

General Data

- Molecular Mass:** 1012.11 (protonated form)
Solubility: Water, Alcohol, DMF, DMSO
Insoluble: Acetone, Chloroform, Toluene
Storage: Store in absence of light, desiccate and refrigerate

Description

- Highly hydrophilic, amine-reactive label containing one NHS-ester group. Brighter ($\epsilon = 250,000 \text{ M}^{-1}\text{cm}^{-1}$, QY = 26% (IgG, D/P = 1)) and more photostable replacement for Alexa 633.

Applications

- Covalent labeling of proteins, amino-modified DNA and amino-modified oligonucleotides
- Fluorescence intensity and fluorescence polarization-based applications
- Resonance Energy Transfer (RET)
- Flow Cytometry
- Immunofluorescence
- Gene Expression
- Homogeneous Assays
- Microarrays

Advantages

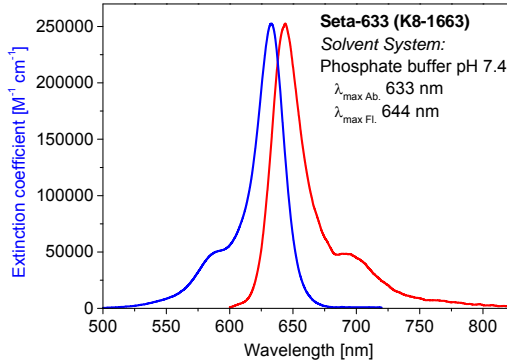
- Perfectly suited for excitation with the 594, 633 or 635 nm diode lasers
- Sensitive; high extinction coefficients and quantum yields highly increase after covalent attachment to biomolecules
- pH-insensitive between pH 3 and pH 10
- Good aqueous solubility; this label does not alter the solubility of the bioconjugate
- High photostability; e.g. compared to fluorescein, Cy5TM or Alexa FluorTM 647
- Low molecular weight — **Seta** dyes do not add substantial mass to the conjugates
- Ideal for non-radioactive labeling of proteins, amino-modified oligonucleotides and amino-modified lipids

Spectral Data

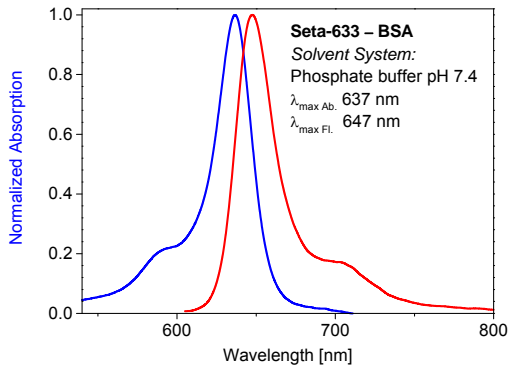
Solvent System: phosphate buffer pH 7.4

Sample	Dye-to-protein Ratio	Absorption max. [nm]	Extinction Coefficient [$\text{M}^{-1}\cdot\text{cm}^{-1}$]	Fluorescence max. [nm]	Quantum Yield ¹ [%]
Free dye	—	633	250,000	644	7
BSA conjugate 1	1.0	646		656	51
BSA conjugate 2	2.0	647		656	43
BSA conjugate 3	3.0	647		656	37
BSA conjugate 4	4.0	647		656	32
IgG conjugate 1	1.0	637		647	26
IgG conjugate 2	2.0	637		647	23
IgG conjugate 3	3.0	637		647	20
IgG conjugate 4	7.0	637		647	15

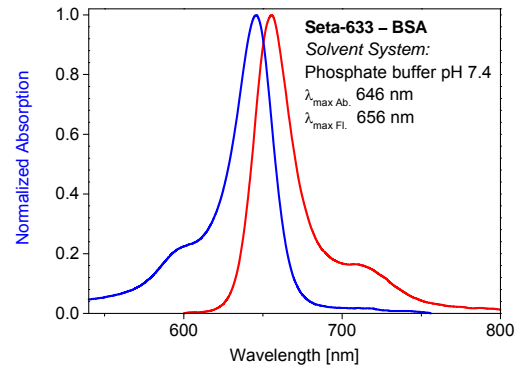
¹ Excitation at 600 nm



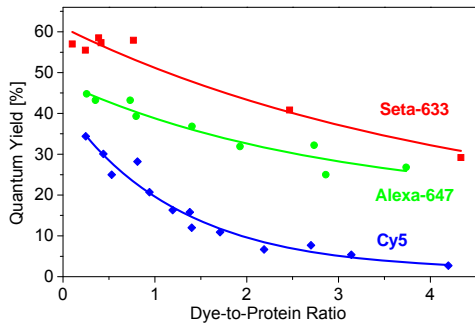
Absorption and emission spectrum of **Seta-633 (K8-1663)** in phosphate buffer (pH 7.4)



