COLUMBIA BIOSCIENCES

# SureLight® R-Phycoerythrin

## Product Specifications

**Item #:** D5-000

**Purity:** $A_{566} / A_{280} > 5.0$

$A_{620} / A_{566} < 0.01$

$A_{566} / A_{498} < 1.5$

> 98% single peak by HPLC

Emission peak 573 ±2 nm at 498 nm excitation

**Concentration:** > 10mg/ml

**Molecular Weight:** 250,000 Da

**Buffer and Stability:**

Product supplied as a 60% ammonium sulfate precipitate in 100 mM sodium phosphate buffer (pH 7.4), 100 mM NaCl and 2 mM Sodium Azide as a preservative. Product is stable for at least 1 year when stored properly (2-8°C in the dark).

***Do Not Freeze.***

### *Spectral Characteristics*

| | |
|---|---|
| Absorption maximum | 565 nm |
| Additional Absorption peaks | 498, 545 nm |
| Emission maximum | 573 nm |
| Extinction Coefficient (ε) | $1.96 \times 10^6$ $M^{-1}cm^{-1}$ |
| Quantum Yield (QY) | 0.84 |
| Brightness (ε x QY) | $1.65 \times 10^6$ $M^{-1}cm^{-1}$ |

### *Structural Characteristics*

R-phycoerythrin is predominantly produced by red algae. The protein is made up of at least three different subunits and varies according to the species of algae that produces it. The subunit structure of the most common R-PE is $(\alpha\beta)_6\gamma$. The α subunit has two phycoerythrobilins (PEB), the β subunit has 2 or 3 PEBs and one phycourobilin (PUB), while the different gamma subunits are reported to have 3 PEB and 2 PUB ($\gamma_1$) or 1 or 2 PEB and 1 PUB ($\gamma_2$).

### *Applications for R-Phycoerythrin*

Many applications and instruments were developed specifically for R-phycoerythrin. It is commonly used in immunoassays such as FACS, flow cytometry, and multimer/tetramer applications. With new instrumentation available, R-PE is also well suited for immunohistochemistry (IHC), Luminex®, and Western blot applications.

### *Advantages of SureLight® R-Phycoerythrin*

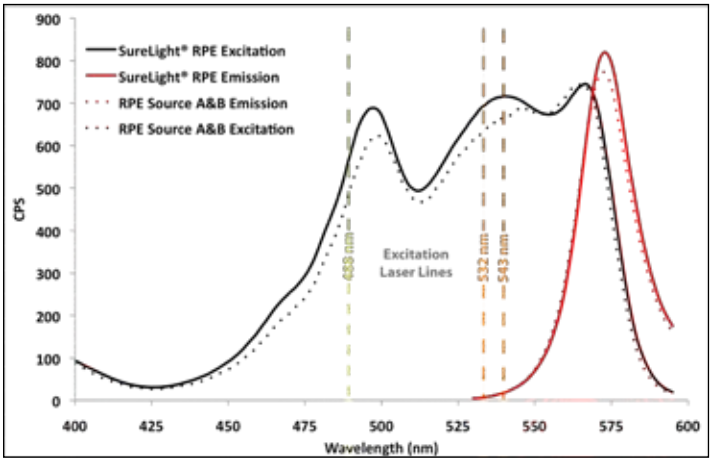
- **Biological variation is minimized** as Columbia Biosciences cultures all algae in a laboratory setting, under controlled conditions rather than in open ponds or harvesting from the sea.
- **No concerns with supply** interruptions due to adverse weather

