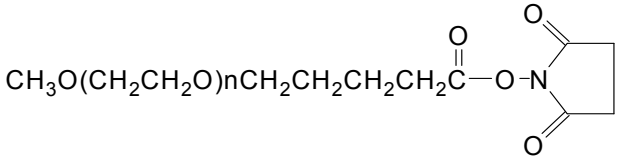
Methoxy poly(ethylene glycol) succinimidyl valerate (mPEG-SVA)



The succinimidyl valerate is an active ester used for the PEGylation of primary amines. The reaction of the SVA with an amine forms a stable amide linkage. This reaction may be performed in an organic solution with a base catalyst or may be performed in an aqueous solution at a pH range of 8 to 9. The reaction should be allowed to mix for a minimum of 4 hours. By tailoring the pH of a reaction, the selectivity for the PEGylation of a specific site is increased.

Hydrolysis half-lives at pH 8, 25°C

PEG NHS Ester	**Ester (Symbol)**	**Half-life (minutes)**
PEG-O-$CH_2CH_2CH_2CH_2$-CO_2-NHS	Succinimidyl Valerate (SVA)	33.6
PEG-O-CO_2-NHS	Succinimidyl Carbonate (SC)	20.4
PEG-O_2C-$CH_2CH_2CH_2$-CO_2-NHS	Succinimidyl Glutarate (SG)	17.6
PEG-O_2C-CH_2CH_2-CO_2-NHS	Succinimidyl Succinate (SS)	9.8
PEG-O-CH_2-CO_2-NHS	Succinimidyl Carboxymethyl (SCM)	0.75
PEG-O-CH_2 CH_2-CO_2-NHS	Succinimidyl Propionate (SPA)	16.5

Comparison of reactivity of various PEG reagents as measured by hydrolysis half-lives at pH 8, 25°C, measured by UV absorbance of the hydrolyzed succinimidyl (NHS) group. Aminolysis rates parallel hydrolysis rates.

PEG-O-$CH_2CH_2CH_2CH_2$-CO_2-NHS	Succinimidyl Valerate (SVA)	pH	Temp	Half Life
		8.0	25C	33.6 minutes
		8.5	25C	9.8 minutes
		9.0	25C	3.1 minutes
		10.0	25C	~56 seconds

This product is also available in other molecular weights as a custom synthesis.

Laysan Bio also offers the SVA in a bi-functional reagent (SVA-PEG-SVA) and in several heterobifunctional reagents.