

Heterobifunctional crosslinkers

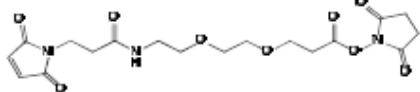
MAL-PEO_x-NHS

Products Description

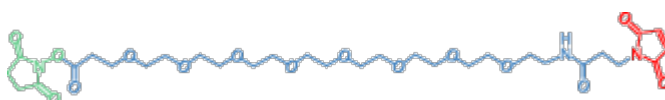
Unique heterobifunctional crosslinkers, joining NH and SH reactivities with great PEO spacer !

PEO_x products are also called BS(PEG_x) and Maleimide-dPEG_x-Succinimidyl.

Catalog #: BZ0981, 100mg BZ0983, 1g	AL6581, 100mg AL6583, 1g	RJ1851, 100mg RJ1853, 1g
Name: MAL-PEO ₂ -NHS	MAL-PEO₄-NHS	MAL-PEO₆-NHS
MW: 425.39	MW: 513.51	MW: 601.60
Spacer 17.7 Å (16atoms)	Spacer 24.8 Å (22 atoms)	Spacer 31.7 Å (28atoms)
CAS: 955094-26-5	CAS: 756525-99-2	CAS: 1137109-21-7



Catalog #: BH9851, 100mg
Name: MAL-PEO ₈ -NHS
MW : 689.71
Spacer 39.2 Å (34 atoms)
CAS: 756525-93-6



Catalog #: BH9861, 100mg
Name: MAL-PEO ₁₂ -NHS
MW : 865.92
Spacer 53.3 Å (46 atoms)
CAS: 756525-92-5



Catalog #: RJ1861, 100mg RJ1863, 1g	RJ1871, 100mg RJ1873, 1g	RJ1881, 100mg RJ1883, 1g
Name: MAL-PEO ₂₀ -NHS	MAL-PEO₂₄-NHS	MAL-PEO₃₆-NHS
MW : 1218.34	MW : 1394.55	MW : 1932.18
Spacer 82.0 Å (70atoms)	Spacer 95.2 Å (82atoms)	Spacer 139.7 Å (117atoms)
	CAS: 756525	

Storage: -20°C(L)

.Features:

- **amine and sulfhydryl reactive** crosslinker
- **PEO spacer** confers several advantages over classic spacers, conferring better hydrophilicity to the final conjugate:

Increases water solubility of crosslinker and of conjugates*

Increases stability*: **reduced aggregation** of conjugates

Increases biocompatibility*: **non-immunogenic, non-toxic**

Increases availability *: conjugate more hydrophilic and bioactive

Reduces non-specific binding on surfaces

Perfectly defined unique structure (discrete PEG)

.Applications:

preparation of protein-protein conjugates:

. antibody-enzyme for immunoassays

. hapten-carrier for immunization and screening (f)

*:of conjugates or conjugates/ligands complexes

[Directions for use](#)

[Technical and Scientific information](#)

Contact your local distributor

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Directions for use

Protocol 1: coupling a protein to a protein

MAL-PEO_x-NHS crosslinkers are expected to behave chemical reactivity like conventional sulfo-SMCC, sulfo-EMCS, etc. So they can be used in a similar way, but with the benefits of their more hydrophilic properties.

- See the technical sheet [FT-17412A](#) for protocols, or the literature:

Hermanson, Greg T, "Bioconjugate Techniques", Academic Press, Inc., San Diego, CA, 1996.

Use protocol on pages 228-248, and specifically, the sample protocol for sulfo-SMCC on pages 236-237.

Technical and Scientific Information

- **Purity:** Uptima provides products with highest available purity. The material has however a small percentage of ethyl acetate (about 10%). Being as viscous as the product is, this allows the material to be handled as a "liquid.". Assume density of 1.0 (this should be close enough to reality taking in consideration this material is going to be used in excess (sure, we don't determine densities routinely)).
- **Dissolution :** The material (PEO_x) is moderately water soluble, so we recommend for convenient working concentration to dissolve the maleimide-PEO-NHS, with dimethylacetamide (DMAC), or alternatively DMF or DMSO. Higher PEO length is, less this recommendation applies because of higher water solubility.
- The chemical group **N-hydroxysuccinimide (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 derivatized.
- The **spacer arm** of the different cross-linkers from this technical sheet are all based on PolyEthylOxy (PEO) (= PolyEthylGlycols: PEG) structure that confers hydrophilicity to the agent and to the formed conjugate. Different lengths are available, increasing the hydrophilicity, and the flexibility of the spacer. The spacer-mediated hydrophilicity is a superior alternative to sulfonyl moiety derivatives of NHS that do not confer hydrophilicity to the final conjugate (sulfonyl being released upon conjugation).
- The **maleimide** group reacts very specifically with sulfhydryls –SH at neutral pH 6.5-7.5, in comparison to iodoacetamides that react also with tyr, his, met. The reaction is rapid (a few minutes for cysteine), but in the absence of –SH, maleimide stay well stable. In usual conditions, one should start with a ratio of 10-20 moles of maleimide per mole of protein. With SH-peptides, a molar 1:1 incubation ratio allows almost 1:1 coupling. note: Hydrolysis forming maleimic acid may compete significantly when pH go up 8.0, where the reactivity with amines begins to be possible. Then pH higher than 8.5 could affect conjugate stability, or a nucleophilic reaction with an adjacent amine can ring-open to yield crosslinked products.

References:

Hermanson, Greg T, "Bioconjugate Techniques", Academic Press, Inc., San Diego, CA, 1996.

Other Information

Related / associated products

-Other crosslinkers

- Homobifunctional crosslinkers: NHS-NHS reagents, i.e. NHS-PEO-NHS and DSS #[54940A](#)
- Homobifunctional crosslinkers: MAL-MAL reagents, i.e. MAL-PEO-MAL and BMOE #[L7736A](#)
- PhotoActivable (PA) crosslinkers: SH and PA reactive i.e. SCBP #[B11361](#)...

-Useful [modifiers](#) and other conjugation technologies:

- SATA #84235A, Iminothiolane #[42425A](#) • SMCC-hydrazide #[B11281](#) • Hydrazone chemistry modifiers (SANH #[BL9270](#), MHPH #BL9401)
- See more in the [BioSciences Innovations catalogue](#) and [e-search tool](#).

For in vitro R&D use only

Please contact Uptima – Interchim for any other information

Contact your local distributor

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