**Best value**

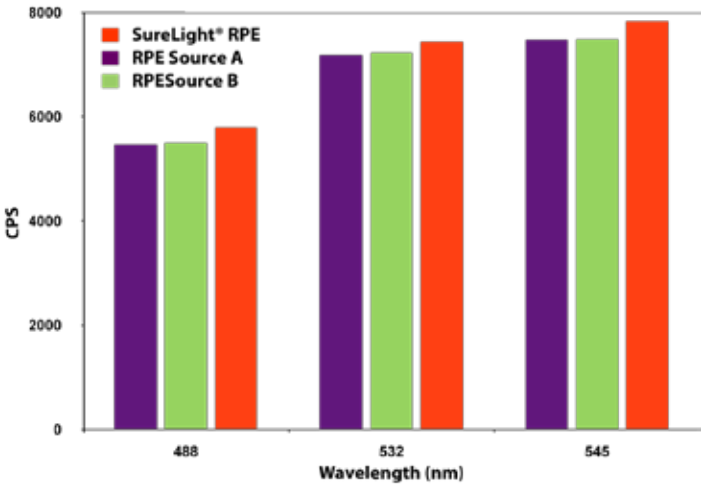
- **No extra costs** from duties/tariffs
- **Overnight delivery**
- **Large lot sizes** (less time qualifying new material)
- **Greater fluorescence** compared to other R-PE sources

## *Greater Fluorescence Where It Counts*

On a per mass basis, Columbia Biosciences SureLight® R-PE provides more fluorescence signal in the wavelengths used in common detection systems.




Excitation and emission profiles for Columbia Biosciences R-PE versus alternate source R-PE at a standard protein concentration. (Emission scan excitation wavelength at 488 nm.)

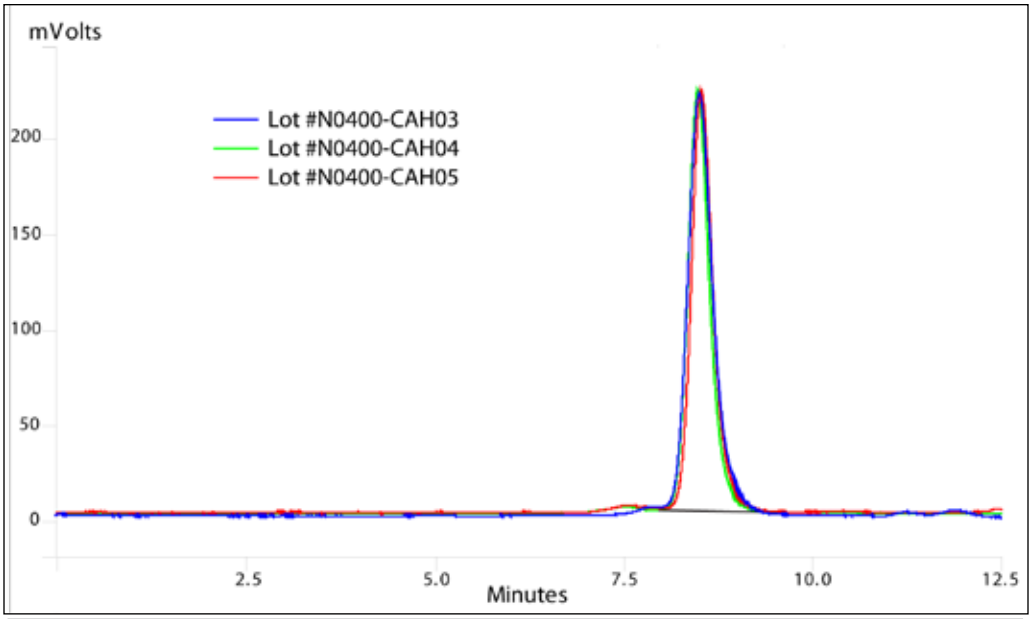



Comparative emission levels of Columbia Biosciences R-PE versus alternate source R-PE at common instrument laser excitation wavelengths at a standard protein concentration. Excitation wavelengths correspond to :

- 488 nm - Argon Laser
- 532 nm - Diode-Pumped Solid State (DPSS) Laser
- 543 nm - He/Ne Laser

## *Consitency for Peace of Mind*

Columbia Biosciences has complete control over the entire process of SureLight® R-PE production to ensure a uniform result time after time. Each batch of SureLight® R-PE is tested via HPLC, UV-Vis spectroscopy, and fluorescence excitation and emission spectroscopy.




HPLC chromatograms (280 nm absorbance) of sequential lots of Columbia Biosciences R-PE.

***References***

Glazer, A.N. Phycobilisomes: structures and dynamics. Ann. Rev. Microbiol. 36:173-198 (1982)

MacColl, R. & Guard-Firar, D. Phycobiliproteins. CRC Press, Inc., Boca Raton, FL (1987)

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