

NHS-Acetate

Product Description

Catalog Number:	UP69380A, 100mg	UP69380B, 50mg
Name :	SulfoSuccinimidyl-Acetate (SulfoNHS -Acetate)	
Formula :	C ₆ H ₆ O ₇ NSNa, M.W.=259.17	
Storage :	+4°C (L)	

General Considerations

Uptima offers a whole range of labeling and crosslinking reagents for biomolecules, especially proteins. In some cases, biomolecules should be modified prior to labelling or conjugation.

SulfoNHS-acetate is an easy to use reagent to block amines presents on biomolecules, when this chemical group is undesired for other reactions, or for example when the ionic charge of the biomolecule should be lowered. Amines are acylated in physiological conditions. The grafted blocking group 'acetate' is a relatively small group, showing limited steric hindrance. It is also used as a derivatization agent before GC analysis.

Scientific and Technical Information

- The **sulfonyl** moiety (NaSO₃) introduces a hydrophilic group that allows the product not to cross biological membranes. This is particularly useful to modify, in situ on cells, proteins presented outside membranes, and if one wants to avoid the biotinylation of intracellular proteins that may affect further analysis, or may affect the cell metabolism. An other interest of the sulfonyl group is to permit the solubilisation of the product directly in aqueous buffers, up to 10mM, avoiding the use of organic solvents like DMSO or DMF, that are possibly nocive to cells or applications.

sNHS-Acetate can be dissolved directly in distilled water (this solution should be used immediately), or added directly to the proteic solution (buffer of biotinylation). Uptima recommends not to store the stock solution, because the product is readily subject to hydrolysis. A limited storage may be obtained when using high quality anhydrous DMSO under argon or nitrogen gaz at -20°C.

- The chemical group **N-hydroxysuccinimidyl** (NHS) reacts in aqueous phase on primary (-NH₂) and secondary amines (=NH-) (in fact on its deprotonated form), optimally at neutral pH or higher : amines present in proteins (Lys aminoacid) and in a lower proportion on NH₂ located in terminal peptidic chains. The reaction competes with hydrolysis, that increases with pH, and with the high dilutions of the molecule that should be biotinylated.
- The possible conditions of the **esterification** reaction are various. The ratio of reagent to biomolecule should be determined in each application. As starting guidelines, A/conditions for protein amine blocking are usually incubation of 1-10mg/ml of proteins during 1H at room emperature in a neutral buffer, like PBS (NaCl 150mM, phosphate 20mM, pH7.4), or carbonate (but not in Tris buffers). Amine containing (i.e. Tris) buffers should be avoided. B/a ratio of 3 or more NHS-acetate per available amine should derivatize amines completely. Acetylated amines may then be detected by GC analysis.

It is usually necessary to remove by-products after labelling (excess of NHS-biotin, free biotin and NHS). This is advantagegely performed by dialysis against PBS+NaN₃ 0.01% (Use CelluSep membranes).

The level of acetylation can be estimated by dosing remaining amines, i.e. by the OPA method (product #UP02727A).

For use in vitro only, not for diagnostic.

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