CLICK CHEMISTRY

Three Generations

Le Click C'est Chic

Discover building blocks suitable for 1st, 2nd and 3rd generation Click chemistry – for *in vitro* and *in vivo* applications. Choose one and click it as simply as doing a jigsaw puzzle.

pages 1, 2

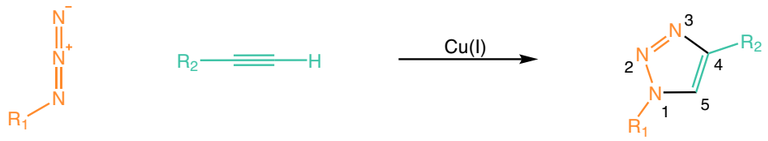
Version: IF4_3

Click Chemistry

Three Generations

1st Generation Click Chemistry: CuAAC

Alkynes and azides can undergo a Cu(I)-catalyzed azide-alkyne 1,3-dipolar cycloaddition (CuAAC) to afford 1,4-disubstituted 1,2,3-triazoles. Developed by K. Barry Sharpless and Morton Meldal, this type of chemical transformation was quickly dubbed “Click Chemistry”. This reaction has found broad applicability in various fields and is as such currently the most widely used conjugation technique.



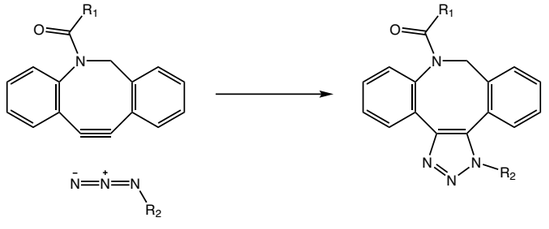
The copper-catalyzed azide-alkyne cycloaddition affords the 1,4 disubstituted isomer.

Worth noting is the fact that ruthenium is also able to catalyze a 1,3-dipolar cycloaddition between an azide and an alkyne affording the 1,5-disubstituted regioisomer instead.

However, the presence of copper limits *in vivo* applications due to high cell toxicity, undesired oxidation of proteins and the inhibition of luminescence properties of nanocrystals.

2nd Generation Click Chemistry: SPAAC

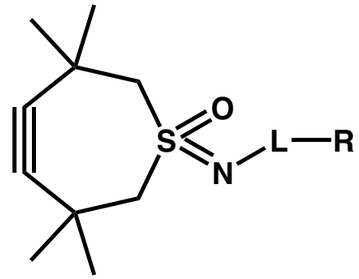
The so-called strain-promoted azide-alkyne cycloaddition (SPAAC) is widely utilized as copper-free click reaction in a broad range of research fields. However, when using cyclooctynes, their high reactivity comes with the drawback of causing thermal decomposition and/or oligomerization during storage and experimental handling. Furthermore, competitively occurring addition reaction with biological thiols, e.g. cysteine residues in proteins or peptides, diminish their biorthogonality. In contrast, the relatively new developed 4,8-diazacyclononynes (DACNs) possess high thermal and chemical stability while showing high reactivity and increased hydrophilicity as well as high selectivity towards ynophiles.



Schematic illustration of SPAAC.

CliCr®

A superior class of reagents for metal-free click strain promoted conjugation with azides is based on CliCr®, which is based on the small-molecule TMTH-sulfoximine (TMTHSI). The 7-membered CliCr® ring can be conveniently functionalized with a variety of linkers, e.g. *via* acylation, sulfonylation, N-alkylation, or carbamoylation. Hence, CliCr® reagents can be used in diverse application, for example for the construction of Antibody-Drug Conjugates (ADCs), for *ex vivo* cell modification (e.g. CAR-T), for small molecule-drug conjugates, for oligonucleotide conjugates as well as for diagnostic labelling of a variety of agents.



Chemical structure of the CliCr® base compound and its derivatization possibilities.

Key benefits are its fast reactivity and increased yield, its hydrophilicity compared to other metal-free click reagents combined with its small size as well as its broad compatibility.

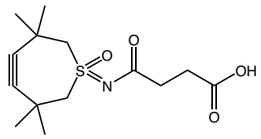
		Product details
RL-4180	**CliCr® base compound** **TMTH-Sulfoximine** CAS-No. 2408481-82-1 Formula $C_{10}H_{17}NOS$ Mol. weight 199,31 g/mol	
RL-4190	**CliCr®-beta-Ala-NH_2*TFA** **TMTH-sulfoximine beta-alanine amide TFA salt** Formula $C_{13}H_{22}N_2O_2S*CF_3COOH$ Mol. weight 270,39*114,02 g/mol	

Product details

RL-4200 CliCr®-Suc

TMTH-sulfoximine succinic acid

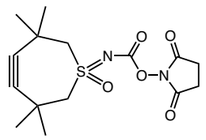
CAS-No.	2479971-29-2
Formula	$C_{14}H_{21}NO_4S$
Mol. weight	299,39 g/mol



RL-4330 CliCr®-Osu

TMTH-sulfoximine succinimidyl ester

CAS-No.	2408481-89-8
Formula	$C_{15}H_{20}N_2O_5S$
Mol. weight	340,39 g/mol



References:

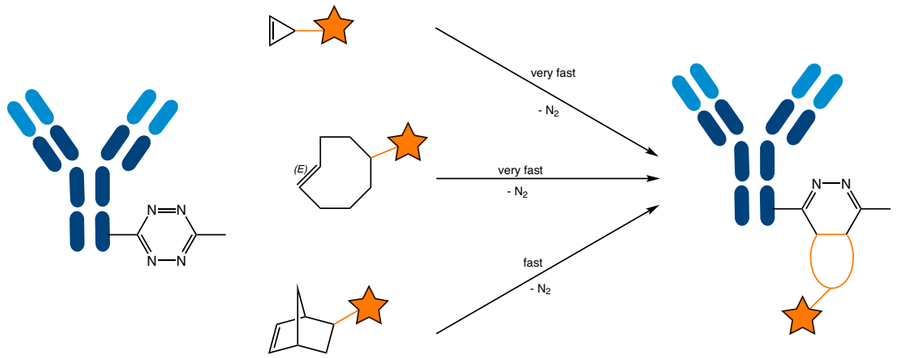
- *TMTHSI, a superior 7-membered ring alkyne containing reagent for strain-promoted azide-alkyne cycloaddition reactions; J. Weterings, C. J. F. Rijcken, H. Veldhuis, T. Meulemans, D. Hadavi, M. Timmers, M. Honing, H. Ippel, R. M. J. Liskamp; **Chem. Sci.** 2020; **11**: 9011-9016. https://doi.org/10.1039/d0sc03477k*
- *Exploring the Chemical Properties and Medicinal Applications of Tetramethylthiocycloheptyne Sulfoximine Used in Strain-Promoted Azide–Alkyne Cycloaddition Reactions; M. Timmers, A. Kipper, R. Frey, S. Notermans, M. Voievudskyi, C. Wilson, N. Hentzen, M. Ringle, C. Bovino, B. Stump, C. J. F. Rijcken, T. Vermonden, I. Dijkgraaf, R. Liskamp; **Pharmaceuticals** 2023; **16**: 1155. https://doi.org/10.3390/ph16081155*
- *Specific N-terminal attachment of TMTHSI linkers to native peptides and proteins for strain-promoted azide alkyne cycloaddition; M. Timmers, W. Peeters, N. J. Hauwert, C. J. F. Rijcken, T. Vermonden, I. Dijkgraaf, R. M. J. Liskamp; **Chem. Commun.** 2023; https://doi.org/10.1039/d3cc03397j*

You need more information about the CliCr® technology?

Watch the recording of our online workshop!

3rd Generation Click Chemistry: IEDDA

Tetrazine ligation represents the option for a copper-free, rapid, and fully biorthogonal type of Click chemistry. Mechanistically, this reaction proceeds *via* an inverse electron-demand Diels-Alder (IEDDA) cycloaddition reaction between a tetrazine and a strained alkene, such as a *trans*-cyclooctene (TCO), cyclopropane or norbornene, followed by a retro-Diels-Alder reaction under elimination of N2, the latter rendering the reaction irreversible. As additional benefit, this reaction excels at very low concentrations and can be performed in aqueous media.

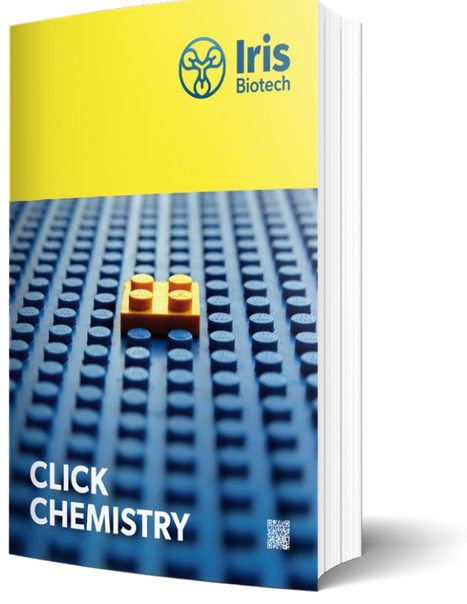


Common reaction partners for tetrazines.

There are two main types of tetrazines that are widely applied: 6-Methyl-substituted tetrazines (MeTz) and 6-hydrogen-substituted tetrazines (HTz). MeTz exhibit a high stability while still offering faster reaction kinetics with TCO derivatives than any other biorthogonal reaction pairs (approx. 1000 $M^{-1}s^{-1}$). HTzs show lower stability and less tolerance to harsh reaction conditions but offer even faster reaction kinetics (up to 30000 $M^{-1}s^{-1}$) for applications like *in vivo* imaging.

For more detailed information on traditional and copper-free Click conjugation, please see our brochure Click Chemistry.

Free Download is available on our website!



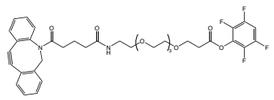
DBCO derivatives

Product details

PEG6740 DBCO-PEG(4)-TFP

Dibenzoazacyclooctyne-tetra(ethylene glycol)-propionyl 2,3,5,6-tetrafluorophenol ester

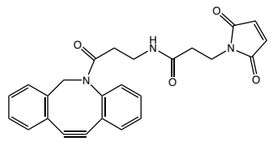
Formula $C_{37}H_{38}F_4N_2O_8$
Mol. weight 714,7 g/mol



RL-2490 DBCO-mal

Dibenzoazacyclooctyne-maleimide

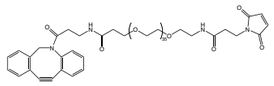
CAS-No. 1395786-30-7
Formula $C_{25}H_{21}N_3O_4$
Mol. weight 427,45 g/mol



PEG6785 DBCO-PEG(36)-MAL

Dibenzoazacyclooctyne-36(ethylene glycol)-maleimide

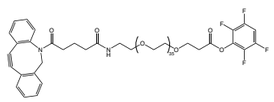
Formula $C_{100}H_{170}N_4O_{41}$
Mol. weight 2084,45 g/mol



PEG6765 DBCO-PEG(36)-TFP

Dibenzoazacyclooctyne-36(ethylene glycol)-propionyl 2,3,5,6-tetrafluorophenol ester

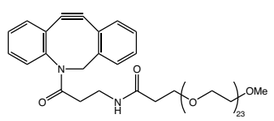
Formula $C_{101}H_{166}F_4N_2O_{40}$
Mol. weight 2124,41 g/mol



