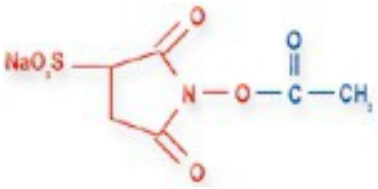
FT-69380A

NHS-Acetate & Amine modifiers

Products Description

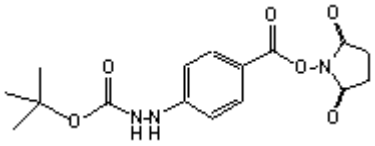
Cat.Nbr: **UP69380A**, 100mg **UP69380B**, 50mg

Name : **SulfoNHS-Acetate**
SulfoSuccinimidyl-Acetate
M.W.=259.17



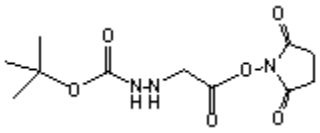
● Amino reactive through NHS group protected amino group.

Cat.Nbr: **BI1431**, 100mg
Name : **Succinimidyl-4-[2-(tert-butoxycarbonyl)hydrazino]benzoate**
M.W.=349.34



● Amino reactive heterobifunctional crosslinking reagent with latent hydrazino group.
● Modification of chromatographic supports (Millington, C.R., et.al. (1998) Tet Lett. 39, 7201)
● Hydrazino unmasked with TFA, HCl, or formic acid.

Cat.Nbr: **BI1441**, 50mg
Name : **Succinimidyl-4-[2-(tert-butoxycarbonyl)hydrazino]acetate**
M.W.=287.27



● Amino reactive heterobifunctional crosslinking reagent with latent hydrazino group.
● Hydrazino unmasked with TFA, HCl, or formic acid.

Cat.Nbr: **BI1451**, 500mg
Name : **6-(N-t-BOC)caproic acid NHS**
M.W.=328.36

● Amino reactive tether with protected amino group.
● Amino group unmasked with formic acid (25 °C/20 min).

Cat.Nbr: **L7741A**, 50mg **L7741C**, 500mg
Name : **Methyl N-succinimidyl adipate**
M.W.=257.24
Spacer Arm length: 7.2 Å.

● Amino reactive with latent carboxylate group.
● Carboxyl unmasked at pH 9.5, phosphate buffer.

Storage : +4°C (L)

Other amino group modifiers: see related products

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 labeling 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 graffted blocking group 'acetate' is a relatively small group, showing limited steric hindrance. It is also used as a derivatization agent before GC analysis.

Several analogs are available, which add stable group that can be removed in special conditions (useful i.e. in organic sysnthesis). See related products for reagents used to protect amino-group with deprotection in mild conditions (i.e. SATA).

Scientific and technical Information

- The **sulfonyl** moeity (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 membrans, 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 aquous buffers, up to 10mM, avoiding the use of organic solvants 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 short 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 aquous 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.

As starting guidelines, conditions for protein amine blocking are :

- 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.
- a ratio of 3 or more NHS-acetate per available amine should derivatize amines completely. The ratio of reagent to biomolecule should be determined in each application.

It is usually necessary to remove by-products after labelling (excess of reagent and NHS by-product). This is achieved i.e. performing dialysis against PBS+NaN3 0.01% (Use CelluSep membranes) or by gelfiltration. See related products.

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

Other Information

For use in vitro only, not for diagnostic.

Related / associated products and documents

See BioSciences Innovations catalogue and e-search tool.

*Other amino group modifyers:
▪2-Iminothiolane (**Traut's reagent**) #UP42425A
Converts amino group to protected sulfhydryl group
▪N-succinimidyl S-acetylthioacetate hydrochloride (**SATA**) #UP84235A
Converts amino group to protected sulfhydryl group that can be deprotected in mild conditions
▪N-succinimidyl S-acetylthiopropionate (**SATP**) #UPM1175B
Analog of SATA, with a 4.1A spacer.
▪ 6-(N-trifluoroacetyl)caproic acid NHS (**TFCS**) #L7727B
Convert amino group in protected amino group that can be unmasked at pH 7.8-8.1
▪Succinimidyl-p-formyl-benzoate (**SFB**) #M11771
Converts amino group in CHO group
▪Labeling amino groups:
conversion of amine in biotin tether (labeling), i.e. NHS-Biotins (52117A) and hydrophilic versions NHS-PEO-Biotins (R2027A), or to fluorescent moiety, i.e. NHS-FluoProbes

▪Heterobifunctional crosslinkers:
convertion of amino group in sulfhydryl group, i.e. NHS-PEO-MAL (AL6581) and SMCC (17412A) , in photoActivable group, i.e. SCBP #BI1361,...
▪tris-Succinimidyl aminotriacetate (TSAT) #L7962A (tri functional amine reactive agent)

Reagents to modify sulfhydryls:
▪Pyridine dithioethylamine hydrochloride (PDA) #BI1321 (converts sulfhydryl group in amino group)
▪MAL-Biotins (48198A) (activated by Maleimide, Pyridylthio, IA) and hydrophilic versions MAL-PEOx-Biotins (R2028A).

*Desalting tools: ▪CelluSep dialysis tubings ▪Desalting gelfiltration columns #UP84874

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