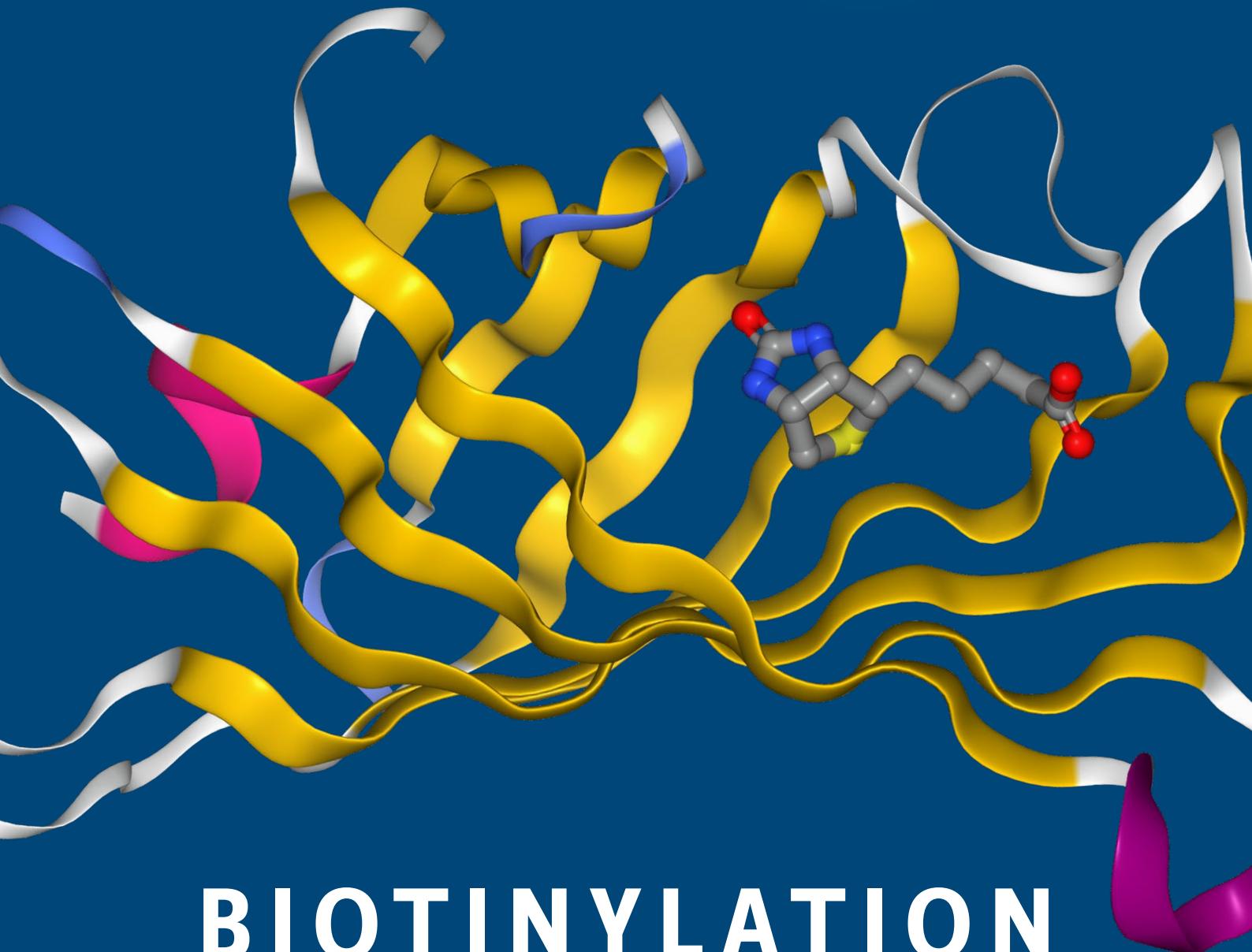


EDITION 2018

# Iris



BIOTECH GMBH



*Empowering Peptide Innovation*

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## Content

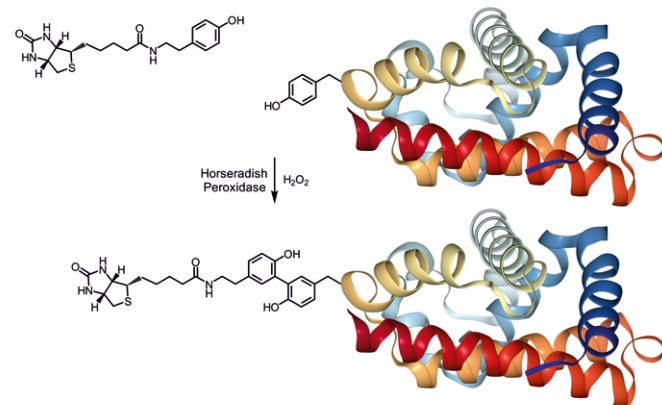
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## 1. Biotinylation Reagents

The affinity and specificity of the avidin-biotin interaction have been exploited for numerous applications in immunology, histochemistry, and affinity chromatography, to name a few. Biotinylation is a common technique for transforming poorly detectable molecules into probes that can be recognized by labeled biotin-binding proteins or an affinity capture matrix. Antibodies can be "tagged" with biotinylation reagents and used to probe cells or tissues for specific antigens or haptens.

### Reagents for Tyrosine- / Protein-Biotinylation

For long time it is known that tyramine compounds are converted to highly reactive radicals by horseradish peroxidase in presence of  $H_2O_2$ . In vicinity of proteins, these radicals preferentially react with surface exposed tyrosines. Therefore, biotin tyramide is a perfect reagent for protein biotinylation. Numerous applications have been developed and commercialized using this excellent reactivity of biotin tyramide for signal amplification and sensitive detection of very small concentrations. Biotin tyramide and also a variation with a short PEG spacer in between are available to improve flexibility and solubility.



	Article No.	Quantity	Price
<b>LS-3500 Biotin Tyramide</b>  (3aS,4S,6aR)-hexahydro-N-[2-(4-hydroxyphenyl)ethyl]-2-oxo-1H-thieno[3,4-d]imidazole-4-pentanamide  CAS-NO: 41994-02-09 FORMULA: C <sub>18</sub> H <sub>24</sub> N <sub>2</sub> O <sub>3</sub> S MOL WEIGHT: 363,47 g/mol	LS-3500.0250 LS-3500.1000 LS-3500.5000	250 mg 1 g 5 g	€ 150,00 € 375,00 € 1.500,00
<b>LS-3490 Biotin-AEEA-Phenol</b>  N-(2-(2-(4-hydroxyphenethylamino)-2-oxoethoxyethoxyethyl)-5-((3aS,4S,6aR)-2-oxohexahydro-1H-thieno[3,4-d]imidazol-4-yl)pentanamide  FORMULA: C <sub>24</sub> H <sub>36</sub> N <sub>4</sub> O <sub>6</sub> S MOL WEIGHT: 508,63 g/mol	LS-3490.0100 LS-3490.0250 LS-3490.1000	100 mg 250 mg 1 g	€ 275,00 € 550,00 € 1.750,00
<b>LS-3570 Biotin-SS-Tyramide</b>  N-(2-((3-(4-hydroxyphenethylamino)-3-oxopropyl)disulfanyl)ethyl)-5-(2-oxohexahydro-1H-thieno[3,4-d]imidazol-4-yl)pentanamide  CAS-NO: 678975-20-7 FORMULA: C <sub>23</sub> H <sub>34</sub> N <sub>4</sub> O <sub>4</sub> S <sub>3</sub> MOL WEIGHT: 526,74 g/mol	LS-3570.0250 LS-3570.0001 LS-3570.0005	250 mg 1 g 5 g	€ 350,00 € 1.000,00 € 4.000,00
<b>Reversible biotinylation by cleavable linker.</b>			
<b>LS-1660 Desthiobiotin-Tyramide</b>  N-(4-hydroxyphenethyl)-6-((4R,5S)-5-methyl-2-oximidazolidin-4-yl)hexanamide  FORMULA: C <sub>18</sub> H <sub>27</sub> N <sub>3</sub> O <sub>3</sub> MOL WEIGHT: 333,43 g/mol SYNOMYS: Desthiobiotin Phenol	RL-2950.0000	please inquire	
<b>Biotin-Tyramide analog that binds less tightly to biotin-binding proteins. It can be displaced competitively by biotin. Streptavidin-based ligands can be gently stripped from desthiobiotin-tyramide-labeled targets with buffered biotin solutions.</b>			