PEG7460 DBCO-PEG(24)-OMe

alpha-Methoxy-24(ethylene glycol)-amido-dibenzoazacyclooctyne

Formula $C_{68}H_{114}N_2O_{26}$
Mol. weight 1375,63 g/mol

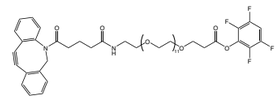


Product details

PEG6750 DBCO-PEG(12)-TFP

Dibenzoazacyclooctyne-dodeca(ethylene glycol)-propionyl 2,3,5,6-tetrafluorophenol ester

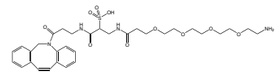
Formula $C_{53}H_{70}F_4N_2O_{16}$
Mol. weight 1067,12 g/mol



RL-2421 DBCO-Sulfo-PEG(4)-NH_2

Dibenzoazacyclooctyne-tetra(ethylene glycol)amine

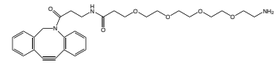
CAS-No. 2055198-05-3
Formula $C_{32}H_{42}N_4O_{10}S$
Mol. weight 674,76 g/mol



RL-2420 DBCO-PEG(4)-NH_2*TFA

Dibenzoazacyclooctyne-tetra(ethylene glycol)-amine trifluoro acetic acid salt

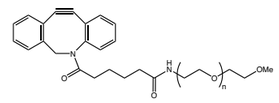
CAS-No. 1255942-08-5 net
Formula $C_{29}H_{37}N_3O_6*C_2F_3HO_2$
Mol. weight 523,62*114,02 g/mol



RL-2550 DBCO-mPEG (20kDa)

alpha-Dibenzoazacyclooctyne-omega-methoxy-poly(ethylene glycol)

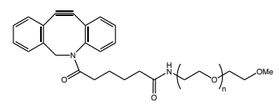
CAS-No. 2262541-53-5
Mol. weight 20000 Da



RL-2540 DBCO-mPEG (10kDa)

alpha-Dibenzoazacyclooctyne-omega-methoxy-poly(ethylene glycol)

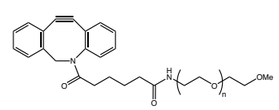
CAS-No. 2262541-53-5
Mol. weight 10000 Da



RL-2530 DBCO-mPEG (5kDa)

alpha-Dibenzoazacyclooctyne-omega-methoxy-poly(ethylene glycol)

CAS-No. 2262541-53-5
Mol. weight 5000 Da

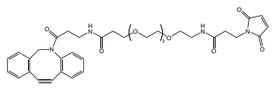


Product details

RL-2500 DBCO-PEG(4)-mal

Dibenzoazacyclooctyne-tetra(ethylene glycol)-maleimide

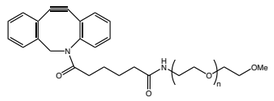
CAS-No. 1480516-75-3
Formula $C_{36}H_{42}N_4O_9$
Mol. weight 674,74 g/mol



RL-2560 DBCO-mPEG (30kDa)

alpha-Dibenzoazacyclooctyne-omega-methoxy-poly(ethylene glycol)

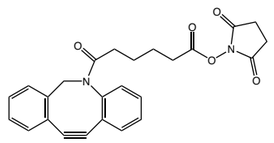
CAS-No. 2262541-53-5
Mol. weight 30000 Da



RL-2440 DBCO-NHS

Dibenzoazacyclooctyne-carboxylic acid succinimidyl ester

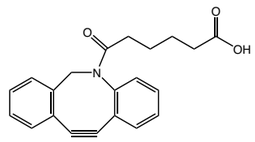
CAS-No. 1384870-47-6
Formula $C_{25}H_{22}N_2O_5$
Mol. weight 430,45 g/mol



RL-2430 DBCO-COOH

Dibenzoazacyclooctyne-carboxylic acid

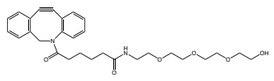
CAS-No. 1425485-72-8
Formula $C_{21}H_{19}NO_3$
Mol. weight 333,38 g/mol



RL-2510 DBCO-PEG(4)-OH

Dibenzoazacyclooctyne-tetra(ethylene glycol)

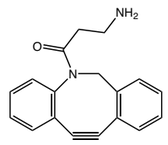
CAS-No. 1416711-60-8
Formula $C_{29}H_{36}N_2O_6$
Mol. weight 508,61 g/mol



RL-2120 DBCO-NH_2

Dibenzocyclooctyne-amine

CAS-No. 1255942-06-3
Formula $C_{18}H_{16}N_2O$
Mol. weight 276,33 g/mol

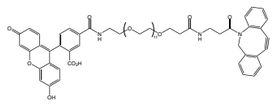


Product details

PEG6830 DBCO-dPEG(12)-(5)6-carboxyfluorescein

Dibenzoazacyclooctyne-dodeca(ethylene glycol)-(5)6-carboxyfluorescein

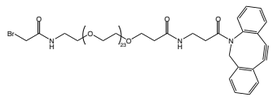
Formula $C_{46}H_{39}N_3O_{10}$
Mol. weight 1234,34 g/mol



PEG6810 Bromoacetamido-PEG(24)-DBCO

Bromoacetamido-24(ethylene glycol)-amido-dibenzoazacyclooctyne

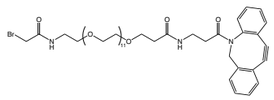
Formula $C_{71}H_{118}BrN_3O_{27}$
Mol. weight 1525,6 g/mol



PEG6800 Bromoacetamido-PEG(12)-DBCO

Bromoacetamido-dodeca(ethylene glycol)-amido-dibenzoazacyclooctyne

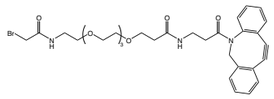
Formula $C_{47}H_{70}BrN_3O_{17}$
Mol. weight 996,97 g/mol



