

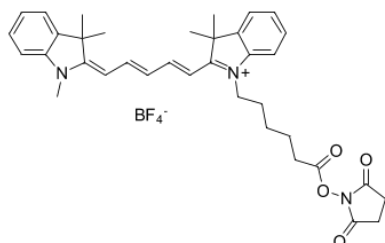
## Cyanine5 NHS ester

<http://www.lumiprobe.com/p/cy5-nhs-ester>

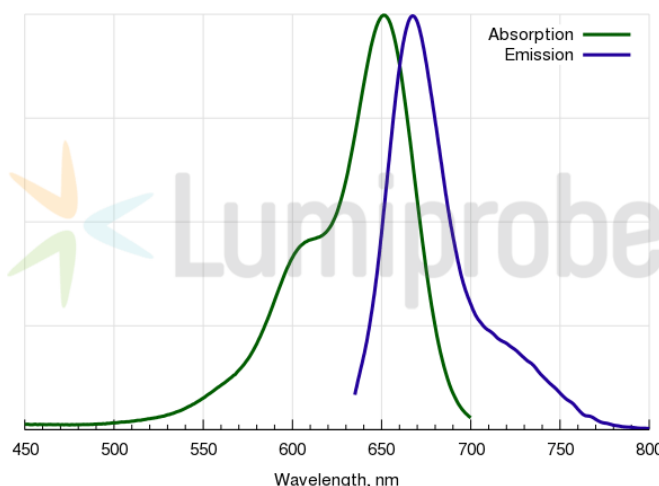
During the last years, Cyanine5 (an analog of Cy5®) has become an incredibly popular label in life science research and diagnostics. The fluorophore has its emission maximum in the red region, where many CCD detectors exhibit maximum sensitivity, and biological objects show low background. The dye color is very intense, therefore quantities as small as 1 nmol can be detected in gel electrophoresis by naked eye.

This Cyanine5 NHS ester (analog to Cy5® NHS ester) is a reactive dye for the labeling of amino-groups in peptides, proteins, and oligonucleotides. This dye requires a small amount of organic co-solvent (such as DMF or DMSO) to be used in labeling reactions (please see our recommended [protocol](#) for more details). This reagent is ideal for very cost-efficient labeling of soluble proteins as well as all kinds of peptides and oligonucleotides. This reagent also works well in organic solvents for small molecule labeling. For more sophisticated targets such as easily degradable proteins, when the use of DMF or DMSO is undesirable, consider using [water-soluble sulfo-Cyanine 5 NHS ester](#) which does not require any co-solvent, and features very similar fluorescent properties.

Cyanine5 fluorophore is compatible with various instrumentation including many fluorescent microscopes, imagers, scanners, and fluorescence readers. A number of various Cyanine5 analogs exist - Cyanine5 NHS ester can replace activated esters of Cy5® and DyLight 649.



**Cy5 NHS ester structure**



**Cy5 excitation and emission spectra**

### General properties

|                     |                                                                                                                                                                          |
|---------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Appearance:         | dark colored solid                                                                                                                                                       |
| Molecular weight:   | 667.54                                                                                                                                                                   |
| CAS number:         | 1263093-76-0                                                                                                                                                             |
| Molecular formula:  | C <sub>36</sub> H <sub>42</sub> N <sub>3</sub> BF <sub>4</sub> O <sub>4</sub>                                                                                            |
| IUPAC name:         | 3H-Indolium, 2-[5-(1,3-dihydro-1,3,3-trimethyl-2H-indol-2-ylidene)-1,3-pentadien-1-yl]-1-[6-[(2,5-dioxo-1-pyrrolidinyl)oxy]-6-oxohexyl]-3,3-dimethyl-, tetrafluoroborate |
| Solubility:         | very poorly soluble in water (0.19 mM = 127 mg/L), good in polar (DMSO, DMF) and chlorinated (DCM, chloroform) organic solvents                                          |
| Quality control:    | NMR <sup>1</sup> H, HPLC-MS (95%)                                                                                                                                        |
| Storage conditions: | Storage: 12 months after receipt at -20°C in the dark. Transportation: at room temperature for up to 3 weeks. Avoid prolonged exposure to light. Desiccate.              |

### Spectral properties

|                                            |        |
|--------------------------------------------|--------|
| Excitation/absorption maximum, nm:         | 646    |
| ε, L·mol <sup>-1</sup> ·cm <sup>-1</sup> : | 250000 |
| Emission maximum, nm:                      | 662    |

|                             |      |
|-----------------------------|------|
| Fluorescence quantum yield: | 0.2  |
| CF <sub>260</sub> :         | 0.03 |
| CF <sub>280</sub> :         | 0.04 |

Cy® is a trademark of Cytiva.