#### References:

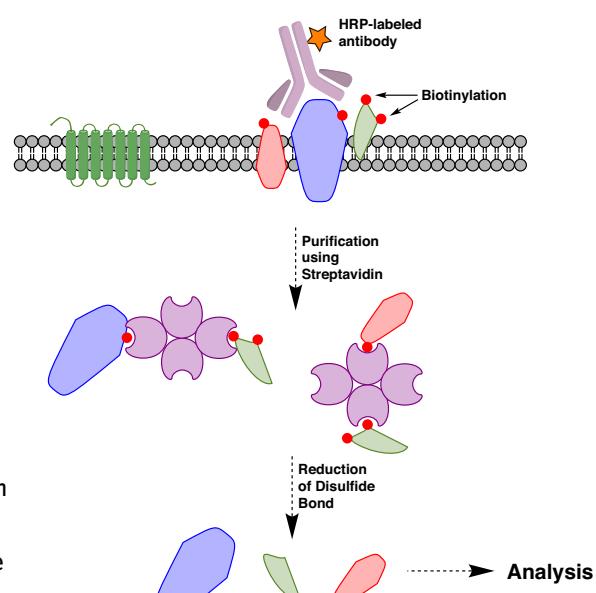
- > The Oxidation of Tyramine, Tyrosine, and Related Compounds by Peroxidase; A.J. Gross, I.W. Sizer; *J. Biol. Chem.* 1959; **234**: 1611-1614.
- > Catalyzed reporter deposition, a novel method of signal amplification application to immunoassays; M.N. Bobrow et al.; *Journal of Immunological Methods* 1989; **125**: 279-285. doi: 10.1016/0022-1759(89)90104-X.
- > Catalyzed reporter deposition, a novel method of signal amplification: II. Application to membrane immunoassays; M.N. Bobrow et al.; *Journal of Immunological Methods* 1991; **137**: 103-112. doi: 10.1016/0022-1759(91)90399-Z.
- > Tyramide signal amplification for analysis of kinase activity by intracellular flow cytometry; M.R. Clutter et al.; *Cytometry A* 2010; **77** (11): 1020-31; doi: 10.1002/cyto.a.20790.
- > Proteomic mapping of mitochondria in living cells via spatially restricted enzymatic tagging; H.W. Rhee et al., *Science* 2013; **339**: 1328-31. doi: 10.1126/science.1230593.
- > WO2008128352 A1.

## Reversible Biotinylation / Reversible Biotin Binding

In some cases, reversible biotin-mediated binding is desired. Therefore, we have biotinylation variants with cleavable linkers or less strongly binding biotin analogues.

The usually almost irreversible binding between biotin and streptavidin can be weakened by using Desthiobiotin instead of Biotin. Examples in our portfolio are D-Desthiobiotin (LS-1650; below) and Desthiobiotin-Tyramide (LS-1660; left page). Other derivatives are feasible on custom synthesis basis. Desthiobiotin can be displaced competitively from streptavidin by biotin. Streptavidin-based ligands can be gently stripped from desthiobiotin-labeled targets with buffered biotin solutions avoiding harsh denaturation conditions such as 6 M GdmCl.

Alternatively, Biotin-SS-Tyramide (LS-3570; left page) and Biotin-dPEG(4)-S-S-NHS (PEG1910; below) are disulfide bridge containing biotinylation constructs that can be cleaved using reducing agents such as glutathione or by reducing conditions inside certain cell compartments. One possible application of Biotin-SS-Tyramide is the targeted biotinylation of proteins and protein clusters on cell surfaces using HRP-labeled antibodies. Labeled proteins are then purified by using streptavidin and released by reductive cleavage of the linker disulfide bond.



### References:

- > Easily reversible desthiobiotin binding to streptavidin, avidin, and other biotin-binding proteins: uses for protein labeling, detection, and isolation; J.D. Hirsch et al.; *Analytical Biochemistry* 2002; **308** (2): 343-357. doi:10.1016/S0003-2697(02)00201-4
- > A novel tandem affinity purification strategy for the efficient isolation and characterization of native protein complexes; C.J. Gloeckner et al.; *Proteomics* 2007; **7** (23): 4228-4234. doi:10.1002/pmic.200700038
- > New Insights into the DT40 B Cell Receptor Cluster Using a Proteomic Proximity Labeling Assay; X.-W. Li, J. S. Rees, P. Xue, H. Zhang, S. W. Hamia, B. Sanderson, P. E. Funk, R. W. Farndale, K. S. Lilley, S. Perrett and A. P. Jackson; *Journal of Biological Chemistry* 2014; **289**: 14434-14447. doi:10.1074/jbc.M113.529578
- > A Catalysis-Based Selection for Peroxidase Antibodies with Increased Activity; J. Yin, J. H. Mills and P. G. Schultz; *Journal of the American Chemical Society* 2004; **126**: 3006-3007. doi:10.1021/ja039198o

### (Classical) Biotinyling Reagents

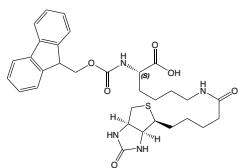
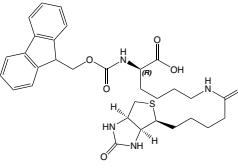
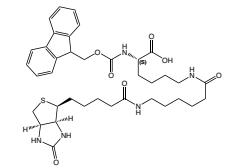
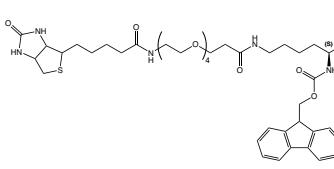
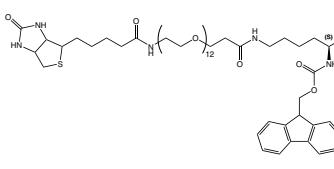
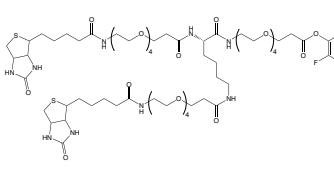
		Article No.	Quantity	Price
<b>LS-1070</b>	<b>D-Biotin</b>			
<b>Hexahydro-2-oxo-1H-thieno[3,4-d]imidazole-4-pentanoic acid</b>				
CAS-NO:	58-85-5	LS-1070.0005	5 g	€ 35,00
FORMULA:	$C_{10}H_{16}N_2O_3S$	LS-1070.0025	25 g	€ 125,00
MOL WEIGHT:	244,31 g/mol	LS-1070.0100	100 g	€ 400,00
<b>RL-1006</b>	<b>Biotin-OSu</b>			
<b>N-Hydroxysuccinimidobiotin</b>				
CAS-NO:	35013-72-0	RL-1006.0001	1 g	€ 85,00
FORMULA:	$C_{14}H_{16}N_3O_5S$	RL-1006.0005	5 g	€ 300,00
MOL WEIGHT:	341,39 g/mol	RL-1006.0025	25 g	€ 1.200,00
<b>PEG1910</b>	<b>Biotin-dPEG(4)-S-S-NHS</b>			
<b>1-Biotinamino-15-oxo-3,6,9,12-tetraoxa-19,20-dithia-16-azatricosan-23-oic acid succinimidyl ester</b>				
CAS-NO:	1260247-51-5	PEG1910.0050	50 mg	€ 300,00
FORMULA:	$C_{30}H_{48}N_5O_{11}S_3$	PEG1910.0500	500 mg	€ 1.150,00
MOL WEIGHT:	751,93 g/mol			
Reversible biotinylation by cleavable linker.				
<b>LS-1650</b>	<b>D-Desthiobiotin</b>			
<b>(4R,5S)-5-methyl-2-oxo-4-imidazolidinehexanoic acid</b>				
CAS-NO:	533-48-2	RL-2950.0000	please inquire	
FORMULA:	$C_{10}H_{18}N_2O_3$			
MOL WEIGHT:	214,27 g/mol			
SYNOMYS:	(+)-Desthiobiotin; 5-Methyl-2-oxo-4-imidazolinecaproic acid			
Biotin analog that binds less tightly to biotin-binding proteins. It can be displaced competitively by biotin. Streptavidin-based ligands can be gently stripped from desthiobiotin-labeled targets with buffered biotin solutions.				

