

**Product number: K8-3002**  
**Product name: Square-470-mono-NHS**

## General Data

- Molecular Mass:** 853.08  
**Solubility:** water, alcohol, DMF, DMSO  
**Insoluble:** acetone, chloroform, toluene  
**Storage:** Store in absence of light, desiccated and refrigerate

## Description

Highly hydrophilic, amine-reactive label containing one NHS-ester group.

## Applications

- Covalent labeling of proteins, amino-modified DNA and amino-modified oligonucleotides
- Fluorescence Lifetime Label — this label exhibits a distinct lifetime change upon binding to a biomolecule
- Fluorescence polarization-based assays of high molecular weight antigens.
- Resonance Energy Transfer (RET)
- Flow Cytometry
- Immunofluorescence
- Gene Expression
- Homogeneous Assays
- Assessment of protein structure

## Advantages

- Perfectly suited for excitation with the 330, 436, and 470-nm diode lasers and UV light
- Large Stokes' shift
- Sensitive; high extinction coefficients and high quantum yields up to 38% after covalent attachment to proteins
- Low non-specific binding
- pH-insensitive between pH 3 and pH 10
- Good aqueous solubility; this label does not alter the solubility of the protein conjugate
- High photostability; e.g. compared to fluorescein or Cy5<sup>TM</sup>
- Low molecular weight — **Square** dyes do not add substantial mass to the conjugates
- Ideal for non-radioactive labeling of proteins, amino-modified DNA probes and amino-modified oligonucleotides

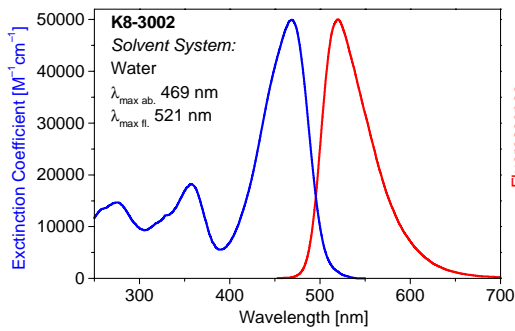
## Spectral Data

Sample	Dye-to-protein Ratio	Solvent System	Absorption max. [nm]	Extinction Coefficient [M <sup>-1</sup> .cm <sup>-1</sup> ]	Fluorescence <sup>1</sup> max. [nm]	Q.Y. [%]
Free dye	—	water	469	50,000	521	
Free dye	—	ethanol	462		515	2.2
BSA conjugate 1	0.5	pH 7.4				38
BSA conjugate 2	1.0	pH 7.4				28
BSA conjugate 3	2.0	pH 7.4				17

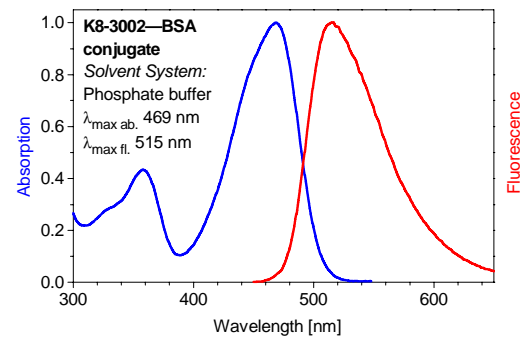
<sup>1</sup>Excitation at 400 nm

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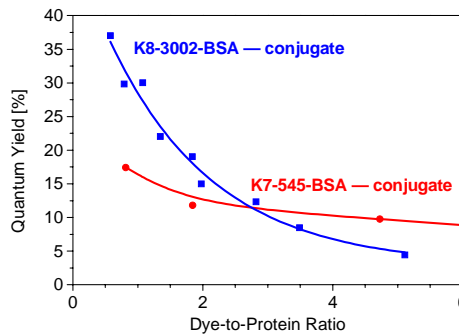
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Absorption and emission spectra of **K8-3002** in water



Absorption and emission spectra of **K8-3002 — BSA conjugate** in phosphate buffer (pH 7.4, Dye-to-protein ratio 1.1)



Quantum Yield vs Dye-to-protein Ratio of **K8-3002 — BSA conjugates** as compared to **K7-545 — BSA conjugates**