

SMCC Activated R-Phycoerythrin (SMCC-RPE)

S750588

Storage: 2-8°C. Store in the dark.

Introduction:

SMCC Activated R-Phycoerythrin (SMCC-RPE) is formed by modifying R-Phycoerythrin (R-PE/RPE) with Succinimidyl-4-(N-maleimidomethyl) cyclohexane-1-carboxylate (SMCC). It contains a maleimide group that reacts with thiol groups of target molecules, such as proteins. This product is commonly used in fluorescence microscopy, fluorescence immunoassays, dual or multicolor fluorescence analysis, cancer cell surface antigen detection, flow cytometry fluorescence assays, antibody fluorescence labeling, as well as diagnostics and biotechnology applications such as live cell imaging.

R-Phycoerythrin (RPE) is a highly fluorescent allophycocyanin protein isolated from red algae, with a molecular weight of approximately 240kDa. RPE has a high quantum yield and exhibits intense red-orange fluorescence that is resistant to quenching and has a long shelf life. It is highly water-soluble and more stable than conventional organic fluorophores, making it widely used as a fluorescent label in biological assays. RPE's primary absorption peak is at 565nm with secondary peaks at 480nm and 545nm. Its maximum emission wavelength (E_m) is 575nm. SMCC is a common amine-thiol cross-linking reagent that contains a reactive N-hydroxysuccinimide (NHS ester) group and a maleimide group reactive with thiol groups. Under pH 7-9, the NHS ester group reacts with the primary amino groups of RPE to form stable amide bonds, while the maleimide group can react with thiol groups of other molecules, such as proteins, under pH 6.5-7.5 to form stable thioether bonds, enabling the conjugation of RPE to other molecules containing thiol groups (Figure 1). The cyclohexane in SMCC structure greatly reduces the hydrolysis rate of maleimide group, allowing SMCC-modified proteins to be stored in lyophilized form.

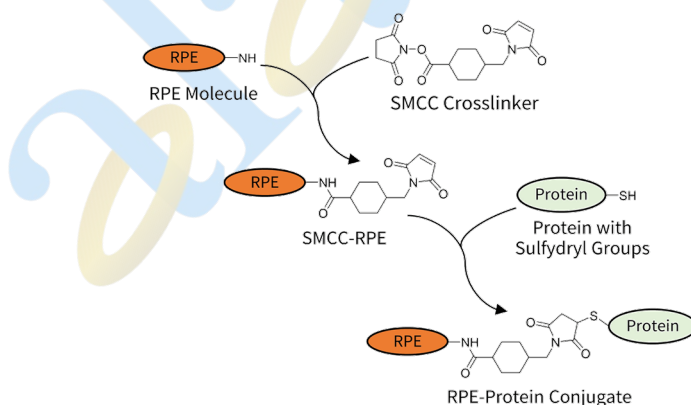


Figure 1. Schematic diagram of the conjugation of SMCC Activated R-Phycoerythrin (SMCC-RPE) to proteins.



This product is a purified conjugate of R-Phycoerythrin (RPE) and SMCC. It is provided as a lyophilized powder. The long-term storage of this product does not affect its thiol reactivity, ensuring the optimal properties for conjugation with other thiol-containing molecules such as proteins.

This product is chemically activated for easy conjugation to biomacromolecules such as antibodies. These molecules contain cysteine residues. Disulfide bonds formed between cysteine residues can be treated with a reducing agent, such as DTT and β -mercaptoethanol, to release free thiol groups. Thiol groups can also be added to primary amine groups of biomacromolecule, such as a protein, through chemical reactions.

Storage Conditions:

Store at 4°C in the dark for up to 18 months. Do not store at -20°C or lower temperatures.

Precautions:

1. Fluorescent dyes are prone to quenching. Please store and use them in the dark to slow down fluorescence quenching.
2. Products conjugated with the SMCC Activated R-Phycoerythrin should also be stored at 4°C in the dark. Do not freeze.
3. Avoid using buffers containing primary amines and thiols during the reaction to minimize unnecessary competitive reactions.
4. This product is for R&D only. Not for drug, household, or other uses.
5. For your safety and health, please wear a lab coat and disposable gloves during the operation.