		Article No.	Quantity	Price
<b>RL-8615</b>	<b>Biotin-PFP</b>			
Biotin pentafluorophenyl ester		RL-8615.0001	1 g	€ 95,00
CAS-NO: 120550-35-8		RL-8615.0005	5 g	€ 350,00
FORMULA: C <sub>16</sub> H <sub>15</sub> F <sub>5</sub> N <sub>2</sub> O <sub>3</sub> S		RL-8615.0025	25 g	€ 1.400,00
MOL WEIGHT: 410,36 g/mol				
Explanation see p.9 (Amine Reactive Biotinylation Reagents)				
<b>RL-2025</b>	<b>Biotin-Ahx-OH</b>			
6-Biotinylamino-hexanoic acid		RL-2025.0001	1 g	€ 110,00
CAS-NO: 72040-64-3		RL-2025.0005	5 g	€ 400,00
FORMULA: C <sub>16</sub> H <sub>21</sub> N <sub>3</sub> O <sub>4</sub> S		RL-2025.0025	25 g	€ 1.600,00
MOL WEIGHT: 357,47 g/mol				
<b>RL-2020</b>	<b>Biotin-Ahx-NHS</b>			
6-Biotinylamino-hexanoic acid-N-hydroxysuccinimidyl ester		RL-2020.0500	500 mg	€ 126,00
CAS-NO: 72040-63-2		RL-2020.0001	1 g	€ 196,00
FORMULA: C <sub>20</sub> H <sub>30</sub> N <sub>4</sub> O <sub>6</sub> S		RL-2020.0005	5 g	€ 700,00
MOL WEIGHT: 454,54 g/mol		RL-2020.0025	25 g	€ 2.800,00
<b>RL-2030</b>	<b>Biotin cadaverine nTFA</b>			
5-(Biotinamido)pentylamine nTFA		RL-2030.0100	100 mg	€ 84,00
CAS-NO: 115416-38-1 net		RL-2030.0250	250 mg	€ 140,00
FORMULA: C <sub>15</sub> H <sub>28</sub> N <sub>4</sub> O <sub>2</sub> S nC <sub>2</sub> HF <sub>5</sub> O <sub>2</sub>		RL-2030.0500	500 mg	€ 252,00
MOL WEIGHT: 328,47 net g/mol		RL-2030.0001	1 g	€ 392,00
		RL-2030.0005	5 g	€ 1.400,00
<b>Biotin Click Reagents</b>				
<b>PEG4950</b>	<b>Biotin-PEG(4)-alkyne</b>			
15-[D(+)-Biotinylamino]-4,7,10,13-tetraoxapentadec-1-yne		PEG4950.0250	250 mg	€ 350,00
CAS-NO: 1262681-31-1		PEG4950.0001	1 g	€ 1.150,00
FORMULA: C <sub>21</sub> H <sub>35</sub> N <sub>3</sub> O <sub>6</sub> S				
MOL WEIGHT: 457,58 g/mol				
<b>PEG4940</b>	<b>Biotin-PEG(3)-N<sub>3</sub></b>			PEG4940.0000 please inquire
11-[D(+)-Biotinylamino]-1-azido-3,6,9-trioxaundecane				
CAS-NO: 875770-34-6				
FORMULA: C <sub>18</sub> H <sub>32</sub> N <sub>6</sub> O <sub>5</sub> S				
MOL WEIGHT: 444,55 g/mol				
<b>PEG7800</b>	<b>Biotin-PEG(3)-ATFB</b>			
alpha-Biotin-omega-(4-azido-2,3,5,6-tetrafluorobenzoylamidyl)-tri(ethylene glycol)		PEG7800.0025	25 mg	€ 250,00
FORMULA: C <sub>27</sub> H <sub>37</sub> F <sub>4</sub> N <sub>7</sub> O <sub>6</sub> S		PEG7800.0100	100 mg	€ 425,00
MOL WEIGHT: 663,68 g/mol				
Aryl azide that can be used for both click chemistry and for photoactivated labeling. For further information see <a href="http://www.iris-biotech.de/peg7800">www.iris-biotech.de/peg7800</a>				
<b>PEG2065</b>	<b>Biotin-TEG-ATFB</b>			
Biotin-triethylenglycol-(p-azido-tetrafluorobenzamide)		PEG2065.0025	25 mg	€ 250,00
CAS-NO: 1264662-85-2		PEG2065.0100	100 mg	€ 425,00
FORMULA: C <sub>27</sub> H <sub>37</sub> F <sub>4</sub> N <sub>7</sub> O <sub>6</sub> S				
MOL WEIGHT: 663,68 g/mol				
Aryl azide that can be used for both click chemistry and for photoactivated labeling. For further information see <a href="http://www.iris-biotech.de/peg2065">www.iris-biotech.de/peg2065</a>				
<b>PEG4330</b>	<b>Biotin-dPEG™(7)-N<sub>3</sub></b>			
alpha-Biotin-omega-azido hepta(ethylene glycol)		PEG4330.0100	100 mg	€ 325,00
CAS-NO: 1334172-75-6		PEG4330.1000	1 g	€ 1.750,00
FORMULA: C <sub>26</sub> H <sub>48</sub> N <sub>6</sub> O <sub>9</sub> S				
MOL WEIGHT: 620,76 g/mol				

		Article No.	Quantity	Price
<b>PEG4340</b>	<b>Biotin-dPEG™(11)-N<sub>3</sub></b>			
[2-(2-aminoethoxy)ethoxy]acetic acid tert-butyl ester*HCl		PEG4340.0100	100 mg	€ 380,00
CAS-NO: 956494-20-5		PEG4340.1000	1 g	€ 1.800,00
FORMULA: C <sub>34</sub> H <sub>64</sub> N <sub>6</sub> O <sub>13</sub> S				
MOL WEIGHT: 796,97 g/mol				
<b>PEG4350</b>	<b>Biotin-dPEG™(23)-N<sub>3</sub></b>			
alpha-Biotin-omega-azido 23(ethylene glycol)		PEG4350.0100	100 mg	€ 440,00
CAS-NO: 956494-20-5		PEG4350.1000	1 g	€ 2.050,00
FORMULA: C <sub>58</sub> H <sub>112</sub> N <sub>6</sub> O <sub>25</sub> S				
MOL WEIGHT: 1325,6 g/mol				
<b>RL-2520</b>	<b>DBCO-PEG(4)-Biotin</b>			
Dibenzoazacyclooctyne-tetra(ethylene glycol)-biotin		RL-2520.0010	10 mg	€ 230,00
CAS-NO: 1255942-07-4		RL-2520.0025	25 mg	€ 390,00
FORMULA: C <sub>39</sub> H <sub>51</sub> N <sub>5</sub> O <sub>8</sub> S		RL-2520.0100	100 mg	€ 1.120,00
MOL WEIGHT: 749,92 g/mol				
<b>PEG6820</b>	<b>Biotin-PEG(12)-DBCO</b>			
Biotinyl-dodeca(ethylene glycol)-amido-dibenzoazacyclooctyne		PEG6820.0010	10 mg	€ 325,00
FORMULA: C <sub>55</sub> H <sub>83</sub> N <sub>5</sub> O <sub>16</sub> S		PEG6820.0025	25 mg	€ 500,00
MOL WEIGHT: 1102,34 g/mol		PEG6820.0100	100 mg	€ 1.600,00

**Biotin with Amino Acids**

		Article No.	Quantity	Price
<b>FAA3720</b>	<b>Fmoc-L-Cys(Biotin)-OH</b>			
N-alpha-(9-Fluorenylmethoxycarbonyl)-S-biotinyl-L-cysteine		FAA3720.0250	250 mg	€ 90,00
FORMULA: C <sub>28</sub> H <sub>31</sub> N <sub>3</sub> O <sub>6</sub> S <sub>2</sub>		FAA3720.0500	500 mg	€ 162,00
MOL WEIGHT: 569,69 g/mol		FAA3720.0001	1 g	€ 252,00
		FAA3720.0005	5 g	€ 900,00
		FAA3720.0025	25 g	€ 3.600,00
<b>LS-3510</b>	<b>Biocytin</b>			
N-epsilon-Biotinyl-L-Lysine		LS-3510.0250	250 mg	€ 95,00
CAS-NO: 576-19-2		LS-3510.1000	1 g	€ 375,00
FORMULA: C <sub>16</sub> H <sub>29</sub> N <sub>4</sub> O <sub>4</sub> S		LS-3510.5000	5 g	€ 1.500,00
MOL WEIGHT: 372,48 g/mol				
Biocytin is a multi-purpose marker for neuroanatomical studies and the ideal substrate for biotinidase assays. Its strong complex formation with avidin and streptavidin conjugates opens up a broad range of detection methods.				
<b>HAA3430</b>	<b>H-L-Lys(Biotin)-NH<sub>2</sub></b>			
N-epsilon-biotin-L-lysine amide		HAA3430.0100	100 mg	€ 170,00
CAS-NO: 61125-53-9		HAA3430.0250	250 mg	€ 280,00
FORMULA: C <sub>16</sub> H <sub>29</sub> N <sub>5</sub> O <sub>3</sub> S		HAA3430.0500	500 mg	€ 510,00
MOL WEIGHT: 371,5 g/mol		HAA3430.1000	1 g	€ 785,00
		HAA3430.5000	5 g	€ 2.800,00
<b>BAA1276</b>	<b>Boc-L-Lys(Biotin)-OH</b>			
N-alpha-t-Butyloxycarbonyl-N-epsilon-biotinyl-L-lysine		BAA1276.0500	500 mg	€ 81,00
CAS-NO: 62062-43-5		BAA1276.0001	1 g	€ 126,00
FORMULA: C <sub>21</sub> H <sub>36</sub> N <sub>4</sub> O <sub>6</sub> S		BAA1276.0005	5 g	€ 450,00
MOL WEIGHT: 472,6 g/mol		BAA1276.0025	25 g	€ 1.800,00
<b>BAA1038</b>	<b>Boc-D-Lys(Biotin)-OH</b>			
N-alpha-t-Butyloxycarbonyl-N-epsilon-(Biotin)-D-lysine		BAA1038.0500	500 mg	€ 108,00
FORMULA: C <sub>21</sub> H <sub>36</sub> N <sub>4</sub> O <sub>6</sub> S		BAA1038.0001	1 g	€ 168,00
MOL WEIGHT: 472,61 g/mol		BAA1038.0005	5 g	€ 600,00
		BAA1038.0025	25 g	€ 2.400,00

