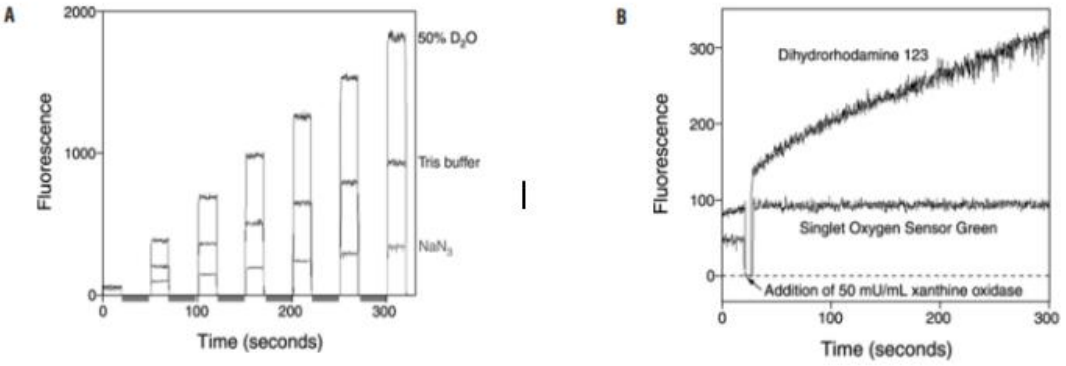

Figure 1. Fluorescence response and specificity of Singlet Oxygen Sensor Green reagent to O_2 .

(A) Fluorescence measurements were made in a spectrofluorometer using excitation/emission of 488/525 nm for solutions containing: 1 μM Singlet Oxygen Sensor Green reagent and 10 μM methylene blue in 100 mM pH 7.5 Tris buffer alone; the singlet oxygen scavenger sodium azide (NaN3); or 50% D2O, which increases the lifetime of $^1O_2$. Measurements were made for 20-second periods, with 30-second intervals (indicated by grey bars) between each measurement. During the 30-second intervals, the samples were exposed to laser radiation (630–680 nm, <5 mW), resulting in methylene blue–photosensitized generation of O_2

. (B) Fluorescence measurements were made in a spectrofluorometer using excitation/emission of 488/525 nm for solutions of 50 mM pH 7 Tris buffer with 1 mM xanthine containing either 1 μM Singlet Oxygen Sensor Green reagent or dihydrorhodamine 123. After ~20 seconds, 50 mU/mL of xanthine

oxidase (XO) was added. XO catalyzes the oxidation of xanthine, producing uric acid and superoxide. Superoxide can spontaneously degrade to H_2O_2

Application

The Singlet Oxygen Sensor Green reagent should be useful for detecting O_2 in aqueous solutions. It can also potentially be concentration, without significant interference from other reactive oxygen .

Solution Assays

Singlet Oxygen Sensor Green reagent is intended for use in aqueous environments. The optimal dilution buffer and working concentration should be determined empirically; a suggested starting concentration range is $1-10$ μM