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Custom Peptides Modifications

Note: This list is not all inclusive. Additional modifications available upon request.
Some modifications are sequence dependent and will be assessed during the quotation process.

BIOTIN

Modification	Notation	Location
Biotin	Biotin-	Side chain (Lysine) N-terminus
LC-Biotin	Biotin-LC-	Side chain (Lysine) N-terminus

CHELATOR

Modification	Notation	Location
DOTA	-K(DOTA) -DOTA-	Side chain (Lysine or Ornithine) N-terminus
NOTA	-K(NOTA) NOTA-	Side chain (Lysine or Ornithine) N-terminus
MeCoSar	MeCoSar-	Side chain (Lysine or Ornithine) N-terminus
BisCoSar	-BisCoSar-	Side chain (Lysine or Ornithine) N-terminus

CONJUGATION

Modification	Conjugation Molecule	Location
Carrier Protein	KLH Cationized BSA BSA OVA CRM197	Peptide is conjugated to certain residues of the carrier protein (upon request)
Drug Conjugation	Dastinib Doxorubicin Digoxigenin TaxolLanalidomide Pomalidomide	N-terminus or side chain
Peptide oligonucleotide	DNA RNAS iRNA	N-terminus C-terminus Internal

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CYCLIC PEPTIDES

Modifications	Details	Location
Lactam Ring	upon request	Head-to-tail Side-chain-to-headSide-chain-to-tail- Side-chain-to-side-chain
Disulfide bridge S-S bond cyclization	upon request	1-4 pairs1-2 pairs with one free cysteine
Hydrocarbon-stapled peptide	upon request	i & i+3 i & i+4i & i+7
Thioether-bridge	upon request	Head-to-tail Side-chain-to-head Side-chain-to-side-chain
Thiolactone	Side-chain-to-tail	Cysteine to C-terminal or side-chain

GLYCOSYLATION

Modification	Notation	Location
Glucose	Ser(β-D-GlcNAc), Thr(β-D-GlcNAc), Asn(β-D-GlcNAc), Ser(β-D-Glc), Thr(β- D-Glc), Asn(β-D-Glc)	Backbone
Galactose	Ser(α-D-GalNAc)/(Tn Antigen), Thr(α-D-GalNAc)Ser(α-D-Gal), Thr(α-D-Gal), Ser(Gal β(1-3)GalNAc)/(TF Antigen), Thr(Gal β(1-3)GalNAc)/(TF Antigen), Ser(β-D-Gal), Thr(β-D-Gal)	Backbone
Mannose	Ser(α-D-Man), Thr(α-D-Man)	Backbone

LIPIDS

Modification	Notation	Location
Farnesylation	Far-	C (Cysteine)
Geranylation	Ger-	C (Cysteine)
Myristoylation	Myr-	N-terminus
Palmitoylation	Palmi-	N-terminus
Octadecanedioic acid	X=Octadecanedioic acid	N-terminus, side chain
Oleic acid	X=Oleic acid	N-terminus, side chain
Heptadecanoic acid (Stearic acid)	X=Heptadecanoic acid (Stearic acid)	N-terminal, side chain

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METHYLATION

Modification	Notation	Location
Methylation (mono)	-K(Me1)- -R(Me1)-	Side chain (Lysine or Arginine)
Methylation (di)	-K(Me2)-	Side chain (Lysine)
Methylation (Asymmetrical)	-R(asy-Me2)-	Side chain (Arginine)
Methylation (Symmetrical)	-R(sym-Me2)-	Side chain (Arginine)
Methylation (Tri)	-K(Me3)-	Side chain (Lysine)

MULTIPLE ANTIGENIC PEPTIDE

Modification	Notation	Location
MAPS 4-branched	(sequence)-MAPS 4 branch	C-terminus of Peptide to N-terminus of scaffold
MAPS 8-branched	(sequence)-MAPS 8 branch	C-terminus of Peptide to N-terminus of scaffold

PHOSPHO AMINO ACIDS

Modification	Notation	Location
Phosphoserine	-pS-	Backbone
Phosphothreonine	-pT-	Backbone
Phosphotyrosine	-pY-	Backbone

PEG (POLYETHYLGLYCOL)

Modification	Notation	Location
PEG	PEG2 PEG3 PEG4 PEG5 PEG6 PEG8, PEG10 PEG12 PEG2000	N-terminus Side chain (Lysine) Backbone