		Article No.	Quantity	Price
<b>FAA1443</b>	<b>Fmoc-L-Lys(Biotin)-OH</b>			
N-alpha-(9-Fluorenylmethyloxycarbonyl)-N-epsilon-biotinyl-L-lysine		FAA1443.0500	500 mg	€ 90,00
CAS-NO:	146987-10-2	FAA1443.0001	1 g	€ 140,00
FORMULA:	C <sub>31</sub> H <sub>38</sub> N <sub>4</sub> O <sub>6</sub> S	FAA1443.0005	5 g	€ 500,00
MOL WEIGHT:	594,7 g/mol	FAA1443.0025	25 g	€ 2.000,00
<b>FAA1451</b>	<b>Fmoc-D-Lys(Biotin)-OH</b>			
N-alpha-(9-Fluorenylmethyloxycarbonyl)-N-epsilon-biotinyl-D-lysine		FAA1451.0250	250 mg	€ 100,00
CAS-NO:	110990-09-5	FAA1451.0500	500 mg	€ 180,00
FORMULA:	C <sub>31</sub> H <sub>38</sub> N <sub>4</sub> O <sub>6</sub> S	FAA1451.0001	1 g	€ 280,00
MOL WEIGHT:	594,7	FAA1451.0005	5 g	€ 1.000,00
<b>FAA4670</b>	<b>Fmoc-L-Lys(Biotin-Ahx)-OH</b>			
N-alpha-(9-Fluorenylmethyloxycarbonyl)-N-epsilon-[6-(biotinylamino)hexanoyl]-L-lysine		FAA4670.0250	250 mg	€ 120,00
CAS-NO:	160158-05-4	FAA4670.0500	500 mg	€ 220,00
FORMULA:	C <sub>37</sub> H <sub>49</sub> N <sub>5</sub> O <sub>5</sub> S	FAA4670.0001	1 g	€ 340,00
MOL WEIGHT:	707,88 g/mol	FAA4670.0005	5 g	€ 1.200,00
<b>PEG4440</b>	<b>Fmoc-L-Lys(dPEG™(4)-Biotin)-OH</b>			
N-alpha-(9-Fluorenylmethyloxycarbonyl)-N-epsilon-[15-(biotinamido)-4,7,10,13-tetra-oxa-pentadecanoyl]-L-lysine		PEG4440.0100	100 mg	€ 325,00
CAS-NO:	1334172-64-3	PEG4440.1000	1 g	€ 1.300,00
FORMULA:	C <sub>42</sub> H <sub>59</sub> N <sub>5</sub> O <sub>11</sub> S			
MOL WEIGHT:	842,01 g/mol			
<b>PEG4450</b>	<b>Fmoc-L-Lys(dPEG™(12)-Biotin)-OH</b>			
N-alpha-(9-Fluorenylmethyloxycarbonyl)-N-epsilon-[alpha-Biotin-omega-propionyl dodeca(ethylene glycol)]-L-lysine		PEG4450.0100	100 mg	€ 440,00
CAS-NO:	1334172-65-4	PEG4450.1000	1 g	€ 1.750,00
FORMULA:	C <sub>58</sub> H <sub>93</sub> N <sub>5</sub> O <sub>19</sub> S			
MOL WEIGHT:	1194,43 g/mol			
<b>PEG2166</b>	<b>Biotin-PEG(4)-Lys(PEG(4)-Biotin)-PEG(4)-TFP</b>			
N-alpha-N-epsilon-Bis(Biotinyl-PEG(4))-lysinyl-PEG(4)-2,3,5,6-tetrafluorophenyl ester		PEG2166.0100	100 mg	€ 275,00
FORMULA:	C <sub>65</sub> H <sub>105</sub> F <sub>4</sub> N <sub>9</sub> O <sub>21</sub> S <sub>2</sub>	PEG2166.0001	1 g	€ 1.450,00
MOL WEIGHT:	1488,7 g/mol			
<b>Explanation see p.9 (Amine Reactive Biotinyling Reagents)</b>				

Desired biotinyling reagent not found in this booklet?

Please ask for our custom synthesis service!

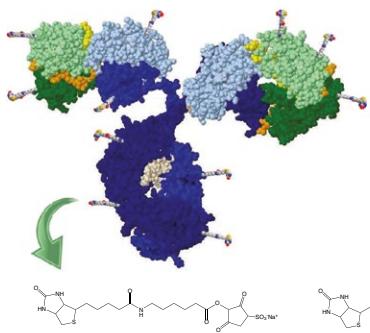


## PEG Containing Biotinylation Reagents

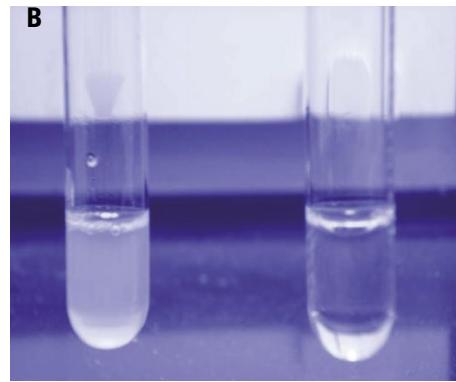
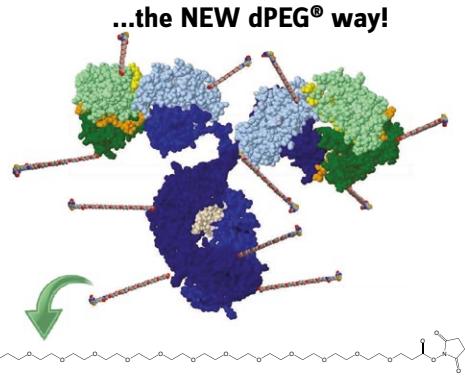
PEGs are molecules comprised of repeating ethylene glycol units and are built up in a stepwise fashion. These hydrophilic, non-immunogenic reagents have shown promise in a number of potentially important applications. PEGs have a dramatic impact on protein solubility, stability, and aggregation, and are able to improve ELISAs, IHC assays, and formulations in many aspects. Some protein biotin conjugates are particularly susceptible to aggregation and loss of antigen binding ability, which can complicate assays and provide irreproducible and/or erroneous results.

In comparison, biotinylated IgGs employing a PEG linker show no tendency for aggregation, maintain a high affinity for antigen, and the resulting complexes with the biotin-binding proteins remain completely soluble.

### A ...the OLD way!



### ...the NEW dPEG® way!



#### Comparison between Biotin-LC labeled and Biotin-dPEG® labeled antibodies:

- > (A) Schematic representation of biotin labeled antibody: "Classical" aliphatic LC linker creates hydrophobic surface with biotin moiety in very close proximity (left side of IgG scheme). dPEG<sup>®</sup>12 linker creates hydrophilic "slippery" surface with biotin moiety given more space for interaction (right side of IgG scheme).
- > (B) Mixing 3 nmol streptavidin with 0.9 nmol either Biotin-LC-GAR antibody (left tube) or Biotin-dPEG<sup>®</sup>12-GAR antibody (right tube) clearly demonstrates the ability of the hydrophilic dPEG<sup>®</sup> spacer to solubilize the resulting streptavidin-biotin-IgG complex completely while the streptavidin-biotin-LC-GAR complex is obviously precipitating from solution.

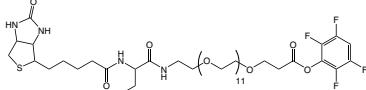
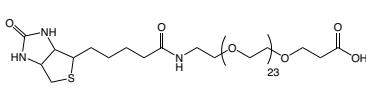
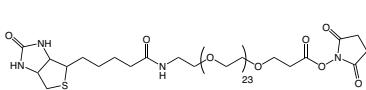
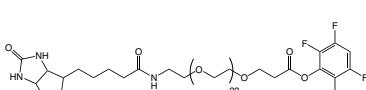
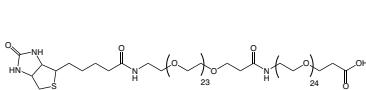
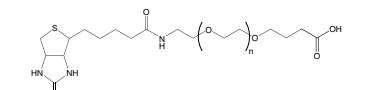
## Biotin-PEG-Acids / Amine Reactive Biotinyling Reagents

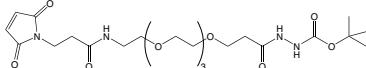
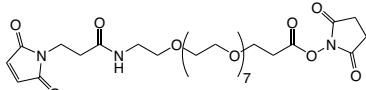
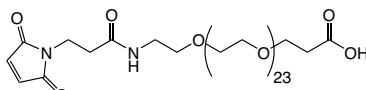
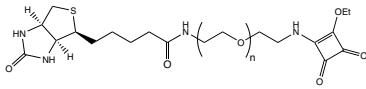
Active esters such as N-hydroxysuccinimide (NHS) esters permit a catalyst-free conjugation reaction to amines under mild conditions. Yet, NHS esters may hydrolyze over time if, for example, atmospheric moisture has condensed on the substance.

As alternative, tetrafluorophenyl (TFP) and pentafluorophenyl (PFP) active esters can be applied that are much more resistant to spontaneous hydrolysis.

