

## Product Information Sheet

### Ordering Information

Product Number:	986
Product Name:	ICG alkyne
Unit Size:	1 mg
Storage Conditions:	Freeze (<-15 °C), Desiccated, Avoid Light
Expiration Date:	12 months upon receiving

### Chemical and Spectral Properties

Appearance:	Solid
Molecular Weight:	768.03
Soluble In:	DMSO
Excitation Wavelength:	780
Emission Wavelength:	800

### Application Notes

Indocyanine green (ICG) is a tricarbocyanine-type dye with NIR-absorbing properties (peak absorption around 780 nm) and emission maximum at ~800 nm. This dye is also called Cardio Green and a few other less common trade names. The non-invasive near-infrared (NIR) fluorescence imaging dye ICG is approved by the FDA for ophthalmologic angiography to determine cardiac output and liver blood flow and function. Since infrared frequencies penetrate retinal layers, allowing ICG angiography to image deeper patterns of circulation than fluorescein angiography. ICG binds tightly to plasma proteins and becomes confined to the vascular system. ICG has a half-life of 150 to 180 seconds and is removed from circulation exclusively by the liver to bile juice. A recent study indicated ICG targets atheromas within 20 min of injection and provides sufficient signal enhancement for in vivo detection of lipid-rich, inflamed, coronary-sized plaques in atherosclerotic rabbits. Ex vivo fluorescence reflectance imaging showed high plaque target-to-background ratios in atheroma-bearing rabbits injected with ICG compared to atheroma-bearing rabbits injected with saline. It is also used in other medical diagnostics and cancer patients for the detection of solid tumors, localization of lymphnodes, and for angiography during reconstructive surgery, visualization of retinal and choroidal vasculature, and photodynamic therapy. In cancer diagnostics and therapeutics, ICG could be used as both an imaging dye and a hyperthermia agent. Little absorption in the visible range accounts for the low autofluorescence, tissue absorbance, and scattering at NIR wavelengths (700-900 nm). This ICG alkyne can be used to label azido (azide)-tagged biomolecules (like proteins, lipids, nucleic acids, sugars) chemoselectively via the well known click-chemistry.