SULFATION

Modification	Notation	Location
Sulfation	-Y(S03H)-	Tyr side chain

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UAAD

Modification	Notation	Location
(N - γ - 1 - (4,4 - dimethyl - 2,6 - dioxo- cy- clohex - 1 - ylidene)ethyl) - L - α,β - diami- nopropionic acid	Dab(Dde)	Backbone
2-aminobenzoic acid	2-Abz	N-terminus
3-Ala(2-thienyl)-OH	Thi	Backbone
3-maleimidopropionic acid	Mpa	N-terminus Side-chain (Lysine)
6 - aminohexanoic acid	LCAhx	Backbone
Aminooxyacetic acid	AoA	N-terminus
Benzyloxycarbonyl	Z	N-terminus
Citrulline	Cit	Backbone
Cysteic Acid	Cya	Backbone
Cysteine (reduced)	C(reduced)	Backbone
Dehydroleucine	DeLeu	Backbone
Dehydroproline	DePro	Backbone
Diethylamine	DEA	C-terminal
Diphenylethylenediamine	D-Pen	Backbone
L - 2 - aminocaproic acid	Nle	Backbone
L - α - t - butylglycine	Tle	Backbone
L - α, β - diaminopropionic acid	Dap	Backbone
L-Allothreonine	Allo-Thr	Backbone
N-methyl-alanine	N-Me-Ala	Backbone
N-methyl-glycine	N-Me-Gly	Backbone
N-methyl-leucine	N-Me-Leu	Backbone
N-methyl-norvaline	N-Me-Nva	Backbone
N-methyl-phenylalanine	N-me-Phe	Backbone
Ornithine	Orn	Backbone
Proparagylglycine	Pra	Backbone
3-Ala(2-thienyl)-OH	Thi	Backbone
Pyroglutamic acid	pGlu	N-terminus
α - aminoisobutyric acid	Aib	Backbone
β-cyclohexyl-L-alanine	Cha	Backbone
β-cyclopropy -L-alanine	Cpa	Backbone

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UAAD

Modification	Notation	Location	Dalton Increase
Heavy Isotope Amino Acids			
Ala (13C1)	A(13C3)	Backbone	1
Ala (15N)	Ala (15N)	Backbone	1
Ala (13C3)	Ala(13C3)	Backbone	3
Ala (U-13C3, U-15N)	Ala(U-13C3, U-15N)	Backbone	4
Arg (U-13C6, U-15N4)	Arg(U-13C6, U-15N4)	Backbone	7
Asn (U-13C4, U-15N2)	Asn(U-13C4, U-15N2)	Backbone	6
Asp (U-13C4, 15N)	Asp(U-13C4, 15N)	Backbone	5
Cys (U-13C3, 15N)	Cys(U-13C3, 15N)	Backbone	4
Gln (U-13C5, U-15N2)	Gln(U-13C5, U-15N2)	Backbone	7
Glu (U-13C5, 15N)	Glu(U-13C5, 15N)	Backbone	6
Gly (U-13C2, 15N)	Gly(U-13C2, 15N)	Backbone	3
Ile (U-13C6)	Ile(U-13C6)	Backbone	6
Leu (U-13C6, 15N)	Leu(U-13C6, 15N)	Backbone	7
Lys (U-13C6, U-15N2)	Lys(U-13C6, U-15N2)	Backbone	8
Met (U-13C5, 15N)	Met(U-13C5, 15N)	Backbone	6
Phe (U-13C9, 15N)	Phe(U-13C9, 15N)	Backbone	10
Pro (U-13C5, 15N)	Pro(U-13C5, 15N)	Backbone	6
Ser (U-13C3, 15N)	Ser(U-13C3, 15N)	Backbone	4
Thr (U-13C4, 15N)	Thr (U-13C4, 15N)	Backbone	5
Val (U-13C5, 15N)	Val (U-13C5, 15N)	Backbone	6

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UAAD

Modification	Notation	Location
D-Amino Acids		
D-Alanine	D-Ala	Backbone
D-Arginine	D-Arg	Backbone
D-Asparagine	D-Asn	Backbone
D-Aspartic Acid	D-Asp	Backbone
D-Cysteine	D-Cys	Backbone
D-Glutamic Acid	D-Glu	Backbone
D-Glutamine	D-Gln	Backbone
D-Histidine	D-His	Backbone
D-Isoleucine	D-Ile	Backbone
D-Leucine	D-Leu	Backbone
D-Lysine	D-Lys	Backbone
D-Methionine	D-Met	Backbone
D-Phenylalanine	D-Phe	Backbone
D-Proline	D-Pro	Backbone
D-Serine	D-Ser	Backbone
D-Threonine	D-Thr	Backbone
D-Tryptophan	D-Trp	Backbone
D-Tyrosine	D-Tyr	Backbone
D-Valine	D-Val	Backbone

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FLUORESCENT DYE LABELS

Modifications	Ex/Em	Location
Mca	325/393 nm	Side chain (Lysine) N-terminus(additional options upon request)
EDANS	335/493 nm	Side chain (Lysine) N-terminus(additional options upon request)
FAM	492/518 nm	Side chain (Lysine) N-terminus(additional options upon request)
FITC	494/519 nm	Side chain (Lysine) N-terminus(additional options upon request)
HiLyte™Fluor 488	502/527 nm	Side chain (Lysine) N-terminus(additional options upon request)
CyLyte Fluor 3	550/564 nm	Side chain (Lysine) N-terminus(additional options upon request)
HiLyte™Fluor 555	550/566 nm	Side chain (Lysine) N-terminus(additional options upon request)
TAMRA	541/568 nm	Side chain (Lysine) N-terminus(additional options upon request)
Rox	568/591 nm	Side chain (Lysine) N-terminus(additional options upon request)
CyLyte Fluor 5	648/663 nm	Side chain (Lysine) N-terminus(additional options upon request)
HiLyte™Fluor 647	650/675 nm	Side chain (Lysine) N-terminus(additional options upon request)
CyLyte Fluor 7	750/773 nm	Side chain (Lysine) N-terminus(additional options upon request)

