

Product number: K9-4179
Product name: SeTau-680-NHS

General Data

Molecular Mass: 2011.73
1624.00 (protonated form)
Solubility: Water, Alcohol, DMF, DMSO
Insoluble: Chloroform
Storage: Store in absence of light, desiccate and refrigerate

Description

- Extremely bright, water-soluble, amine-reactive label containing one NHS-ester group. The ideal label for proteins and other amino-modified biomolecules including oligonucleotides.

Advantages

- Perfectly suited for excitation with 635, 640, and 670-nm diode lasers
- Low quenching tendency at high dye-to-protein ratios compared to other labels e.g. Cy5.5™
- Considerably higher photostability compared to fluorescein or other cyanine dyes (Alexa 680 or Cy5.5)
- Twice longer fluorescence lifetime ($\tau = 2.8$ ns) compared to Cy5.5 ($\tau = 1$ ns)
- Extremely bright label: ($\Phi = 0.58$, $\epsilon = 215,000$ and $\Phi \cdot \epsilon = 124,700$) with a similar absorption and emission as Alexa 680 is ~ 2 times brighter than Alexa 680 ($\Phi = 0.36$, $\epsilon = 183,000$ and $\Phi \cdot \epsilon = 65,880$) and exhibits a lower quenching tendency when labeled to biomolecules. Exc./Em. max of IgG-conjugates: 682/703 nm

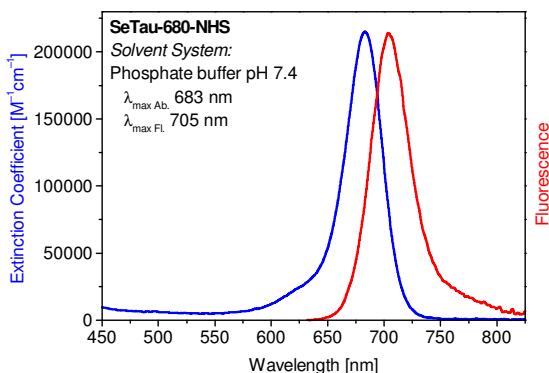
Spectral Data

Solvent System: phosphate buffer pH 7.4

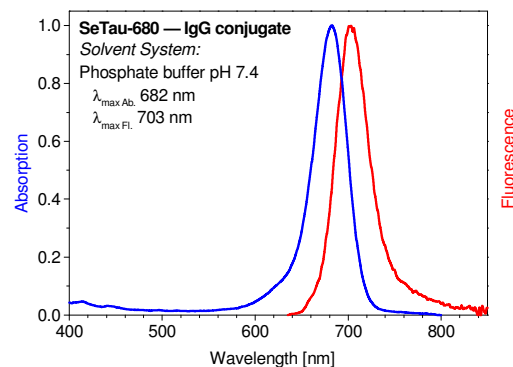
Sample	Dye-to-protein Ratio	Absorption max. [nm]	Extinction Coefficient [$M^{-1}cm^{-1}$]	Fluorescence max. [nm]	Quantum Yield ¹ [%]	Fluorescence Lifetime at 25 °C [ns]
Free dye	—	683	215,000	705	58	2.86
IgG conjugate 1	1.0	682		703	45	2.94
IgG conjugate 2	2.0	682		703	37	2.91
IgG conjugate 3	4.0	682		703	29	2.84
IgG conjugate 4	6.0	682		703	25	2.76

¹ Cy5.5 in phosphate buffer pH 7.4 (QY = 23% [1]) was used as the reference. $\lambda_{EX.} = 660$ nm.

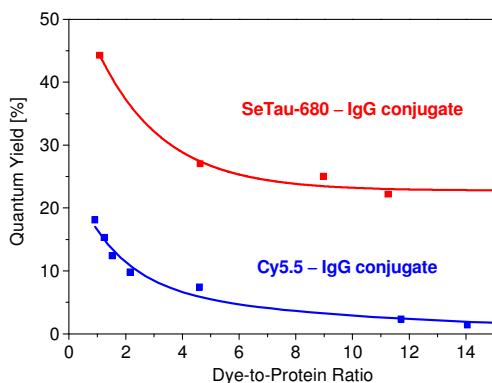
[1] S.R.Mujumdar, R.B.Mujumdar, C.M.Grant, A.S.Waggoner. Cyanine-labeling reagents: sulfobenzindocyanine succinimidyl esters. Bioconjugate Chem. (1996), 7, 356–362.



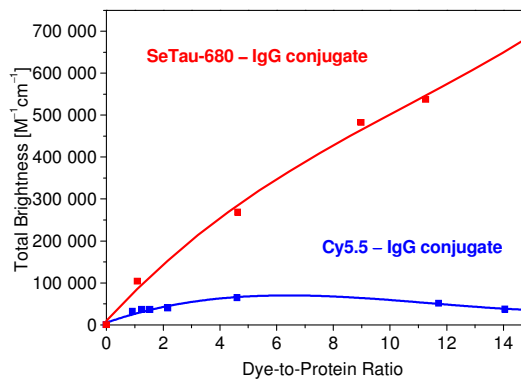
Absorption and emission spectrum of **SeTau-680-NHS** in phosphate buffer (pH 7.4)



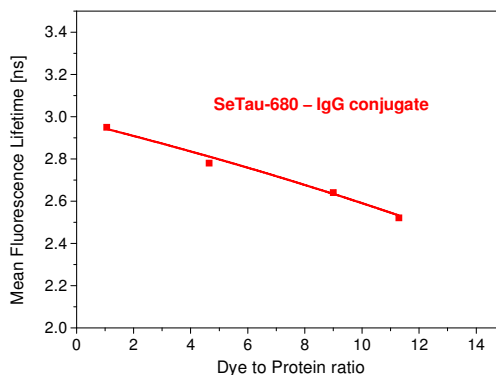
Absorption and emission spectrum of a **SeTau-680 — IgG conjugate** in phosphate buffer (pH 7.4, Dye-to-protein ratio 1.0)



Quantum yield vs. dye-to-protein ratio of **SeTau-680 — IgG conjugates** in phosphate buffer (pH 7.4) as compared to **Cy5.5 — IgG conjugates**



Total brightness ($QY \times \epsilon \times D/P$) vs. dye-to-protein ratio (D/P) of **SeTau-680 — IgG conjugates** in phosphate buffer (pH 7.4) of in phosphate buffer (pH 7.4)



Mean fluorescence lifetime vs. dye-to-protein ratio of **SeTau-680 — IgG conjugates** in phosphate buffer (pH 7.4)