

Product number: K8-1612
Product name: Square-635-NHS

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General Data

- Molecular Mass:** 1026.31
767.82 (protonated form)
- Solubility:** water, DMF, DMSO
- Insoluble:** acetone, chloroform, toluene
- Storage:** Store in absence of light, desiccated and refrigerate

Description

- Amine-reactive, pH-sensitive fluorescent label containing one reactive NHS-ester group and pKa = 10.7 (free dye).

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.

Advantages

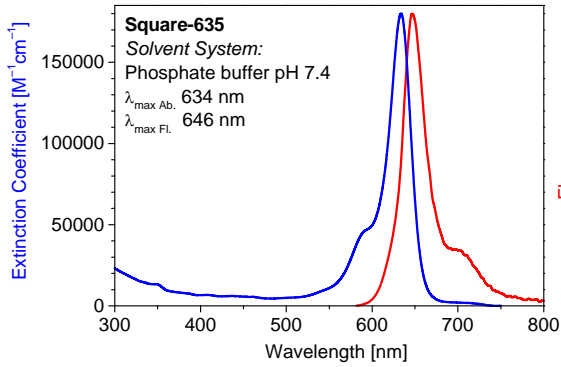
- Perfectly suited for excitation with the 594-nm and 635-nm diode laser.
- Sensitive; high extinction coefficient and high quantum yield up to 40% after covalent attachment to proteins.
- Low non-specific binding.
- pH-sensitive between pH 9 and pH 12, and pH-insensitive between pH 3 and pH 9.
- Good aqueous solubility; this label does not alter the solubility of the protein conjugate.
- High photostability; e.g. compared to **CypHer 5™**.
- 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

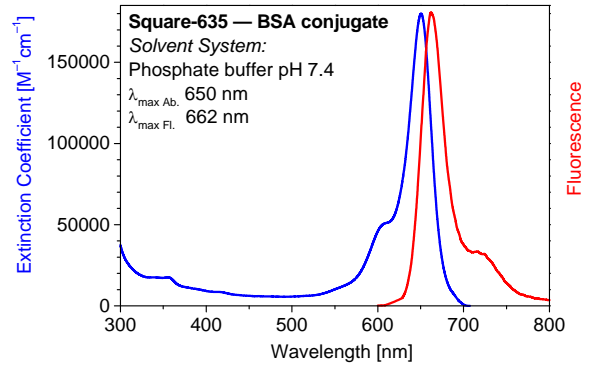
Sample	Dye-to-protein Ratio (D/P)	Protonated form (phosphate buffer, pH < 8.0)				Deprotonated form (pH > 12.0)	pK _a	pH-Range
		Absorption max. [nm]	Extinction Coefficient [M ⁻¹ cm ⁻¹]	Fluorescence max. [nm]	Quantum Yield ¹ [%]	Absorption max. [nm]		
Free dye	—	634	180,000	646	9	520	10.7	9.6–11.7
BSA conjugate 1	0.5	650		662	37	—		—
BSA conjugate 2	1.0	649		663	29	—		—
BSA conjugate 3	1.5	649		664	20	—		—

¹ Excitation at 620 nm

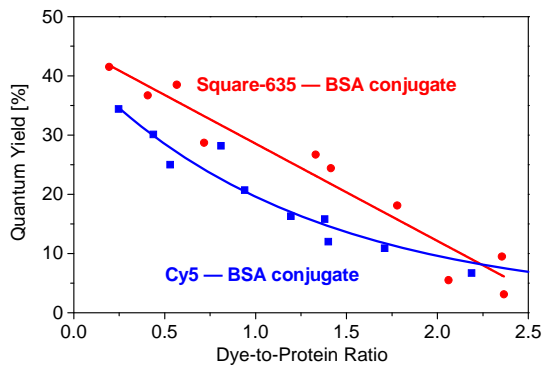
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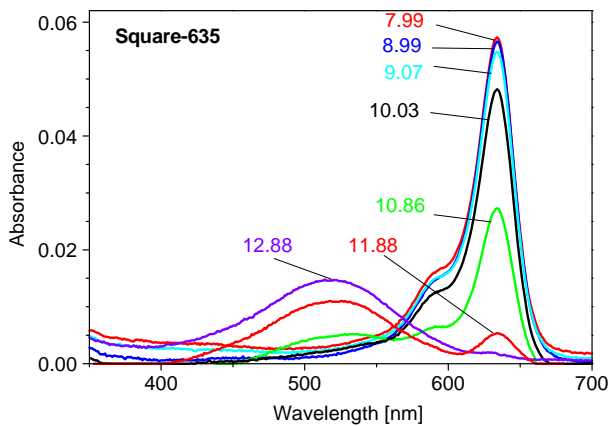
Absorption and fluorescence spectra of **Square-635** in phosphate buffer (pH 7.4)



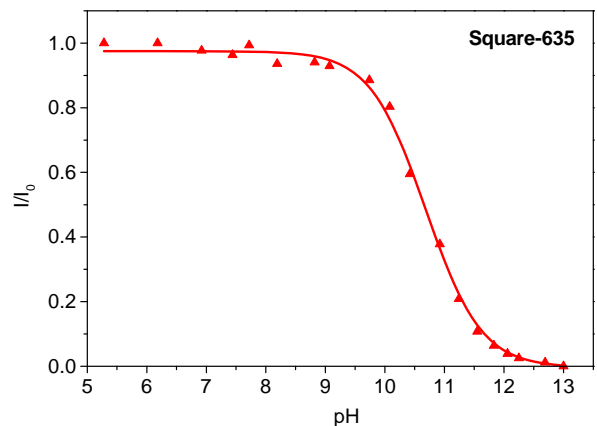
Absorption and fluorescence spectra of **Square-635 — BSA conjugate (D/P 0.5)** in phosphate buffer (pH 7.4)



Quantum Yield vs. Dye-to-protein Ratio of **Square-635 — BSA conjugates** as compared to **Cy5 — BSA conjugates** in phosphate buffer (pH 7.4)



Absorption spectrum of **Square-635** vs. pH



Normalized fluorescence intensity of **Square-635** vs. pH (pKa 10.7)