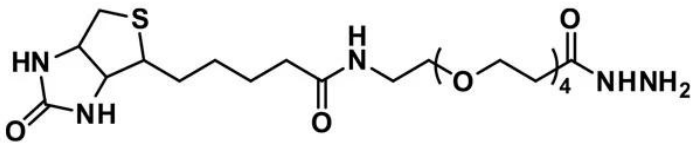
www.vectorlabs.com
Email: customerservice@vectorlabs.com
Telephone: (650) 697-3600

BIOTIN-DPEG®₄-HYDRAZIDE

SKU: QBD-10219



DESCRIPTION

Biotin-dPEG®4-hydrazide, product number QBD-10219, is a hydrophilic biotinylation reagent designed for labeling the carbohydrate coats of glycoproteins with biotin. The amphiphilic spacer provides excellent water solubility for poorly water-soluble biotin. Moreover, the dPEG®4 spacer is longer than the hydrophobic aminocaproic acid (LC) spacer used in biotin-LC-hydrazide, so it provides somewhat better access to the biotin binding pockets of avidin and streptavidin. Additionally, the dPEG®4 spacer reduces or eliminates non-specific binding in many applications.

Biotin-dPEG®4-hydrazide, QBD-10219, is a carbonyl-reactive compound that forms semi-permanent hydrazone bonds with aldehydes, ketones, and carboxylic acid groups. Although there are numerous natural small molecules containing aldehydes and ketones, macromolecules of biological importance (peptides, proteins, and nucleic acids) rarely contain them. However, glycosylated proteins such as antibodies frequently contain carbohydrate residues known as reducing sugars that can be oxidized with sodium periodate, neuraminidase, or galactose oxidase to form aldehydes.

The aldehydes thus formed then can be reacted with Biotin-dPEG®4-hydrazide at pH 5 – 7, labeling the protein with biotin through the formation of a Schiff base. Aniline or para-phenylenediamine catalyzes the reaction, forming the Schiff base quickly. For additional bond stability, sodium cyanoborohydride can be used to reduce the Schiff base to a secondary amine. Via carbodiimide chemistry (for example, 1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide, also known as EDC), Biotin-dPEG®4-hydrazide reacts with carboxylic acid groups forming a stable bond.

For research use only. Not intended for therapeutic or diagnostic use in animals or humans.

The amphiphilic dPEG®4 spacer in Biotin-dPEG®4-hydrazide provides the ability to use Biotin-dPEG®4-hydrazide directly in water or aqueous buffer, making it more biocompatible than LC-biotin. Moreover, QBD-10219 will not trigger protein or peptide aggregation or cause non-specific binding due to hydrophobicity issues from the linker, both of which can occur with traditional biotin linkers like LC-biotin.

Biotin-dPEG®4-hydrazide is highly useful for installing a biotin label onto glycoproteins. It is also used in cell labeling to label glycoproteins on cell surfaces. Biotinylated glycoproteins can be identified using streptavidin-horseradish peroxidase (HRP) conjugates, because of the high affinity between biotin and streptavidin. Biotinylated secondary antibodies are used frequently with avidin or streptavidin in plate-based assays such as ELISA and western blots. This reagent, coupled with avidin that has been modified to have reduced biotin-binding affinity, is for affinity purification of molecules.

SPECIFICATIONS

CAS Number	756525-97-0
Molecular Weight	505.63; single compound
Chemical Formula	$C_{21}H_{39}N_5O_7S$
Purity	> 98%
Unit Size	50 mg, 1000 mg
Solubility	DMAC, DMSO or water; it is not soluble in acetonitrile.
Spacers	dPEG® Spacer is 18 atoms and 20.6 Å
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

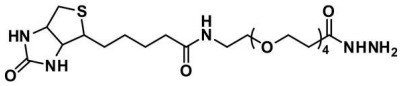
- Safety Data Sheet

For research use only. Not intended for therapeutic or diagnostic use in animals or humans.

www.vectorlabs.com
Email: customerservice@vectorlabs.com
Telephone: (650) 697-3600

- Datasheet

GALLERY IMAGES



For research use only. Not intended for therapeutic or diagnostic use in animals or humans.