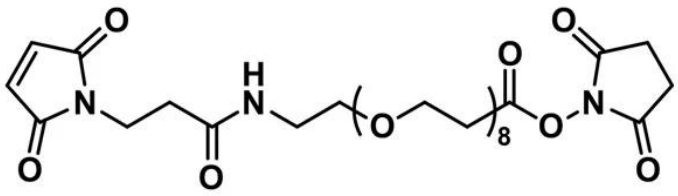
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MAL-DPEG®₈-NHS ESTER

SKU: QBD-10274



DESCRIPTION

MAL-dPEG®8-NHS ester, product number QBD-10274, is a crosslinker that joins a sulfhydryl to a free amine through a hydrophilic bridge. The sulfhydryl groups react with a maleimide group via a Michael addition reaction. The amines form amide bonds with the crosslinker by nucleophilic substitution of the N-hydroxysuccinimidyl (NHS) ester of a carboxylic acid group. The maleimide and NHS functional groups on the crosslinking compound sit at either end of a discrete-length polyethylene glycol chain (dPEG®).

Reactions that join free amines with free thiols are among the most popular, most useful crosslinking reactions in bioconjugate chemistry. These reactions require heterobifunctional reagents that bridge the two groups. Traditional crosslinkers are hydrophobic molecules. Vector Laboratories' dPEG® crosslinking products are water-soluble, amphiphilic, single molecular weight PEG compounds with discrete chain lengths.

The conjugation of conventional hydrophobic crosslinking reagents to biomolecules almost inevitably triggers problems such as aggregation and precipitation of the conjugates. These problems do not occur with our water-soluble, non-immunogenic dPEG® crosslinkers.

Because NHS esters hydrolyze readily in water or aqueous buffer, the NHS ester end of the molecule must conjugate to a target molecule before conjugating the maleimide end of the molecule. At pH 7.0 – 7.5, NHS esters react optimally with free amines. However, NHS esters can react with free amines with pH as low as 6.5. As the pH increases, the hydrolysis rate of the NHS ester increases. Indeed, at pH 8 and 25°C, the half-life of an NHS ester in aqueous media is one hour, while at pH 8.6 and 4°C, the half-life falls to ten (10) minutes.[3] Thus, we strongly

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discourage storing MAL-dPEG®8-NHS ester, product number QBD-10274, in water or aqueous buffer. Instead, we recommend that customers make new solutions of the product as needed, use them immediately, and discard unused solutions after use.

The reaction of the maleimide end of MAL-dPEG®8-NHS ester with a sulfhydryl proceeds optimally at pH 6.5 – 7.5. Use the lowest reasonable pH within this range. Above pH 7.5, free amines compete with free thiols at the maleimide reaction site, which can cause confusing results. Moreover, at higher pH values, the maleimide ring may open to form unreactive maleamic acid.

The use of MAL-dPEG®8-NHS ester has been published in numerous scientific papers and patents. The following list highlights some of the more important uses of this product:
development of molecular pincers;
development of fluorescent immunosensors for pathogenic bacteria;
crosslinking proteins to hydrogels;
development of antibody-drug conjugates (ADCs)
development of a detection methodology for single-stranded oligonucleotides;
crosslinking HIV-1 envelope proteins;
development of imaging applications;
development of immunoassays; and,
surface coating of nanoparticles.

SPECIFICATIONS

CAS Number	756525-93-6
Molecular Weight	689.71; single compound
Chemical Formula	$C_{30}H_{47}N_3O_{15}$
Purity	> 98%
Unit Size	100 mg, 1000 mg
Solubility	Methylene chloride, Acetonitrile, DMAC or DMSO.
Spacers	dPEG® Spacer is 34 atoms and 39.2 Å

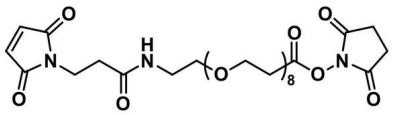
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Storage Instructions	-20°C; Always let come to room temperature before opening; be careful to limit exposure to moisture and restore under an inert atmosphere; stock solutions can be prepared with dry solvent and kept for several days (freeze when not in use). dPEG® pegylation compounds are generally hygroscopic and should be treated as such. This will be less noticeable with liquids, but the solids will become tacky and difficult to manipulate, if care is not taken to minimize air exposure.
Shipping Instructions	Ambient

DOCUMENTS

- Safety Data Sheet
- Datasheet

GALLERY IMAGES



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