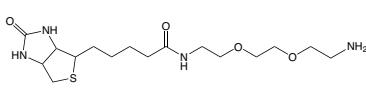
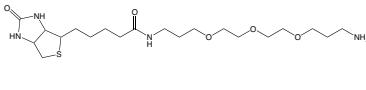
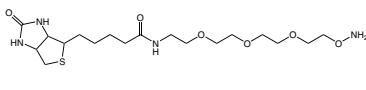
	Article No.	Quantity	Price
<b>PEG2560 Biotin-O<sub>2</sub>Oc-OH</b>			
8-Biotinylamido-3,6-dioxaoctanoic acid	PEG2560.0250	250 mg	€ 100,00
CAS-NO: 1238575-77-3	PEG2560.0500	500 mg	€ 180,00
FORMULA: C <sub>16</sub> H <sub>27</sub> N <sub>3</sub> O <sub>6</sub> S	PEG2560.0001	1 g	€ 280,00
MOL WEIGHT: 389,47 g/mol	PEG2560.0005	5 g	€ 1.000,00
<b>PEG2565 Biotin-O<sub>2</sub>Oc-O<sub>2</sub>Oc-OH</b>			
8-Biotinylamido-3,6-dioxaoctanoic acid dimer	PEG2565.0100	100 mg	€ 120,00
FORMULA: C <sub>22</sub> H <sub>38</sub> N <sub>4</sub> O <sub>9</sub> S	PEG2565.0250	250 mg	€ 200,00
MOL WEIGHT: 534,62 g/mol	PEG2565.0500	500 mg	€ 360,00
	PEG2565.0001	1 g	€ 560,00
	PEG2565.0005	5 g	€ 2.000,00
<b>PEG5280 Biotin-TOTA-glutaramic acid*DIPEA</b>			
5,21-dioxo-25-((3aS,4S,6aR)-2-oxohexahydro-1H-thieno[3,4-d]imidazol-4-yl)-10,13,16-tri-oxa-6,20-diazapentacosan-1-oic acid diisopropylethylamine salt	PEG5280.0100	100 mg	€ 96,00
FORMULA: C <sub>25</sub> H <sub>44</sub> N <sub>4</sub> O <sub>8</sub> S <sup>2-</sup> C <sub>6</sub> H <sub>13</sub> N	PEG5280.0250	250 mg	€ 160,00
MOL WEIGHT: 560,70*129,30 g/mol	PEG5280.0500	500 mg	€ 288,00
	PEG5280.1000	1 g	€ 448,00
	PEG5280.5000	5 g	€ 1.600,00

		Article No.	Quantity	Price
<b>PEG2071</b>	<b>Biotin-TEG-TFP</b>			
Biotin-tetra(ethylene glycol)-2,3,5,6-tetrafluorophenyl ester		PEG2071.0100	100 mg	€ 225,00
FORMULA: C <sub>27</sub> H <sub>33</sub> F <sub>4</sub> N <sub>3</sub> O <sub>8</sub> S		PEG2071.1000	1 g	€ 825,00
MOL WEIGHT: 639,66 g/mol				
<b>PEG1515</b>	<b>Biotin-PEG(4)-COOH</b>			
15-Biotinamino-4,7,10,13-tetraoxa-pentadecanoic acid		PEG1515.0250	250 mg	€ 225,00
CAS-NO: 721431-18-1		PEG1515.0001	1 g	€ 675,00
FORMULA: C <sub>21</sub> H <sub>33</sub> N <sub>3</sub> O <sub>8</sub> S				
MOL WEIGHT: 491,6 g/mol				
<b>PEG1870</b>	<b>Biotin-dPEG(4)-NHS</b>			
15-Biotinamino-4,7,10,13-tetraoxa-pentadecanoic acid succinimidyl ester		PEG1870.0050	50 mg	€ 225,00
CAS-NO: 459426-22-3		PEG1870.0001	1 g	€ 990,00
FORMULA: C <sub>25</sub> H <sub>40</sub> N <sub>4</sub> O <sub>10</sub> S				
MOL WEIGHT: 588,67 g/mol				
<b>PEG1845</b>	<b>Biotin-dPEG(4)-NHS-(Biotinidase resistant)</b>			
18-Biotinamino-17-oxo-4,7,10,13-tetraoxa-16-azaicosan-1-oic acid succinimidyl ester		PEG1845.0100	100 mg	€ 275,00
CAS-NO: 1334172-61-0		PEG1845.0001	1 g	€ 1.550,00
FORMULA: C <sub>29</sub> H <sub>47</sub> N <sub>5</sub> O <sub>11</sub> S				
MOL WEIGHT: 673,78 g/mol				
<b>PEG7740</b>	<b>Biotin-dPEG™(4)-TFP</b>			
alpha-Biotin-omega-(2,3,5,6-tetrafluorophenyl propionate) tetra(ethylene glycol)		PEG7740.0100	100 mg	€ 200,00
FORMULA: C <sub>27</sub> H <sub>33</sub> F <sub>4</sub> N <sub>3</sub> O <sub>8</sub> S		PEG7740.0001	1 g	€ 825,00
MOL WEIGHT: 639,66 g/mol				
<b>PEG7760</b>	<b>Biotin-dPEG™(4)-TFP-(Biotinidase resistant)</b>			
18-Biotinamino-17-oxo-4,7,10,13-tetraoxa-16-azaicosan-1-oic acid (2,3,5,6-tetrafluorophenyl ester)		PEG7760.0100	100 mg	€ 275,00
CAS-NO: C <sub>31</sub> H <sub>44</sub> F <sub>4</sub> N <sub>4</sub> O <sub>9</sub> S		PEG7760.0001	1 g	€ 1.550,00
FORMULA: C <sub>31</sub> H <sub>44</sub> F <sub>4</sub> N <sub>4</sub> O <sub>9</sub> S				
MOL WEIGHT: 724,76 g/mol				
<b>PEG6690</b>	<b>Biotin-PEG(6)-COOH</b>			
21-[D(+)-Biotinylamino]-4,7,10,13,16,19-hexaoxaheneicosanoic acid		PEG6690.0000	please inquire	
CAS-NO: 1352814-10-8				
FORMULA: C <sub>25</sub> H <sub>45</sub> N <sub>3</sub> O <sub>10</sub> S				
MOL WEIGHT: 579,7 g/mol				
<b>PEG1051</b>	<b>Biotin-PEG(12)-COOH</b>			
alpha-Biotin-omega-(propionic acid)-dodecae(ethylene glycol)		PEG1051.0100	100 mg	€ 290,00
CAS-NO: 948595-11-7		PEG1051.0001	1 g	€ 1.250,00
FORMULA: C <sub>37</sub> H <sub>69</sub> N <sub>3</sub> O <sub>16</sub> S				
MOL WEIGHT: 844,04 g/mol				
<b>PEG1860</b>	<b>Biotin-dPEG(12)-NHS</b>			
alpha-Biotin-omega-carboxy succinimidyl ester dodeca(ethylene glycol)		PEG1860.0050	50 mg	€ 275,00
CAS-NO: 365441-71-0		PEG1860.0001	1 g	€ 1.600,00
FORMULA: C <sub>41</sub> H <sub>72</sub> N <sub>4</sub> O <sub>18</sub> S				
MOL WEIGHT: 941,09 g/mol				
<b>PEG5130</b>	<b>Biotin-PEG(12)-TFP</b>			
alpha-Biotin-omega-propionic acid (2,3,5,6-tetrafluorophenyl) ester dodeca(ethylene glycol)		PEG5130.0100	100 mg	€ 275,00
FORMULA: C <sub>43</sub> H <sub>69</sub> F <sub>4</sub> N <sub>3</sub> O <sub>16</sub> S		PEG5130.1000	1 g	€ 1.275,00
MOL WEIGHT: 992,08 g/mol				

		Article No.	Quantity	Price
<b>PEG7770</b>	<b>Biotin-dPEG™(12)-TFP-(Biotinidase resistant)</b>			
alpha-Biotinyl-(2-aminobutyryl)-omega-(2,3,5,6-tetrafluorophenyl propionate) dodeca (ethylene glycol)			PEG7770.0100	100 mg € 380,00
FORMULA: C <sub>47</sub> H <sub>76</sub> F <sub>4</sub> N <sub>4</sub> O <sub>17</sub> S		PEG7770.0001	1 g € 2.300,00	
MOL WEIGHT: 1077,18 g/mol				
<b>PEG4260</b>	<b>Biotin-dPEG™(24)-COOH</b>			
alpha-Biotin-omega-(propionic acid) 24(ethylene glycol)			PEG4260.0100	100 mg € 350,00
CAS-NO: 721431-18-1		PEG4260.1000	1 g € 1.750,00	
FORMULA: C <sub>61</sub> H <sub>117</sub> N <sub>3</sub> O <sub>28</sub> S				
MOL WEIGHT: 1372,65 g/mol				
<b>PEG4250</b>	<b>Biotin-dPEG™(24)-NHS</b>			
alpha-Biotin-omega-(succinimidyl propionate) 24(ethylene glycol)			PEG4250.0050	50 mg € 380,00
CAS-NO: 365441-71-0		PEG4250.1000	1 g € 1.800,00	
FORMULA: C <sub>65</sub> H <sub>120</sub> N <sub>4</sub> O <sub>30</sub> S				
MOL WEIGHT: 1469,72 g/mol				
<b>PEG7750</b>	<b>Biotin-dPEG™(24)-TFP</b>			
alpha-Biotin-omega-(2,3,5,6-tetrafluorophenyl propionate) 24(ethylene glycol)			PEG7750.0100	100 mg € 380,00
FORMULA: C <sub>67</sub> H <sub>117</sub> F <sub>4</sub> N <sub>3</sub> O <sub>28</sub> S		PEG7750.0001	1 g € 1.800,00	
MOL WEIGHT: 1520,71 g/mol				
<b>PEG4270</b>	<b>Biotin-dPEG™(48)-COOH</b>			
alpha-Biotin-omega-(propionic acid) 48(ethylene glycol)			PEG4270.0100	100 mg € 440,00
CAS-NO: 721431-18-1		PEG4270.1000	1 g € 1.950,00	
FORMULA: C <sub>112</sub> H <sub>218</sub> N <sub>4</sub> O <sub>53</sub> S				
MOL WEIGHT: 2500,99 g/mol				
<b>PEG1053</b>	<b>Biotin-PEG-COOH</b>			
alpha-Biotin-omega-carboxy poly(ethylene glycol) (PEG-MW 3.000 Da)			PEG1053.0500	500 mg € 450,00
MOL WEIGHT: 3000 Da		PEG1053.0001	1 g € 790,00	
<b>PEG1054</b>	<b>Biotin-PEG-COOH</b>			
alpha-Biotin-omega-carboxy poly(ethylene glycol) (PEG-MW 5.000 Da)			PEG1054.0500	500 mg € 450,00
MOL WEIGHT: 5000 Da		PEG1054.0001	1 g € 790,00	
<b>PEG1052</b>	<b>Biotin-PEG-COOH</b>			
alpha-Biotin-omega-carboxy poly(ethylene glycol) (PEG-MW 10.000 Da)			PEG1052.0500	500 mg € 480,00
MOL WEIGHT: 10000 Da		PEG1052.0001	1 g € 850,00	
<b>PEG1056</b>	<b>Biotin-PEG-NHS</b>			
alpha-Biotin-omega-carboxy succinimidyl ester poly(ethylene glycol) (PEG-MW 3.000 Da)			PEG1056.0100	100 mg € 140,00
MOL WEIGHT: 3000 Da		PEG1056.0500	500 mg € 510,00	
		PEG1056.0001	1 g € 910,00	
<b>PEG1057</b>	<b>Biotin-PEG-NHS</b>			
alpha-Biotin-omega-carboxy succinimidyl ester poly(ethylene glycol) (PEG-MW 5.000 Da)			PEG1057.0500	500 mg € 510,00
MOL WEIGHT: 5000 Da		PEG1057.0001	1 g € 910,00	
<b>PEG1055</b>	<b>Biotin-PEG-NHS</b>			
alpha-Biotin-omega-carboxy succinimidyl ester poly(ethylene glycol) (PEG-MW 10.000 Da)			PEG1055.0500	500 mg € 550,00
MOL WEIGHT: 10000 Da		PEG1055.0001	1 g € 970,00	