PEG6790 Bromoacetamido-PEG(4)-DBCO

Bromoacetamido-tetra(ethylene glycol)-amido-dibenzoazacyclooctyne

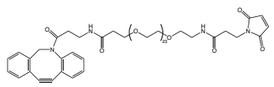
Formula $C_{31}H_{38}BrN_3O_7$
Mol. weight 644,55 g/mol



PEG6780 DBCO-PEG(24)-MAL

Dibenzoazacyclooctyne-24(ethylene glycol)-maleimide

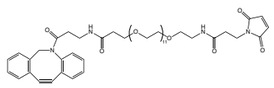
Formula $C_{76}H_{122}N_4O_{29}$
Mol. weight 1555,79 g/mol



PEG6770 DBCO-PEG(12)-MAL

Dibenzoazacyclooctyne-dodeca(ethylene glycol)-maleimide

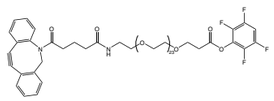
CAS-No. 2011777-01-6
Formula $C_{52}H_{74}N_4O_{17}$
Mol. weight 1027,16 g/mol



Product details

PEG6760 DBCO-PEG(24)-TFP

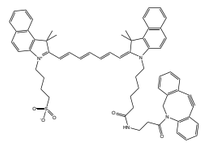
Dibenzoazacyclooctyne-24(ethylene glycol)-propionyl 2,3,5,6-tetrafluorophenol ester



CAS-No. 2754372-40-0
Formula $C_{77}H_{118}F_4N_2O_{28}$
Mol. weight 1595,75 g/mol

RL-2870 ICG-DBCO

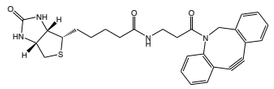
Indocyanine green dibenzoazacyclooctyne



Formula $C_{63}H_{64}N_4O_5S$
Mol. weight 989,27 g/mol

LS-4270 Biotin-DBCO

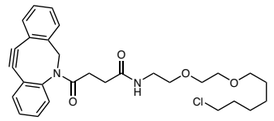
(3aS,4S,6aR)-N-[3-(11,12-Didehydrodibenz[b,f] azocin-5(6H)-yl)-3-oxopropyl]hexahydro-2-oxo-1H-thieno[3,4-d]imidazole-4-pentanamide



CAS-No. 1418217-95-4
Formula $C_{28}H_{30}N_4O_3S$
Mol. weight 502,63 g/mol

RL-3670 Halo-DBCO

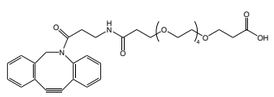
N-[2-[2-[(6-chlorohexyl)oxy]ethoxy]ethyl]-gamma-oxo-dibenz[b,f]azocine-5(6H)-butanamide



CAS-No. 1808119-16-5
Formula $C_{29}H_{35}ClN_2O_4$
Mol. weight 511,06 g/mol

RL-2450 DBCO-PEG(5)-COOH

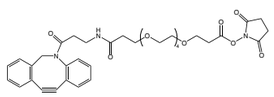
Dibenzoazacyclooctyne-penta(ethylene glycol)-propanoic acid



Formula $C_{32}H_{40}N_2O_9$
Mol. weight 596,67 g/mol

RL-2460 DBCO-PEG(5)-NHS

Dibenzoazacyclooctyne-penta(ethylene glycol)-propanoic acid succinimidyl ester

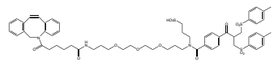


CAS-No. 1378531-80-6
Formula $C_{36}H_{43}N_3O_{11}$
Mol. weight 693,74 g/mol

Product details

RL-2480 DBCO-PEG(3)-BisSulfonThiol-Linker

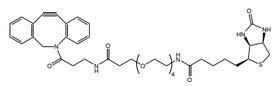
Dibenzoazacyclooctyne-PEG(3)-BisSulfon-Thiol-Linker



Formula $C_{59}H_{69}N_3O_{14}S_3$
Mol. weight 1140,39 g/mol

RL-2520 Biotin-PEG(4)-DBCO

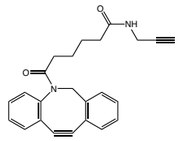
Dibenzoazacyclooctyne-tetra(ethylene glycol)-biotin



CAS-No. 1255942-07-4
Formula $C_{39}H_{51}N_5O_8S$
Mol. weight 749,92 g/mol

RL-4020 DBCO-C6-Alkyne

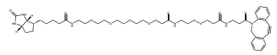
N-(propargylamidoadipoyl)-dibenzoazacyclooctyne



Formula $C_{24}H_{22}N_2O_2$
Mol. weight 370,45 g/mol

PEG8120 Biotin-PEG(4)-SS-DBCO

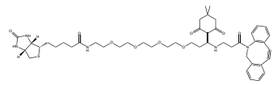
N-(2-((3-(3-(azadibenzocyclooctyn-1-yl)-3-oxopropylamino)-3-oxopropyl)disulfanyl)ethyl)-1-(5-((3aS,4S,6aR)-2-oxohexahydro-1H-thieno[3,4-d]imidazol-4-yl)pentanamido)-3,6,9,12-tetraoxapentadecan-15-am ide



Formula $C_{44}H_{60}N_6O_9S_3$
Mol. weight 913,18 g/mol

PEG8140 Biotin-PEG(4)-Dde-DBCO

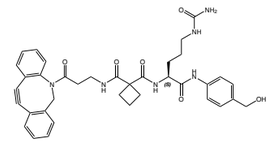
N-(15-(4,4-dimethyl-2,6-dioxocyclohexylidene)-19-oxo-19-(azadibenzocyclooctyn-1-yl)-3,6,9,12-tetraoxa-16-azanonadecyl)-5-((3aS,4S,6aR)-2-oxohexahydro-1H-thieno[3,4-d]imidazol-4-yl)pentanamide



