

## General Data

- Molecular Mass:** 1142.23 (protonated)  
1529.96
- 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.

## 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

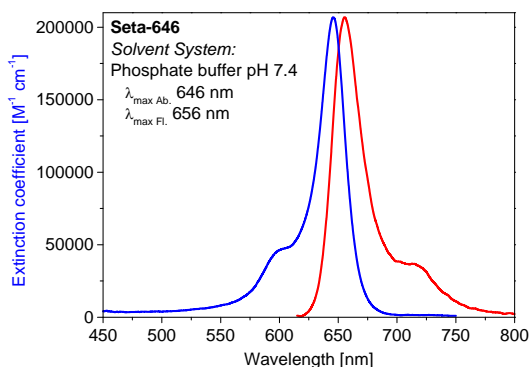
- Perfectly suited for excitation with the 635 nm diode laser
- Sensitive; high extinction coefficients and high quantum yields after covalent attachment to biomolecules
- Quantum yield is highly increased after covalent and non-covalent association with proteins
- pH-insensitive between pH 3 and pH 10
- Good aqueous solubility; this label does not alter the solubility of the bioconjugate
- High photostability; e.g. compared to fluorescein or Cy5<sup>TM</sup>
- 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

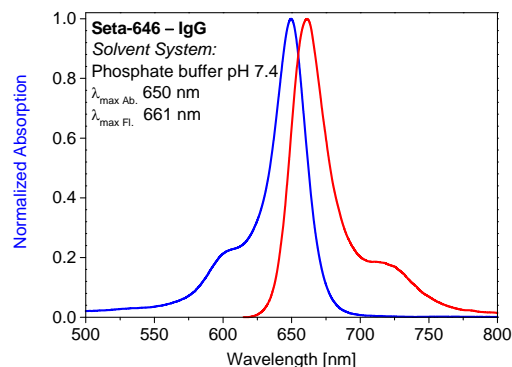
**Solvent System:** phosphate buffer pH 7.4

Sample	Dye-to-protein Ratio	Absorption max. [nm]	Extinction Coefficient [M <sup>-1</sup> cm <sup>-1</sup> ]	Fluorescence max. [nm]	Quantum Yield <sup>1</sup> [%]
Free dye	—	646	207,000	656	10
IgG conjugate 1	1.0	650		661	33
IgG conjugate 2	2.0	650		661	29
IgG conjugate 3	3.0	650		661	25
IgG conjugate 4	4.0	650		661	23

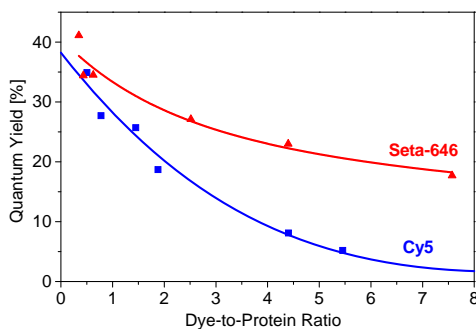
<sup>1</sup> Excitation at 610 nm



Absorption and emission spectrum of **Seta-646** in phosphate buffer (pH 7.4)

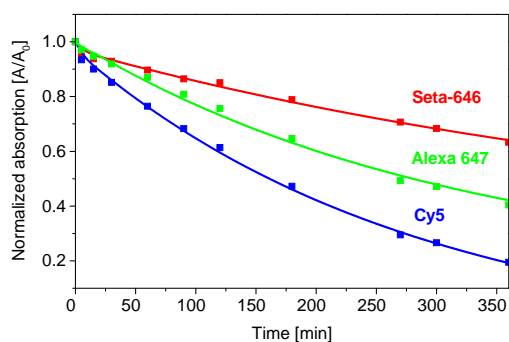


Absorption and emission spectrum of a **Seta-646 — IgG conjugate** in phosphate buffer (pH 7.4, Dye-to-protein ratio 1.0)

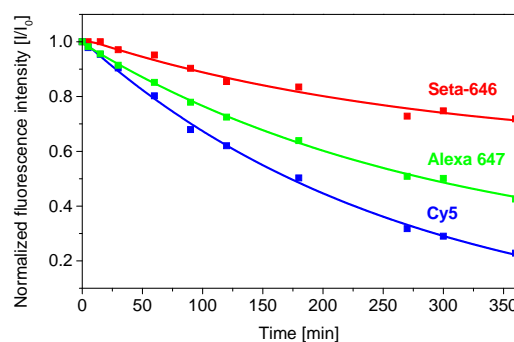


Quantum yield vs. dye-to-protein ratio of **Seta-646 — IgG conjugates** in phosphate buffer (pH 7.4)

### Photostability



Relative decrease of the long-wavelength absorption band of **Seta-646** in phosphate buffer pH 7.4 as compared to **Cy5** and **Alexa 647** upon irradiation with a Xenon lamp



Relative decrease of the emission of **Seta-646** in phosphate buffer pH 7.4 as compared to **Cy5** and **Alexa 647** upon irradiation with a Xenon lamp