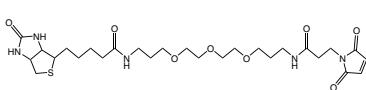
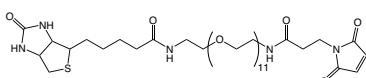
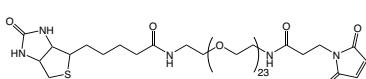
		Article No.	Quantity	Price
<b>PEG1580</b>	<b>mal-dPEG(4)-NNNH-Boc</b>			
1-Maleimido-3-oxo-7,10,13,16-tetraoxa-4-azanonadecan-19-oyl-(N'-t-butyloxycarbonyl) hydrazid			PEG1580.0100	100 mg € 300,00
CAS-NO: 1127247-28-2			PEG1580.0001	1 g € 1.200,00
FORMULA: C <sub>23</sub> H <sub>38</sub> N <sub>4</sub> O <sub>10</sub>				
MOL WEIGHT: 530,57 g/mol				
<b>PEG1590</b>	<b>mal-dPEG(8)-NHS</b>			
1-Maleimido-3-oxo-7,10,13,16,19,22,25,28-octaoxa-4-azahentriacantan-31-oic acid succinimidyl ester			PEG1590.0100	100 mg € 350,00
CAS-NO: 756525-93-6			PEG1590.0001	1 g € 625,00
FORMULA: C <sub>30</sub> H <sub>47</sub> N <sub>3</sub> O <sub>15</sub>				
MOL WEIGHT: 689,71 g/mol				
<b>PEG1600</b>	<b>mal-dPEG(24)-COOH</b>			
alpha-Maleimido-24(ethylene glycol)-omega-propionic acid			PEG1600.0100	100 mg € 350,00
CAS-NO: 871133-36-7			PEG1600.0001	1 g € 1.300,00
FORMULA: C <sub>58</sub> H <sub>108</sub> N <sub>2</sub> O <sub>29</sub>				
MOL WEIGHT: 1297,47 g/mol				
<b>PEG6590</b>	<b>Biotin-PEG-SQA</b>			
alpha-Biotin-omega-squaric acid ethyl ester poly(ethylene glycol) (PEG-MW 3000 Dalton)			PEG6590.0500	500 mg € 555,00
MOL WEIGHT: 3000 Da			PEG6590.0001	1 g € 995,00
<b>PEG6595</b>	<b>Biotin-PEG-SQA</b>			
alpha-Biotin-omega-squaric acid ethyl ester poly(ethylene glycol) (PEG-MW 5000 Dalton)			PEG6595.0500	500 mg € 555,00
MOL WEIGHT: 5000 Da			PEG6595.0001	1 g € 995,00
<b>PEG6580</b>	<b>Biotin-PEG-SQA</b>			
alpha-Biotin-omega-squaric acid ethyl ester poly(ethylene glycol) (PEG-MW 10000 Dalton)			PEG6580.0500	500 mg € 595,00
MOL WEIGHT: 10000 Da			PEG6580.0001	1 g € 1.095,00
<b>PEG6585</b>	<b>Biotin-PEG-SQA</b>			
alpha-Biotin-omega-squaric acid ethyl ester poly(ethylene glycol) (PEG-MW 20000 Dalton)			PEG6585.0500	500 mg € 595,00
MOL WEIGHT: 20000 Da			PEG6585.0001	1 g € 1.095,00
Squaric acid ethyl esters for chemoselective biotinylation of lysine side chains in proteins.				

## Biotin-PEG-Amines

		Article No.	Quantity	Price
<b>PEG2760</b>	<b>Biotin-DOOA*HCl</b>			
1-Biotinyl-3,6-dioxa-8-octaneamine hydrochloride			PEG2760.0100	100 mg € 144,00
CAS-NO: 862373-14-6			PEG2760.0250	250 mg € 240,00
FORMULA: C <sub>16</sub> H <sub>30</sub> N <sub>4</sub> O <sub>4</sub> S*HCl			PEG2760.0500	500 mg € 432,00
MOL WEIGHT: 374,50*36,45 g/mol			PEG2760.0001	1 g € 672,00
			PEG2760.0005	5 g € 2.400,00
<b>PEG2110</b>	<b>Biotin-TEG-NH<sub>2</sub>*TFA</b>			
N-Biotin-tetra(ethylene glycol)-diamine			PEG2110.0100	100 mg € 225,00
CAS-NO: 1334172-59-6			PEG2110.0001	1 g € 990,00
FORMULA: C <sub>20</sub> H <sub>38</sub> N <sub>4</sub> O <sub>5</sub> *CF <sub>3</sub> CO <sub>2</sub> H				
MOL WEIGHT: 446,60*114,02 g/mol				
<b>PEG5140</b>	<b>Biotin-TEG-O-NH<sub>2</sub>*HCl</b>			
N-(2-(2-(2-(aminoxy)ethoxy)ethoxy)ethyl)-5-biotinamide hydrochloride			PEG5140.0050	50 mg € 225,00
FORMULA: C <sub>18</sub> H <sub>34</sub> N <sub>4</sub> O <sub>6</sub> S*HCl			PEG5140.1000	1 g € 990,00
MOL WEIGHT: 434,55*36,45 g/mol				