CAS-No. 1807512-43-1
Formula $C_{47}H_{61}N_5O_9S$
Mol. weight 872,08 g/mol

ADC1520 DBCO-cyclobutane-1,1-dicarboxamide-Cit-PAB

dibenzoazacyclooctyne-cyclobutane-1,1-dicarboxamide-citrullyl-(4-aminobenzyl alcohol)

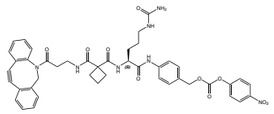


CAS-No. 2576471-51-5
Formula $C_{37}H_{40}N_6O_6$
Mol. weight 664,75 g/mol

Product details

ADC1530 DBCO-cyclobutane-1,1-dicarboxamide-Cit-PAB-PNP

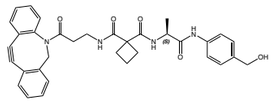
dibenzoazacyclooctyne-cyclobutane-1,1-dicarboxamide-citrullyl-(4-aminobenzyl)-(4-nitrophenyl)-carbonate



CAS-No. 2576471-34-4
Formula $C_{44}H_{43}N_7O_{10}$
Mol. weight 829,85 g/mol

ADC1620 DBCO-cyclobutane-1,1-dicarboxamide-Ala-PAB

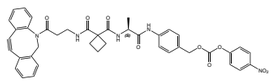
dibenzoazacyclooctyne-cyclobutane-1,1-dicarboxamide-alanyl-(4-aminobenzyl alcohol)



CAS-No. 2576471-46-8
Formula $C_{34}H_{34}N_4O_5$
Mol. weight 578,66 g/mol

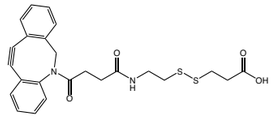
ADC1630 DBCO-cyclobutane-1,1-dicarboxamide-Ala-PAB-PNP

dibenzoazacyclooctyne-cyclobutane-1,1-dicarboxamide-alanyl-(4-aminobenzyl)-(4-nitrophenyl)-carbonate



CAS-No. 2576471-43-5
Formula $C_{41}H_{37}N_5O_9$
Mol. weight 743,76 g/mol

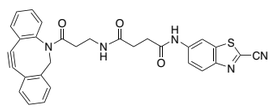
RL-4110 DBCO-Suc-SS-COOH



CAS-No. 2749426-25-1
Formula $C_{26}H_{24}N_2O_4S_2$
Mol. weight 468,59 g/mol

RL-4310 DBCO-Suc-CBT

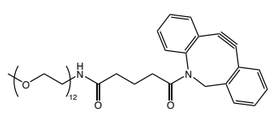
N1-(2-cyanobenzo[d]thiazol-6-yl)-N4-(3-(11,12-didehydro-5,6-dihydro-dibenzo[b,f]azocin-yl)-3-oxopropyl) succinamide



Formula $C_{30}H_{23}N_5O_3S$
Mol. weight 533,61 g/mol

PEG7465 Me-PEG(12)-DBCO

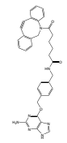
Methyl-12(ethylene glycol)-amido-dibenzoazacyclooctyne



Formula $C_{45}H_{68}N_2O_{14}$
Mol. weight 861,04 g/mol

Product details

RL-4010 DBCO-SNAP



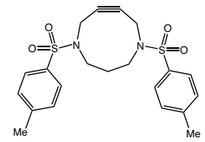
Formula $C_{34}H_{31}N_7O_3$
Mol. weight 585,67 g/mol

DACN derivatives

Product details

RL-2730 DACN(Tos2)

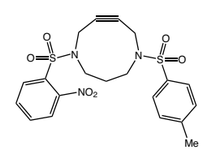
N,N'-bis(*p*-toluenesulfonyl)-4,8-diazacyclononyne



CAS-No. 1797508-57-6
Formula $C_{21}H_{24}N_2O_4S_2$
Mol. weight 432,56 g/mol

RL-2710 DACN(Tos,Ns)

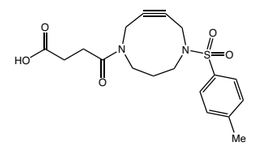
N-(*o*-nitrobenzenesulfonyl)-*N'*-(*p*-toluenesulfonyl)-4,8-diazacyclononyne



CAS-No. 1797508-58-7
Formula $C_{20}H_{21}N_3O_6S_2$
Mol. weight 463,53 g/mol

RL-2720 DACN(Tos,Suc-OH)

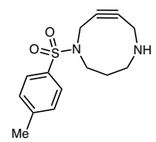
N-succinoyl-*N'*-(*p*-toluenesulfonyl)-4,8-diazacyclononyne



CAS-No. 2109751-68-8
Formula $C_{18}H_{22}N_2O_5S$
Mol. weight 378,44 g/mol

RL-2735 DACN(Tos)*HCl

N-(*p*-toluenesulfonyl)-4,8-diazacyclononyne hydrochloride



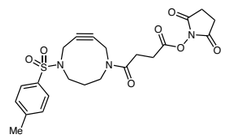
CAS-No. 2331322-18-8
Formula $C_{14}H_{18}N_2O_2S*HCl$
Mol. weight 278,37*36,46 g/mol

Product details

RL-2725 DACN(Tos,Suc-NHS)

N-(succinoyl-NHS ester)-*N'*-(*p*-toluenesulfonyl)-4,8-diazacyclononyne

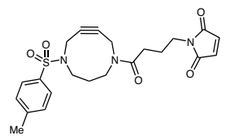
CAS-No. 2411082-26-1
Formula $C_{22}H_{25}N_3O_7S$
Mol. weight 475,52 g/mol