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FRET/TR-FRET PAIRS

Dye	Quencher	Ex/Em	Location
Mca	Dnp	325/393 nm	Side chain (Lysine) N-terminus(additional options upon request)
EDANS	Dabcyl	335/493 nm	Side chain (Lysine) N-terminus(additional options upon request)
FAM	QXL®520	492/518 nm	Side chain (Lysine) N-terminus(additional options upon request)
FITC	QXL®520	494/519 nm	Side chain (Lysine) N-terminus(additional options upon request)
HiLyte™Fluor 488	QXL®520	502/527 nm	Side chain (Lysine) N-terminus(additional options upon request)
CyLyte Fluor 3	QXL®570	550/564 nm	Side chain (Lysine) N-terminus(additional options upon request)
HiLyte™Fluor 555	QXL®570	550/566 nm	Side chain (Lysine) N-terminus(additional options upon request)
TAMRA	QXL®570	541/568 nm	Side chain (Lysine) N-terminus(additional options upon request)
ROX	QXL®610	568/591 nm	Side chain (Lysine) N-terminus(additional options upon request)
CyLyte Fluor 5	QXL®670	648/663 nm	Side chain (Lysine) N-terminus(additional options upon request)
HiLyte™Fluor 647	HiLyte™Fluor555	650/675 nm	Side chain (Lysine) N-terminus(additional options upon request)
CyLyte Fluor 7	IR-QXL®	750/773 nm	Side chain (Lysine) N-terminus(additional options upon request)
Europium (Eu)	HiLyte™Fluor 647	650/675 nm	Side chain (Lysine) N-terminus(additional options upon request)
Europium (Eu)	CyLyte Fluor 5	648/663 nm	Side chain (Lysine) N-terminus(additional options upon request)

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N & C TERMINAL MODIFICATIONS

N-terminal		
2-Aminobenzoic acid (2-Abz)	FAM - Fluorescent Dye	PEG5
3-maleimidopropionyl (Mpa)	FITC - Fluorescent Dye	PEG6
Acetyl	Formylation	PEG8
Aminooxyacetic acid (AoA)	HiLyte™ Fluor 488 - Fluorescent Dye	Pyroglutamic acid (Pyr) or (pGlu)
Benzyloxycarbonyl (Z)	HiLyte™ Fluor 555 - Fluorescent Dye	QXL®520 - Quencher
Biotin	HiLyte™ Fluor 647 - Fluorescent Dye	QXL®570 - Quencher
Biotin-LC	HiLyte™ Fluor 750 - Fluorescent Dye	QXL®610 - Quencher
Bromoacetylation	Mca - Fluorescent Dye	QXL®670 - Quencher
CyLyte Fluor3 - Fluorescent Dye	Myristylation	ROX - Fluorescent Dye
CyLyte Fluor5 - Fluorescent Dye	PEG12	Succinylation
CyLyte Fluor7 - Fluorescent Dye	PEG2	Sulforhodamin101 - Fluorescent Dye
DABCYL - Quencher	PEG2000	TAMRA - Fluorescent Dye
Dnp - Quencher	PEG3	
DOTA	PEG4	

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C-terminal

AFC - Fluorescent Dye	K-(CyLyte Fluor3) - Fluorescent Dye	K-(QXL®570) - Quencher
Alcohols and thiols	K-(CyLyte Fluor5) - Fluorescent Dye	K-(QXL®610) - Quencher
Aldehydes	K-(CyLyte Fluor7) - Fluorescent Dye	K-(QXL®670) - Quencher
AMC - Fluorescent Dye	K-(DABCYL) - Quencher	K-(ROX) - Fluorescent Dye
Amide	K-(Dnp) - Quencher	(Peptide)-Rh110-(Peptide) - Fluorescent Dye
Aminoluciferin - Fluorescent Dye	K-(FAM) - Fluorescent Dye	K-(Sulforhodamin101) - Fluorescent Dye
N-Alkyl amides	K-(FITC) - Fluorescent Dye	K-(TAMRA) - Fluorescent Dye
Cysteamide	K-(HiLyte™ Fluor488) - Fluorescent Dye	Nitrile
Dap(Dnp) - Fluorescent Dye	K-(HiLyte™ Fluor555) - Fluorescent Dye	pNA(p-nitroanilide) - Fluorescent Dye
Diethylamide (DEA)	K-(HiLyte™ Fluor647) - Fluorescent Dye	Phosphonate
Esters	K-(HiLyte™ Fluor750) - Fluorescent Dye	Thiol Esters
Halogenmethyl and acyloxymethyl ketones	K(LC-Biotin)-amide	Thiols(-SH)
Hydrazides	K-(Mca) - Fluorescent Dye	
K(Biotin)-amide	K-(QXL®520) - Quencher	

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