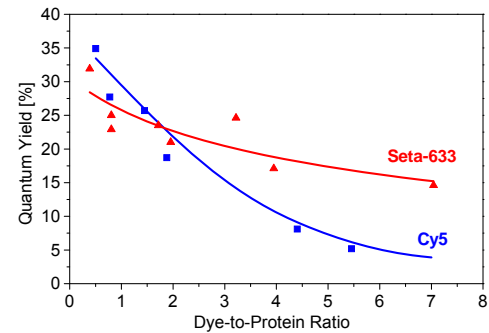
Absorption and emission spectrum of a **Seta-633 — IgG conjugate** in phosphate buffer (pH 7.4, Dye-to-protein ratio 0.8)



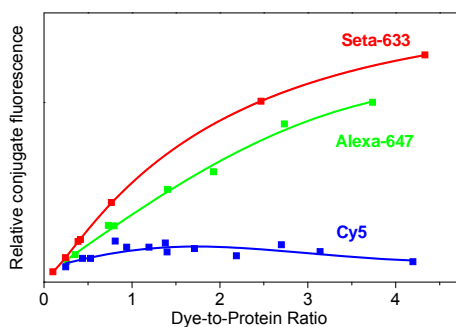
Absorption and emission spectrum of a **Seta-633 — BSA conjugate** in phosphate buffer (pH 7.4, Dye-to-protein ratio 1.7)



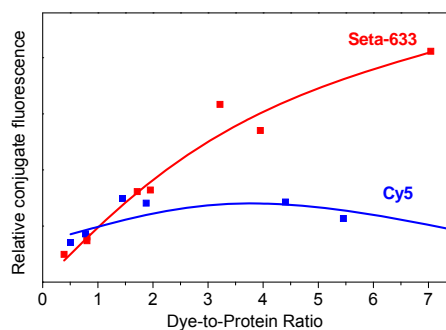
Quantum yield vs. dye-to-protein ratio of **Seta-633 — BSA conjugates** in phosphate buffer (pH 7.4)



Quantum yield vs. dye-to-protein ratio of **Seta-633 — IgG conjugates** in phosphate buffer (pH 7.4)



Relative fluorescence (Q.Y x D/P ratio) of **Seta-633 — BSA conjugates** in phosphate buffer (pH 7.4) as compared to Alexa 647 and Cy5 conjugates

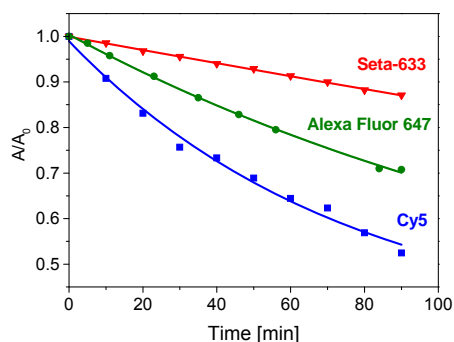


Relative fluorescence (Q.Y x D/P ratio) of **Seta-633 — IgG conjugates** in phosphate buffer (pH 7.4) as compared to Cy5 conjugates

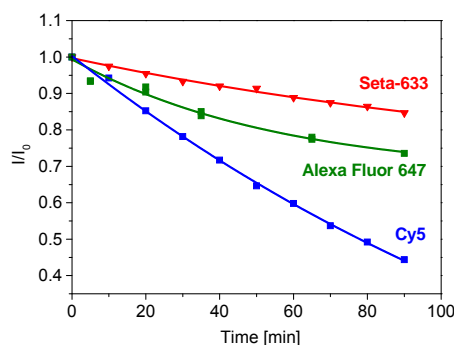
Photostability

when exposed to light from a halogen lamp (150 W)

Solvent System: phosphate buffer pH 7.4



Relative decrease of the absorption maximum of **Seta-633** as compared to **Cy5** and **Alexa Fluor 647**



Decrease of the fluorescence intensity of **Seta-633** as compared to **Cy5** and **Alexa Fluor 647**