RL-3630 DACN(Tos,Mal)

N-(maleimidobutyryl)-*N'*-(*p*-toluenesulfonyl)-4,8-diazacyclononyne

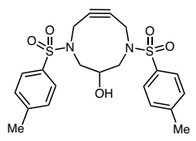
CAS-No. 2411082-28-3
Formula $C_{22}H_{25}N_3O_5S$
Mol. weight 443,52 g/mol



RL-2737 DACN(Tos2,6-OH)

4,8-Bis(*p*-toluenesulfonyl)-4,8-diazacyclononyn-6-ol

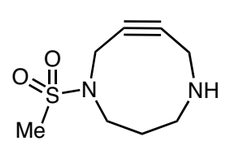
CAS-No. 2109751-74-6
Formula $C_{21}H_{24}N_2O_5S_2$
Mol. weight 448,55 g/mol



RL-3600 DACN(Ms)*HCl

N-(Mesyl)-4,8-diazacyclononyne hydrochloride

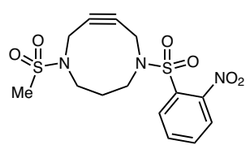
CAS-No. 2331322-16-6
Formula $C_8H_{14}N_2O_2S*HCl$
Mol. weight 202,27*36,46 g/mol



RL-3610 DACN(Ms,Ns)

N-(Mesyl)-*N'*-(2-nosyl)-4,8-diazacyclononyne

CAS-No. 2411082-25-0
Formula $C_{14}H_{17}N_3O_6S_2$
Mol. weight 387,43 g/mol



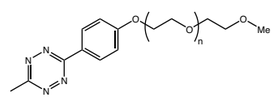
Tetrazine derivatives

Product details

RL-2390 MeTz-mPEG (10kDa)

alpha-Methyltetrazine-omega-methoxy-poly(ethylene glycol)

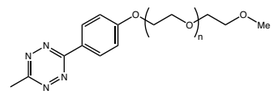
Mol. weight 10000 Da



RL-2400 MeTz-mPEG (20kDa)

alpha-Methyltetrazine-omega-methoxy-poly(ethylene glycol)

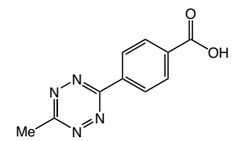
Mol. weight 20000 Da



RL-2130 (Me)Tz-benzoic acid

4-(6-methyl-1,2,4,5-tetrazin-3-yl)benzoic acid

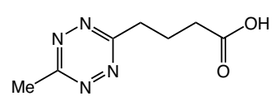
CAS-No. 1345866-66-1
Formula $C_{10}H_8N_4O_2$
Mol. weight 216,2 g/mol



RL-2140 (Me)Tz-butanoic acid

4-(6-methyl-1,2,4,5-tetrazin-3-yl)butanoic acid

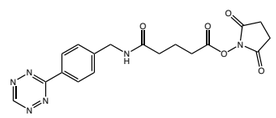
CAS-No. 1923268-81-8
Formula $C_7H_{10}N_4O_2$
Mol. weight 182,18 g/mol



RL-2240 Bz-Tz-NHS

2,5-dioxopyrrolidin-1-yl 5-(4-(1,2,4,5-tetrazin-3-yl) benzylamino)-5-oxopentanoate

CAS-No. 1244040-64-9
Formula $C_{18}H_{18}N_6O_5$
Mol. weight 398,37 g/mol

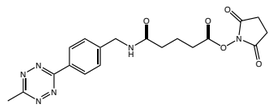


Product details

RL-2230 Bz-(Me)Tz-NHS

2,5-dioxopyrrolidin-1-yl 5-(4-(6-methyl-1,2,4,5-tetrazin-3-yl)benzylamino)-5-oxopentanoate

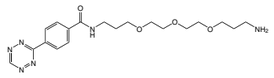
CAS-No. 1454558-58-7
Mol. weight 412,41 g/mol



RL-2590 Tz-benzoyl-TOTA*TFA

Tz-benzoyl-TOTA*TFA

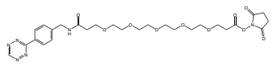
Formula $C_{19}H_{28}N_6O_4*C_2HF_3O_2$
Mol. weight 404,46*114,02 g/mol



RL-2250 Bz-Tz-PEG(5)-NHS

2,5-dioxopyrrolidin-1-yl 1-(4-(1,2,4,5-tetrazin-3-yl) phenyl)-3-oxo-6,9,12,15,18-pentaoxa-2-azahenicosan-21-oate

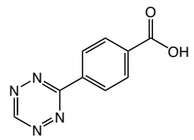
CAS-No. 1682653-80-0
Formula $C_{27}H_{36}N_6O_{10}$
Mol. weight 604,61 g/mol



RL-2580 Tz-benzoic acid

4-(1,2,4,5-tetrazin-3-yl)benzoic acid

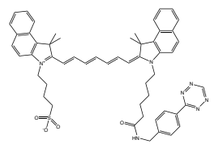
CAS-No. 1345866-65-0
Formula $C_9H_6N_4O_2$
Mol. weight 202,17 g/mol



RL-2860 ICG-Tz

Indocyanine green tetrazine

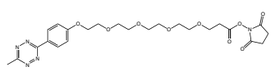
Formula $C_{54}H_{57}N_7O_4S$
Mol. weight 900,14 g/mol