		Article No.	Quantity	Price
<b>PEG7780</b>	<b>Biotin-dPEG™(3)-NH<sub>2</sub>*TFA</b>			
alpha-Biotin-omega-amino-tri(ethylene glycol) trifluoroacetate		PEG7780.0100	100 mg	€ 200,00
FORMULA: C <sub>20</sub> H <sub>38</sub> N <sub>4</sub> O <sub>5</sub> S*CF <sub>3</sub> CO <sub>2</sub> H		PEG7780.0001	1 g	€ 990,00
MOL WEIGHT: 446,60*114,01 g/mol				
<b>PEG7790</b>	<b>Biotin-dPEG™(3)-O-NH<sub>2</sub>*HCl</b>			
alpha-Biotin-omega-amino-tri(ethylene glycol) hydrochloride		PEG7790.0050	50 mg	€ 200,00
FORMULA: C <sub>18</sub> H <sub>34</sub> N <sub>4</sub> O <sub>6</sub> S*HCl		PEG7790.0001	1 g	€ 990,00
MOL WEIGHT: 434,55*36,45 g/mol				
<b>PEG1425</b>	<b>Biotin-dPEG(4)-NNH<sub>2</sub></b>			
15-Biotinamino-4,7,10,13-tetraoxa-pentadecanoyl hydrazide		PEG1425.0050	50 mg	€ 380,00
CAS-NO: 756525-97-0		PEG1425.0001	1 g	€ 1.450,00
FORMULA: C <sub>21</sub> H <sub>39</sub> N <sub>5</sub> O <sub>5</sub> S				
MOL WEIGHT: 505,63 g/mol				
<b>PEG4290</b>	<b>Biotin-dPEG™(7)-NH<sub>2</sub></b>			
alpha-Biotin-omega-amino hepta(ethylene glycol)		PEG4290.0100	100 mg	€ 380,00
CAS-NO: 1334172-76-7		PEG4290.1000	1 g	€ 1.200,00
FORMULA: C <sub>26</sub> H <sub>50</sub> N <sub>4</sub> O <sub>9</sub> S				
MOL WEIGHT: 594,76 g/mol				
<b>PEG1044</b>	<b>Biotin-PEG(9)-NH<sub>2</sub></b>			
alpha-Biotin-omega-amino-nona(ethylene glycol)		PEG1044.0100	100 mg	€ 390,00
FORMULA: C <sub>30</sub> H <sub>58</sub> N <sub>4</sub> O <sub>11</sub> S		PEG1044.0001	1 g	€ 1.160,00
MOL WEIGHT: 682,88 g/mol				
<b>PEG4300</b>	<b>Biotin-dPEG™(11)-NH<sub>2</sub></b>			
alpha-Biotin-omega-amino undeca(ethylene glycol)		PEG4300.0100	100 mg	€ 425,00
CAS-NO: 604786-74-5		PEG4300.1000	1 g	€ 1.300,00
FORMULA: C <sub>34</sub> H <sub>66</sub> N <sub>4</sub> O <sub>13</sub> S				
MOL WEIGHT: 770,97 g/mol				
<b>PEG4680</b>	<b>Biotin-dPEG™(11)-O-NH<sub>2</sub>*HCl</b>			
alpha-Biotinyl-omega-oxyamine-undeca(ethylene glycol) hydrochloride		PEG4680.0050	50 mg	€ 275,00
FORMULA: C <sub>34</sub> H <sub>66</sub> N <sub>4</sub> O <sub>14</sub> S		PEG4680.1000	1 g	€ 1.600,00
MOL WEIGHT: 786,97*36,45 g/mol				
<b>PEG4310</b>	<b>Biotin-dPEG™(23)-NH<sub>2</sub></b>			
alpha-Biotin-omega-amino 23(ethylene glycol)		PEG4310.0100	100 mg	€ 440,00
CAS-NO: 604786-74-5		PEG4310.1000	1 g	€ 1.450,00
FORMULA: C <sub>58</sub> H <sub>114</sub> N <sub>4</sub> O <sub>23</sub> S				
MOL WEIGHT: 1299,6 g/mol				
<b>PEG1046</b>	<b>Biotin-PEG-NH<sub>2</sub></b>			
alpha-Biotin-omega-amino poly(ethylene glycol) (PEG-MW 3.000 Dalton)		PEG1046.0500	500 mg	€ 410,00
MOL WEIGHT: 3000 Da		PEG1046.0001	1 g	€ 670,00
<b>PEG1047</b>	<b>Biotin-PEG-NH<sub>2</sub></b>			
alpha-Biotin-omega-amino poly(ethylene glycol) (PEG-MW 5.000 Dalton)		PEG1047.0500	500 mg	€ 410,00
MOL WEIGHT: 5000 Da		PEG1047.0001	1 g	€ 670,00
<b>PEG1045</b>	<b>Biotin-PEG-NH<sub>2</sub></b>			
alpha-Biotin-omega-amino poly(ethylene glycol) (PEG-MW 10.000 Dalton)		PEG1045.0500	500 mg	€ 440,00
MOL WEIGHT: 10000 Da		PEG1045.0001	1 g	€ 730,00

**Biotin-PEG-Maleimides**

		Article No.	Quantity	Price
<b>PEG1605</b>	<b>Biotin-dPEG(3)-mal</b>			
N-(3-{2-(2-(3-(Biotinamino)propoxy)ethoxy)ethoxy)propyl}-3-maleimidylpropanamide		PEG1605.0250	250 mg	€ 225,00
CAS-NO: 525573-22-2		PEG1605.0001	1 g	€ 650,00
FORMULA: C <sub>27</sub> H <sub>43</sub> N <sub>5</sub> O <sub>8</sub> S				
MOL WEIGHT: 597,72 g/mol				
<b>PEG1595</b>	<b>Biotin-dPEG(11)-mal</b>			
alpha-Biotin-omega-maleimido undeca(ethylene glycol)		PEG1595.0025	25 mg	€ 350,00
CAS-NO: 1334172-60-9		PEG1595.0100	100 mg	€ 625,00
FORMULA: C <sub>41</sub> H <sub>71</sub> N <sub>5</sub> O <sub>16</sub> S				
MOL WEIGHT: 922,09 g/mol				
<b>PEG4320</b>	<b>Biotin-dPEG™(23)-mal</b>			
alpha-Biotin-omega-maleimido 23(ethylene glycol)		PEG4320.0025	25 mg	€ 380,00
CAS-NO: 1334172-60-9		PEG4320.0100	100 mg	€ 690,00
FORMULA: C <sub>65</sub> H <sub>119</sub> N <sub>5</sub> O <sub>28</sub> S				
MOL WEIGHT: 1450,72 g/mol				
<b>PEG1049</b>	<b>Biotin-PEG-mal</b>			
alpha-Biotin-omega-maleimido poly(ethylene glycol) (PEG-MW 3.000 Dalton)		PEG1049.0500	500 mg	€ 550,00
MOL WEIGHT: 3000 Da		PEG1049.0001	1 g	€ 910,00
<b>PEG1050</b>	<b>Biotin-PEG-mal</b>			
alpha-Biotin-omega-maleimido poly(ethylene glycol) (PEG-MW 5.000 Dalton)		PEG1050.0500	500 mg	€ 550,00
MOL WEIGHT: 5000 Da		PEG1050.0001	1 g	€ 910,00
<b>PEG1048</b>	<b>Biotin-PEG-mal</b>			
alpha-Biotin-omega-maleimido poly(ethylene glycol) (PEG-MW 10.000 Dalton)		PEG1048.0500	500 mg	€ 610,00
MOL WEIGHT: 10000 Da		PEG1048.0001	1 g	€ 970,00

Interested in further PEGylating reagents?

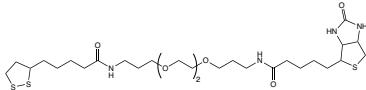
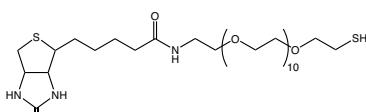
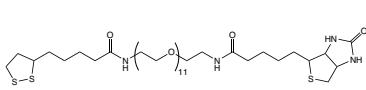
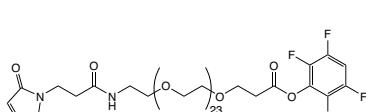
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**Biotin-PEG-Thiols**

		Article No.	Quantity	Price
<b>PEG3570</b>	<b>Lipoamide-dPEG™(3)-biotin</b>			
alpha-Lipoamide-omega-biotinyl tri(ethylene glycol)		PEG3570.0100	100 mg	€ 380,00
CAS-NO: 1334172-74-5		PEG3570.1000	1 g	€ 1.275,00
FORMULA: C <sub>28</sub> H <sub>50</sub> N <sub>4</sub> O <sub>6</sub> S <sub>3</sub>				
MOL WEIGHT: 634,91 g/mol				
<b>PEG4705</b>	<b>Biotin-PEG(11)-SH</b>			
alpha-Biotin-omega-mercaptop undeca(ethylene glycol)		PEG4705.0100	100 mg	€ 450,00
FORMULA: C <sub>34</sub> H <sub>65</sub> N <sub>3</sub> O <sub>13</sub> S <sub>2</sub>		PEG4705.1000	1 g	€ 1.380,00
MOL WEIGHT: 788,02 g/mol				
<b>PEG3580</b>	<b>Lipoamide-dPEG™(11)-biotin</b>			
alpha-Lipoamide-omega-biotinyl undeca(ethylene glycol)		PEG3580.0100	100 mg	€ 500,00
CAS-NO: 960069-81-2		PEG3580.1000	1 g	€ 1.600,00
FORMULA: C <sub>42</sub> H <sub>78</sub> N <sub>4</sub> O <sub>14</sub> S <sub>3</sub>				
MOL WEIGHT: 959,28 g/mol				
<b>PEG7580</b>	<b>mal-dPEG™(24)-TFP</b>			
alpha-Maleinimido-24(ethylene glycol)-omega-propionic acid 2,3,5,6-tetrafluorophenyl ester		PEG7580.0100	100 mg	€ 380,00
FORMULA: C <sub>64</sub> H <sub>108</sub> F <sub>4</sub> N <sub>2</sub> O <sub>29</sub>		PEG7580.0001	1 g	€ 1.600,00
MOL WEIGHT: 1445,53 g/mol				
<b>PEG1213</b>	<b>Biotin-PEG-SH</b>			
alpha-Biotin-omega-mercaptop poly(ethylene glycol) (PEG-MW 3.000 Dalton)		PEG1213.0500	500 mg	€ 900,00
MOL WEIGHT: 3000 Da		PEG1213.0001	1 g	€ 1.580,00
<b>PEG1214</b>	<b>Biotin-PEG-SH</b>			
alpha-Biotin-omega-mercaptop poly(ethylene glycol) (PEG-MW 5.000 Dalton)		PEG1214.0500	500 mg	€ 900,00
MOL WEIGHT: 5000 Da		PEG1214.0001	1 g	€ 1.580,00
<b>PEG1212</b>	<b>Biotin-PEG-SH</b>			
alpha-Biotin-omega-mercaptop poly(ethylene glycol) (PEG-MW 10.000 Dalton)		PEG1212.0500	500 mg	€ 930,00
MOL WEIGHT: 10000 Da		PEG1212.0001	1 g	€ 1.640,00
<b>PEG1226</b>	<b>Biotin-PEG-SH</b>			please inquire
alpha-Biotin-omega-mercaptop poly(ethylene glycol) (PEG-MW 20.000 Dalton)		PEG1226.0000		
MOL WEIGHT: 20000 Da				
<b>PEG4770</b>	<b>Biotin-PEG-OPSS</b>			
alpha-Biotin-omega-pyridyl-2-disulfid poly(ethylene glycol) (PEG-MW 3.000 Dalton)		PEG4770.0500	500 mg	€ 900,00
MOL WEIGHT: 3000 Da		PEG4770.1000	1 g	€ 1.580,00
<b>PEG4775</b>	<b>Biotin-PEG-OPSS</b>			
alpha-Biotin-omega-pyridyl-2-disulfid poly(ethylene glycol) (PEG-MW 5.000 Dalton)		PEG4775.0500	500 mg	€ 900,00
MOL WEIGHT: 5000 Da		PEG4775.1000	1 g	€ 1.580,00
<b>PEG4780</b>	<b>Biotin-PEG-OPSS</b>			
alpha-Biotin-omega-pyridyl-2-disulfid poly(ethylene glycol) (PEG-MW 10.000 Dalton)		PEG4780.0500	500 mg	€ 900,00
MOL WEIGHT: 10000 Da		PEG4780.1000	1 g	€ 1.580,00
<b>PEG4785</b>	<b>Biotin-PEG-OPSS</b>			
alpha-Biotin-omega-pyridyl-2-disulfid poly(ethylene glycol) (PEG-MW 20.000 Dalton)		PEG4785.0500	500 mg	€ 900,00
MOL WEIGHT: 20000 Da		PEG4785.1000	1 g	€ 1.580,00
PEG OPSS reagents for reversible biotinylation of thiols.				

