

ICG-DOTA Succinimidyl Ester

Catalog Number: 257

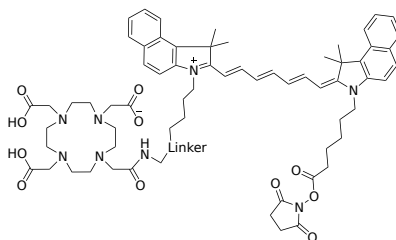
Unit Size: 1 mg

Product Details

Storage Conditions	Freeze (< -15 °C)
Expiration Date	12 months upon receiving

Chemical Properties

Appearance	Solid
Molecular Weight	1536.77
Soluble In	DMSO
Chemical Structure	



Spectral Properties

Excitation Wavelength	789 nm
Emission Wavelength	813 nm

Applications

ICG-DOTA Succinimidyl Ester is a dual-functional imaging probe that combines near-infrared (NIR) *in vivo* imaging with high-affinity radiometal chelation, enabling both optical and nuclear imaging for multimodal applications. This conjugate leverages the deep-tissue imaging capabilities of indocyanine green (ICG) and the versatile chelation properties of DOTA (1,4,7,10-tetraazacyclododecane-1,4,7,10-tetraacetic acid), making it ideal for fluorescence-guided imaging, positron emission tomography (PET), single-photon emission computed tomography (SPECT), and targeted radiotherapeutic applications.

The succinimidyl ester (SE) functional group facilitates efficient and selective conjugation to primary amines on biomolecules, forming stable amide linkages under physiological conditions while preserving biomolecular activity. The NIR fluorescence of ICG (Ex/Em = ~789/813 nm) enables deep-tissue penetration with minimal background autofluorescence, making it highly suitable for *in vivo* fluorescence imaging. Simultaneously, the DOTA moiety chelates a wide range of radiometals, forming thermodynamically stable and kinetically inert complexes with isotopes commonly used in molecular imaging and targeted radiotherapy. These include positron-emitting isotopes (e.g., ⁶⁴Cu for PET), gamma-emitting isotopes (e.g., ¹¹¹In for SPECT), and therapeutic radionuclides (e.g., ¹⁷⁷Lu, ⁹⁰Y) for targeted radiotherapy.

By integrating high-resolution fluorescence imaging with radiolabeling capabilities, ICG-DOTA Succinimidyl Ester provides a versatile platform for developing precision imaging agents, theranostic probes, and multimodal tracers. Its optimized bioconjugation chemistry, strong radiochemical stability, and NIR fluorescence properties make it a powerful tool for biomedical research and translational applications in oncology, molecular diagnostics, and targeted drug delivery.