RL-2330 MeTz-PEG(4)-NHS

Methyltetrazine-PEG(4)-propanoyl succinimidyl ester

CAS-No. 1802907-92-1
Formula $C_{24}H_{31}N_5O_9$
Mol. weight 533,53 g/mol

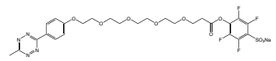


Product details

RL-3905 MeTz-PEG(4)-STP

sodium 2,3,5,6-tetrafluoro-4-((1-(4-(6-methyl-1,2,4,5-tetrazin-3-yl)phenoxy)-3,6,9,12-tetraoxapenta-decan-15-oyl)oxy)benzenesulfonate

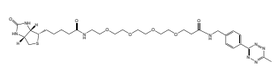
Formula $C_{26}H_{27}F_4N_4NaO_{10}S$
Mol. weight 686,56 g/mol



LS-4290 Biotin-PEG(4)-MeTz

N-(4-(6-methyl-1,2,4,5-tetrazin-3-yl)benzyl)-1-(5-((3aS,4S,6aR)-2-oxohexahydro-1H-thieno[3,4-d] imidazol-4-yl)pentanamido)-3,6,9,12-tetraoxapenta-decan-15-amide

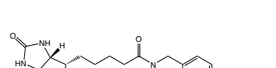
CAS-No. 1962919-31-8
Formula $C_{31}H_{46}N_8O_7S$
Mol. weight 674,82 g/mol



LS-4280 Biotin-MeTz

N-(4-(6-methyl-1,2,4,5-tetrazin-3-yl)benzyl)-5-((3aS,4S,6aR)-2-oxohexahydro-1H-thieno[3,4-d]imida-zol-4-yl)pentanamide

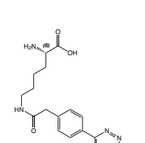
CAS-No. 1802883-51-7
Formula $C_{20}H_{25}N_7O_2S$
Mol. weight 427,53 g/mol



HAA9170 H-L-Lys(MeTz-PhAc)-OH*TFA

N-(2-(4-(6-methyl-1,2,4,5-tetrazin-3-yl)phenyl)ace-tyl)-L-lysine TFA salt

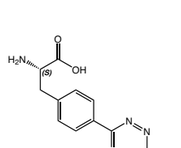
CAS-No. 2578384-82-2 (net)
Formula $C_{17}H_{22}N_6O_3*CF_3COOH$
Mol. weight 358,40*114,02 g/mol



HAA9470 H-L-Phe(4-MeTz)-OH*TFA

(S)-2-amino-3-(4-(6-methyl-1,2,4,5-tetrazin-3-yl)phenyl) propanoic acid trifluoroacetic acid salt

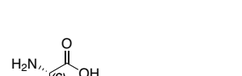
CAS-No. 1698038-85-5 net
Formula $C_{12}H_{13}N_5O_2*CF_3COOH$
Mol. weight 259,27*114,02 g/mol



HAA9480 H-L-Phe(4-Azido-PrTz)-OH*TFA

(S)-2-amino-3-(4-(6-(3-azidopropyl)-1,2,4,5-tetrazin-3-yl)phenyl)propanoic acid trifluoroacetic acid salt

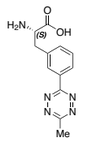
Formula $C_{14}H_{16}N_8O_2*CF_3COOH$
Mol. weight 328,34*114,02 g/mol



Product details

HAA9490 H-L-Phe(3-MeTz)-OH*TFA

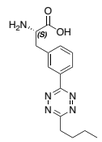
(S)-2-amino-3-(3-(6-methyl-1,2,4,5-tetrazin-3-yl)phenyl) propanoic acid trifluoroacetic acid salt



CAS-No. 2036323-75-6 net
Formula $C_{12}H_{13}N_5O_2*CF_3COOH$
Mol. weight 259,27*114,02 g/mol

HAA9500 H-L-Phe(3-BuTz)-OH*TFA

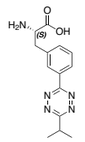
(S)-2-amino-3-(3-(6-butyl-1,2,4,5-tetrazin-3-yl)phenyl) propanoic acid trifluoroacetic acid salt



CAS-No. 2036323-83-6 net
Formula $C_{15}H_{19}N_5O_2*CF_3COOH$
Mol. weight 301,35*114,02 g/mol

HAA9510 H-L-Phe(3-iPrTz)-OH*TFA

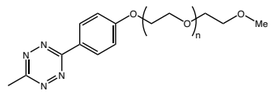
(S)-2-amino-3-(3-(6-isopropyl-1,2,4,5-tetrazin-3-yl) phenyl)propanoic acid trifluoroacetic acid salt



CAS-No. 2421119-12-0 net
Formula $C_{14}H_{17}N_5O_2*CF_3COOH$
Mol. weight 287,32*114,02 g/mol

RL-2380 MeTz-mPEG (5kDa)

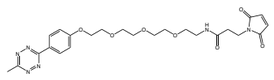
alpha-Methyltetrazine-omega-methoxy-poly(ethylene glycol)



Mol. weight 5000 Da

RL-2340 MeTz-PEG(4)-mal

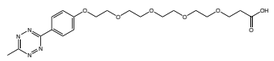
Methyltetrazine-PEG(4)-maleimide



CAS-No. 1802908-02-6
Formula $C_{24}H_{30}N_6O_7$
Mol. weight 514,53 g/mol

RL-2310 MeTz-PEG(4)-COOH

Methyltetrazine-PEG(4)-acid

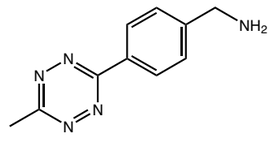


CAS-No. 1802907-91-0
Formula $C_{20}H_{28}N_4O_7$
Mol. weight 436,56 g/mol

Product details

RL-2360 MeTz-BzI-NH_2*HCl

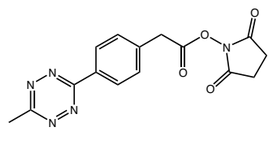
Methyltetrazine-benzylamine*HCl



CAS-No. 1596117-29-1
Formula $C_{10}H_{11}N_5*HCl$
Mol. weight 201,23*36,46 g/mol