## Other Biotin-PEG Reagents

		Article No.	Quantity	Price
<b>PEG1420</b>	<b>Biotin-dPEG™(3)-Cyanocobalamin</b>	PEG1420.0005	5 mg	€ 250,00
N-(3-{2-(2-(3-(Biotinamino)propoxy)ethoxy)ethoxy)propyl)-cyanocobalamin				
CAS-NO: 295329-79-2				
FORMULA: C <sub>83</sub> H <sub>123</sub> N <sub>17</sub> O <sub>20</sub> CoPS				
MOL WEIGHT: 1800,94 g/mol				
<b>PEG2080</b>	<b>Biotin-TEG-Biotin</b>	PEG2080.0050	50 mg	€ 225,00
N,N'-Bisbiotin-tetra(ethylene glycol)-diamine				
CAS-NO: 194920-54-2				
FORMULA: C <sub>30</sub> H <sub>52</sub> N <sub>6</sub> O <sub>7</sub> S <sub>2</sub>				
MOL WEIGHT: 672,9 g/mol				
<b>PEG1206</b>	<b>Biotin-PEG-OH</b>	PEG1206.0500	500 mg	€ 720,00
alpha-Biotin-omega-hydroxy poly(ethylene glycol) (PEG-MW 3.000 Dalton)				
MOL WEIGHT: 3000 Da				
<b>PEG1207</b>	<b>Biotin-PEG-OH</b>	PEG1207.0500	500 mg	€ 720,00
alpha-Biotin-omega-hydroxy poly(ethylene glycol) (PEG-MW 5.000 Dalton)				
MOL WEIGHT: 5000 Da				
<b>PEG4850</b>	<b>Biotin-PEG-Si(OMe)3</b>	PEG4850.0500	500 mg	€ 560,00
alpha-Biotinyl-omega-trimethoxysilyl poly(ethylene glycol) (PEG-MW 3.000 Dalton)				
MOL WEIGHT: 3000 Da				
<b>PEG4855</b>	<b>Biotin-PEG-Si(OMe)3</b>	PEG4855.0500	500 mg	€ 560,00
alpha-Biotinyl-omega-trimethoxysilyl poly(ethylene glycol) (PEG-MW 5.000 Dalton)				
MOL WEIGHT: 5000 Da				
<b>PEG4860</b>	<b>Biotin-PEG-Si(OMe)3</b>	PEG4860.0500	500 mg	€ 560,00
alpha-Biotinyl-omega-trimethoxysilyl poly(ethylene glycol) (PEG-MW 10.000 Dalton)				
MOL WEIGHT: 10000 Da				
<b>PEG4865</b>	<b>Biotin-PEG-Si(OMe)3</b>	PEG4865.0500	500 mg	€ 560,00
alpha-Biotinyl-omega-trimethoxysilyl poly(ethylene glycol) (PEG-MW 20.000 Dalton)				
MOL WEIGHT: 20000 Da				
PEG silanes for biotinylation of silicate surfaces.				

## 2. Terms and Conditions of Sales

All orders placed by a buyer are accepted and all contracts are made subject to the terms which shall prevail and be effective notwithstanding any variations or additions contained in any order or other document submitted by the buyer. No modification of these terms shall be binding upon Iris Biotech GmbH unless made in writing by an authorised representative of Iris Biotech GmbH.

### Placing of Orders

Every order made by the buyer shall be deemed an offer by the buyer to purchase products from Iris Biotech GmbH and will not be binding on Iris Biotech GmbH until a duly authorised representative of Iris Biotech GmbH has accepted the offer made by the buyer. Iris Biotech GmbH may accept orders from commercial, educational or government organisations, but not from private individuals and Iris Biotech GmbH reserves the right to insist on a written order and/or references from the buyer before proceeding.

There is no minimum order value. At the time of acceptance of an order Iris Biotech GmbH will either arrange prompt despatch from stock or the manufacture/acquisition of material to satisfy the order. In the event of the latter Iris Biotech GmbH will indicate an estimated delivery date. In addition to all its other rights Iris Biotech GmbH reserves the right to refuse the subsequent cancellation of the order if Iris Biotech GmbH expects to deliver the product on or prior to the estimated delivery date. Time shall not be of the essence in respect of delivery of the products. If Iris Biotech GmbH is unable to deliver any products by reason of any circumstances beyond its reasonable control („Force Majeure“) then the period for delivery shall be extended by the time lost due to such Force Majeure. Details of Force Majeure will be forwarded by Iris Biotech GmbH to the buyer as soon as reasonably practicable.

### Prices, Quotations and Payments

Prices are subject to change. For the avoidance of doubt, the price advised by Iris Biotech GmbH at the time of the buyer placing the order shall supersede any previous price indications. The buyer must contact the local office of Iris Biotech GmbH before ordering if further information is required. Unless otherwise agreed by the buyer and Iris Biotech GmbH, the price shall be for delivery ex-works. In the event that the buyer requires delivery of the products otherwise than ex-works the buyer should contact the local office of Iris Biotech GmbH in order to detail its requirements. Iris Biotech GmbH shall, at its discretion, arrange the buyer's delivery requirements including, without limitation, transit insurance, the mode of transit (Iris Biotech GmbH reserves the right to vary the mode of transit if any regulations or other relevant considerations so require) and any special packaging requirements (including cylinders). For the avoidance of doubt all costs of delivery and packaging in accordance with the buyer's requests over and above that of delivery in standard packaging ex-works shall be for the buyer's account unless otherwise agreed by both parties. Incoterms 2010 shall apply. Any tax, duty or charge imposed by governmental authority or otherwise and any other applicable taxes, duties or charges shall be for the buyer's account. Iris Biotech GmbH may, on request and where possible, provide quotations for multiple packs or bulk quantities, and non-listed items. Irrespective of the type of request or means of response all quotations must be accepted by the buyer without condition and in writing before an order will be accepted by Iris Biotech GmbH. Unless agreed in writing on different terms, quotations are valid for 30 days from the date thereof. Payment terms are net 30 days from invoice date unless otherwise agreed in writing. Iris Biotech GmbH reserves the right to request advance payment at its discretion. For overseas transactions the buyer shall pay all the banking charges of Iris Biotech GmbH. The buyer shall not be entitled to withhold or set-off payment for the products for any reason whatsoever. Government/Corporate Visa and MasterCard (and other such credit cards) may be accepted on approved accounts for payment of the products. Personal credit cards are not acceptable. Failure to comply with the terms of payment of Iris Biotech GmbH shall constitute default without reminder. In these circumstances Iris Biotech GmbH may (without prejudice to any other of its rights under these terms) charge interest to accrue on a daily basis at the rate of 2% per month from the date upon which payment falls due to the actual date of payment (such interest shall be paid monthly). If the buyer shall fail to fulfil the payment terms in respect of any invoice of Iris Biotech GmbH Iris Biotech GmbH may demand payment of all outstanding balances from the buyer whether due or not and/or cancel all outstanding orders and/or decline to make further deliveries or provision of services except upon receipt of cash or satisfactory securities. Until payment by the buyer in full of the price and any other monies due to Iris Biotech GmbH in respect of all other products or services supplied or agreed to be supplied by Iris Biotech GmbH to the buyer (including but without limitation any costs of delivery) the property in the products shall remain vested in Iris Biotech GmbH.

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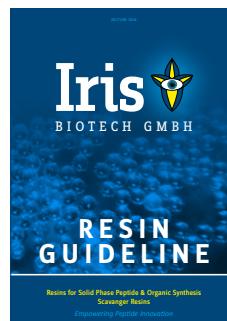
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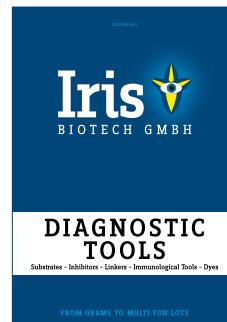
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**Custom Synthesis of Pharmaceutical Intermediates & Building Blocks**

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