

AF 647 TCO

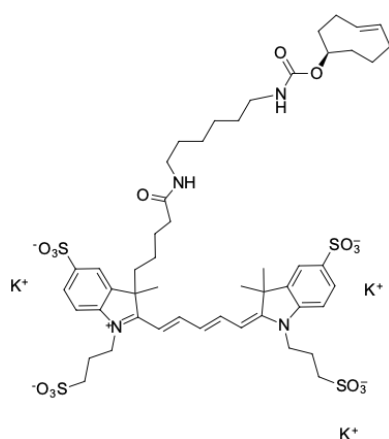
<http://www.lumiprobe.com/p/af-647-tco-axial>

AF 647 TCO is a derivative of the AF 647 fluorophore functionalized with trans-cyclooctene (TCO) for rapid and highly selective bioorthogonal conjugation to tetrazine-containing molecules.

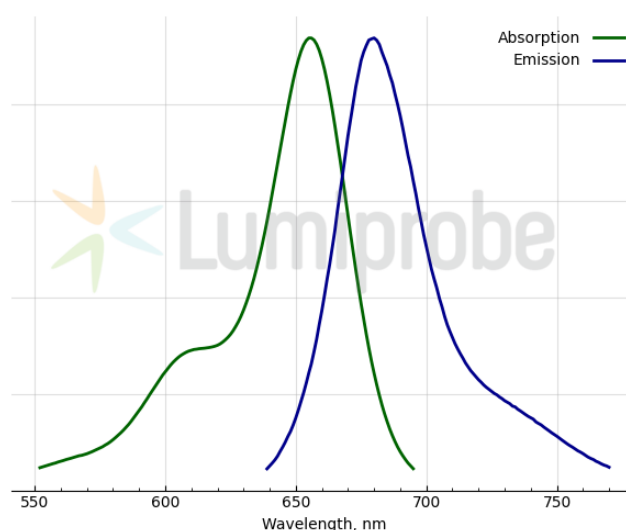
The dye belongs to the far-red spectral region and is characterized by high molar absorptivity, high quantum yield, and excellent photostability. AF 647 TCO delivers a bright fluorescent signal with excitation and emission maxima at 655/680 nm, making it fully compatible with standard 633–640 nm laser lines. Its emission is well separated from the yellow–green region and shows minimal overlap with tissue autofluorescence.

The TCO moiety undergoes a rapid inverse electron-demand Diels–Alder (IEDDA) reaction with tetrazines, enabling site-specific labeling of proteins and antibodies, conjugation to oligonucleotides and other biomolecules, as well as metabolic labeling in live cells.

Owing to the fast reaction kinetics and excellent biocompatibility of the IEDDA approach, AF 647 TCO is suitable for *in vitro* and *in cellulo* applications, including flow cytometry, widefield fluorescence microscopy, confocal microscopy, and super-resolution imaging.



Structure of AF 647 TCO



Absorption and emission spectra of AF 647

General properties

Appearance:	deep-blue powder
Molecular weight:	1209.66
Molecular formula:	$C_{50}H_{67}K_3N_4O_{15}S_4$
Solubility:	water, DMSO
Quality control:	NMR 1H and HPLC-MS (95+%)
Storage conditions:	24 months after receipt at $-20^\circ C$ in the dark. Transportation: at room temperature for up to 3 weeks. Desiccate.
Legal statement:	This Product is offered and sold for research purposes only. It has not been tested for safety and efficacy in food, drug, medical device, cosmetic, commercial or any other use. Supply does not express or imply authorization to use for any other purpose, including, without limitation, in vitro diagnostic purposes, in the manufacture of food or pharmaceutical products, in medical devices or in cosmetic products.

Spectral properties

Excitation/absorption maximum, nm:	655
ϵ , $L \cdot mol^{-1} \cdot cm^{-1}$:	191800

Emission maximum, nm:	680
Fluorescence quantum yield:	0.15
CF ₂₆₀ :	0.09
CF ₂₈₀ :	0.08