California Red™ SE, Superior Replacement to Texas Red®

Ordering Information	*Storage Conditions*
Product Number: 479 (1 mg)	Store at < -15 °C and desiccated. Expiration date is 12 months from the date of receipt.

Introduction

Although sulforhodamine 101 acid chloride (also called Texas Red®) is the most popular labeling reagent of sulfonyl chloride, it is quite unstable in water, especially at the higher pH required for reaction with aliphatic amines. Texas Red® reacts with both aliphatic amines and aromatic amines indiscriminatingly. In addition, the labeling efficiency of Texas Red® is extremely low compared to that of dye succinimidyl esters. California Red™ (CR) SE is a succinimidyl ester. It is an excellent replacement for Texas Red®. This new reagent reacts with amine compounds, such as amino acids, peptides, and proteins, to give bright red fluorescent conjugates which are extremely stable. Compared to Texas Red®, California Red™ has much higher labeling efficiency, and more importantly the resulted conjugate is more fluorescent than the corresponding Texas Red® conjugate. The conjugates of California Red™ have the identical excitation and emission wavelengths to those of Texas Red®. Our in-house studies indicated that California Red™ is more stable than Texas Red® under the same labeling conditions.

Features and Benefits

- CR has the spectral properties identical to those of Texas Red®
- The conjugates of CR are much brighter than those of TR
- CR has much higher labeling efficiency than TR
- CR is easier to use than TR
- CR has longer shelf life than TR
- Robust performance

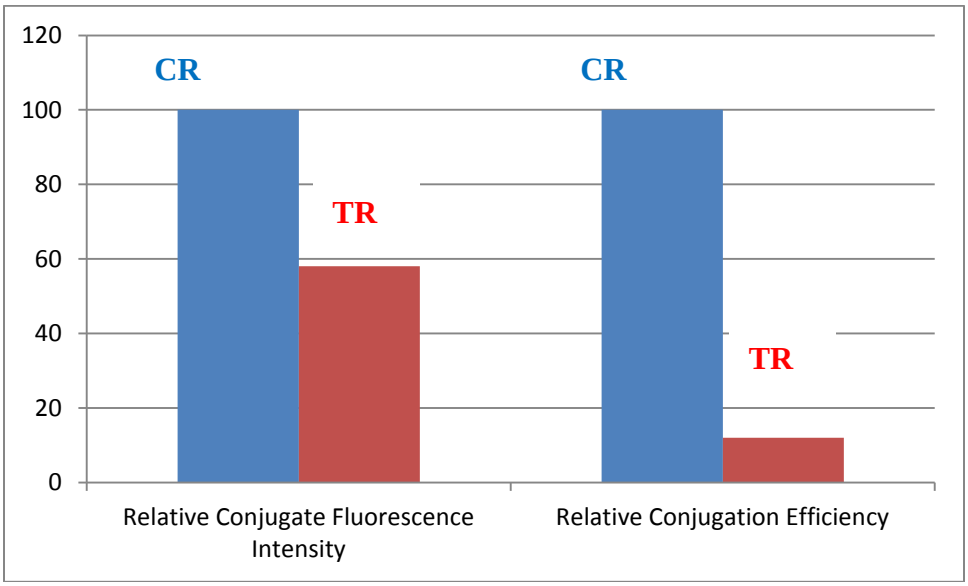

Figure 1 Conjugation and spectral comparison of Texas Red® under the same conditions

Ordering: sales@aatbio.com; Tel: 800-990-8053 or 408-733-1055; Fax: 408-733-1304
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Physical and Spectral Properties

- Maximum Absorption: 595 nm
- Extinction Coefficient: 100,000 $cm^{-1}M^{-1}$ at 595 nm
- Correction Factor: A_{280}/A_{595} = 0.18
- Maximum Emission: 615 nm
- Recommended Filter: Texas Red® Filter
- Stock Solvent: California Red™, SE reagents should be dissolved in high-quality dimethylsulfoxide (DMSO) before reaction with amine-modified oligonucleotides.
- Reaction Buffer: California Red™, SE reagents will react with the non-protonated amine group on amino acids, peptides, proteins and amino-modified oligonucleotides. In order to maintain this amine group in the non-protonated form, the conjugation must take place in a buffer with slightly basic pH. A tetraborate buffer at pH 7.5-8.5 is recommended for optimal results.
  Note: It is important to avoid buffers that contain primary amines, such as Tris, as these buffers will compete for conjugation with the amine-reactive compound.

Biological Applications

The California Red™ fluorophore emits at a longer wavelength than Cy3, TRITC, or Lissamine rhodamine, making CR conjugates among the most commonly used long-wavelength "third labels" in fluorescence microscopy. Unlike the other rhodamines, the CR fluorophore exhibits very little spectral overlap with fluorescein, and its fluorescence can be distinguished from that of phycoerythrins. Moreover, the fluorescence quantum yield of CR conjugates is usually high. When the correct optical filter sets are used, CR conjugates are brighter and have lower background than those of the other commonly used red-fluorescent dyes. CR conjugates are particularly well suited for excitation by the 568 nm spectral line of the Ar–Kr mixed-gas laser now used in many confocal laser-scanning microscopes, or by the 594 nm spectral line of the orange He–Ne laser.

Storage Conditions

Store desiccated at < *-15* °C. Expiration date is one year from the date of receipt.
Note: California Red™ is moisture-sensitive. Store desiccated. Equilibrate vial to room temperature before opening to avoid moisture condensation. Dissolve needed amount of reagent and use it immediately before hydrolysis occurs. Discard any unused reconstituted reagent. Do not store reagent in solution.

References

1. HermansonG.T., *Bioconjugate Techniques*, Academic Press, New York (1995).
2. Sambrook J., Fritsch E.F., and Maniatis, T., *Molecular Cloning: A Laboratory Manual, Second Edition*, Cold Spring Harbor Laboratory (1989).
3. California Red™, the trademark of AAT Bioquest, Inc.
4. Texas Red®, the trademark of Molecular Probes, Inc.