RL-2320 MeTz-PhAc-NHS

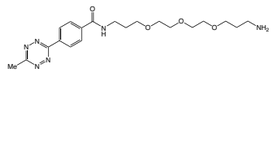
Methyltetrazine-phenylacetyl succinimidyl ester



CAS-No. 1644644-96-1
Formula $C_{15}H_{13}N_5O_4$
Mol. weight 327,29 g/mol

RL-2110 MeTz-Phenyl-TOTA*TFA

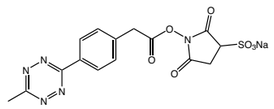
4-(6-methyl-1,2,4,5-tetrazin-3-yl)-N-(4,7,10-trioxatri-decane-13-amine)benzamide trifluoroacetate salt



CAS-No. 2250433-74-8 (net)
Formula $C_{20}H_{30}N_6O_4*CF_3CO_2H$
Mol. weight 418,49*114,02 g/mol

RL-3915 MeTz-PhAc-Sulfo-NHS

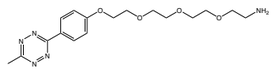
sodium 1-(2-(4-(6-methyl-1,2,4,5-tetrazin-3-yl)phenyl) acetoxy)-2,5-dioxopyrrolidine-3-sulfonate



CAS-No. 1821017-46-2
Formula $C_{15}H_{12}N_5NaO_7$
Mol. weight 429,34 g/mol

RL-2370 MeTz-PEG(4)-NH_2*HCl

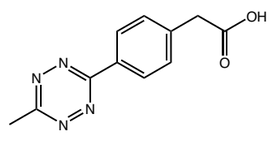
Methyltetrazine-PEG(4)-amine HCL salt



CAS-No. 1802908-05-9 net
Formula $C_{17}H_{25}N_5O_4*HCl$
Mol. weight 363,41*HCl g/mol

RL-2300 MeTz-PhAcOH

Methyltetrazine-phenylacetic acid



CAS-No. 1380500-88-8
Formula $C_{11}H_{10}N_4O_2$
Mol. weight 230,22 g/mol

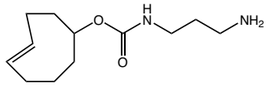
TCO derivatives

Product details

TCO1060 TCO-NH_2*HCl

trans-Cyclooctene-amine hydrochloride

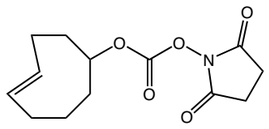
CAS-No. 1800507-94-1
Formula $C_{12}H_{22}N_2O_2$*HCl
Mol. weight 226,32*36,45 g/mol



TCO1000 TCO-NHS

trans-Cyclooctene succinimidyl carbonate

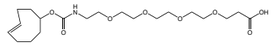
CAS-No. 1191901-33-3
Formula $C_{13}H_{17}NO_5$
Mol. weight 267,28 g/mol



TCO1040 TCO-PEG(4)-COOH

trans-Cyclooctene-PEG(4)-Acid

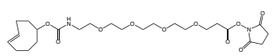
CAS-No. 1802913-21-8
Formula $C_{20}H_{35}NO_8$
Mol. weight 417,49 g/mol



TCO1010 TCO-PEG(4)-NHS

trans-Cyclooctene-PEG(4)-carboxy succinimidyl ester

CAS-No. 1621096-79-4
Formula $C_{24}H_{38}N_2O_{10}$
Mol. weight 514,57 g/mol



TCO1050 TCO-PEG(3)-mal

trans-Cyclooctene-PEG(3)-maleimide

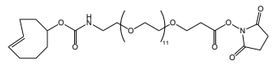
CAS-No. 1809356-72-6
Formula $C_{26}H_{41}N_3O_8$
Mol. weight 523,62 g/mol

Product details

TCO1020 TCO-PEG(12)-NHS

trans-Cyclooctene-PEG(12)-carboxy succinimidyl ester

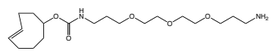
CAS-No. 2185016-39-9
Formula $C_{40}H_{70}N_2O_{18}$
Mol. weight 866,99 g/mol



TCO1070 TCO-PEG(3)-NH_2*HCl

trans-Cyclooctene-PEG(3)-amine

CAS-No. 2028288-77-7
Formula $C_{19}H_{36}N_2O_5$*HCl
Mol. weight 372,51*36,46 g/mol



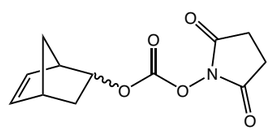
Norbornene derivatives

Product details

RL-2080 Norbornene-NHS

(Norbornene-2-yl)-N-hydroxysuccinimidylcarbonate

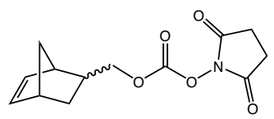
CAS-No. 1888335-48-5
Formula $C_{12}H_{13}NO_5$
Mol. weight 251,24 g/mol



RL-2090 Norbornene-methyl-NHS

(Norbornene-2-methyl)-N-hydroxysuccinimidylcarbonate

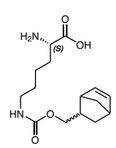
CAS-No. 1986791-87-0
Formula $C_{13}H_{15}NO_5$
Mol. weight 265,26 g/mol



HAA9235 H-L-Lys(Norbornene-methoxycarbonyl)-OH*HCl

N-epsilon-(norbornene-methoxycarbonyl)-L-lysine hydrochloride

CAS-No. 1378916-76-7 net
Formula $C_{15}H_{24}N_2O_4$*HCl
Mol. weight 296,37*36,46 g/mol



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Notes

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