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### Aggregating Peptides

**Amylin (14-20) (human)**  
H-8094

The formation of amyloid deposits by IAPP could play a central role in the pathogenesis of type II diabetes. Besides the amyloidogenic 20-29 region, the domain NFLVHSS (IAPP 14-20) tends to aggregate and seems to be involved in plaque formation.


**Lactoferrin (322-329) (human)**  
H-8088

A highly amyloidogenic region of lactoferrin.


### Antihypertensive Peptides

**Ovalbumin (154-159)**  
H-8272

The hexapeptide TNGIIR exhibited higher inhibition of ACE than several other peptides tested in comparison, as found by Yu et al., IC₅₀ 70 μM.

ZYu et al., J. Food Sci., 76, C1149 (2011)

**Ovotransferrin (328-332)**  
H-8274

ACE-inhibitory peptide associated with antioxidant and anticoagulation properties, IC₅₀ 20 μM.

ZYu et al., J. Food Sci., 76, C1149 (2011)

### Cancer Research Peptides

**CBP501 Affinity Peptide**  
H-8214

Matsumoto et al. conducted an affinity selection of T7 phage–displayed peptide using biotinylated CBP501, which identified this 14-mer peptide. It showed similarity to a portion of the alphaH helix of human 14-3-3e, suggesting that CBP501 may bind to this region.


**Biotinyl-CBP501 Affinity Peptide**  
H-8216


**H-Gly-Gly-Arg-Ser-Pro-Ala-Met-Pro-Glu-OH**  
H-8224

M.Suganuma et al., Cancer Res., 59, 5887 (1999)

**H-Leu-Ala-Ala-Val-Ser-Asp-Leu-Asn-Pro-Asn-Ala-Pro-Arg-OH**  
H-8226


**H-Leu-Ser-Pro-Phe-Pro-Phe-Asp-Leu-OH**  
H-8212

P2Ca, an octapeptide derived from α-ketoglutarate dehydrogenase isolated from tissues of H-2d mice. P2Ca is recognized in association with the class I MHC protein, Ld, by a CTL clone (2C).


**H-THR-PRO-ASN-GLN-ARG-ASN-VAL-CYS-OH**  
H-8208

The nonapeptide TPNGRQNVC peptide is the naturally presented epitope at the cell surface by HLA-B7 molecules recognized by CTL RP1.


H-8222
**NEW PEPTIDES**

### Glucagon Impurities

<table>
<thead>
<tr>
<th>Peptide</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Asp²⁹)-Glucagon (1-29)</td>
<td>(human, rat, porcine)</td>
</tr>
<tr>
<td>(Glu²)-Glucagon (1-29)</td>
<td>(human, rat, porcine)</td>
</tr>
<tr>
<td>(Glu²⁰)-Glucagon (1-29)</td>
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</tr>
<tr>
<td>(Glu³⁴)-Glucagon (1-29)</td>
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</tbody>
</table>

The Asn and Gln residues of glucagon show a remarkable propensity for deamidation. The reaction of Gln is promoted by acids and bases, the latter also accelerate deamidation of Asn. These modifications of glucagon lead to loss of biological activity. Deamidation with concomitant isomerization yielding the corresponding β-Asp or γ-Glu peptide has been observed for Asn²⁹ and Gln³⁴ at basic pH. The European Pharmacopeia limits the total of deamidated contaminants of glucagon to maximally 0.5%.


### Exenatide Impurities

<table>
<thead>
<tr>
<th>Peptide</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(D-Asp²⁸)-Exenatide</td>
<td>H-8184</td>
</tr>
<tr>
<td>(β-Asp²⁸)-Exenatide</td>
<td>H-8186</td>
</tr>
<tr>
<td>(β-D-Asp²⁸)-Exenatide</td>
<td>H-8188</td>
</tr>
</tbody>
</table>

These three peptides are possible degradation products of exenatide resulting from aspartimide formation and cleavage.

Xu et al., Anal. Chem. 85, 8964 (2013)

### Orexins

<table>
<thead>
<tr>
<th>Peptide</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>([¹³C₆,¹⁵N³]Leu₂⁶,₁₆,₁₉,₂₀,₃₁,₃₃)-Orexin A</td>
<td>(human, mouse, rat)</td>
</tr>
<tr>
<td>(OXA₁₆-₃₃)</td>
<td>Stable isotope-labeled orexin A analog for use as internal standard in a sensitive quantitative mass spectrometry assay of the peptide hormone in cerebrospinal fluid.</td>
</tr>
<tr>
<td>(OXA₁-₁₅) (free acid)</td>
<td>(human, mouse, rat)</td>
</tr>
<tr>
<td>(Cys(Acm)₆.₁₂)-Orexin A</td>
<td>Biotinyl-(Gln³)-Orexin A</td>
</tr>
</tbody>
</table>

### GLP-1 Analogs

<table>
<thead>
<tr>
<th>Peptide</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Liraglutide acetate salt (Lys⁷-Glu-palmitoyl)²⁸,Arg¹⁴)-GLP-1 (7-37)</td>
<td>(human, mouse, rat)</td>
</tr>
</tbody>
</table>

### Semaglutide acetate salt (NN9535)

Acylated GLP-1 analog with a half-life of 160 h. Semaglutide is under evaluation for the management of diabetes II. Due to its prolonged half-life, it has to be injected only once per week.


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### Cell-permeable Peptides

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<th>Peptide</th>
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<tr>
<td>HA-1H peptide, epitope presented by HLA-A*0201.</td>
<td></td>
</tr>
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</table>


### HA-1H peptide, epitope presented by HLA-A*0201.


### Cell-permeable Peptides

<table>
<thead>
<tr>
<th>Peptide</th>
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<tr>
<td>Calcitonin (9-32) (free acid) (human)</td>
<td></td>
</tr>
<tr>
<td>Octaarginine (RRRRRRRR, R₈)</td>
<td>The cell-penetrating peptide octa-arginine is a potent inhibitor of proteasome activities.</td>
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</table>


### Octaarginine (RRRRRRRR, R₈)

The cell-penetrating peptide octa-arginine is a potent inhibitor of proteasome activities.


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**Octreotide**

**DOTA-(Tyr³)-Octreotide (DOTATOC)**  
H-4136  
Somatostatin analog for tumor scintigraphy and radionuclide therapy.


**RGD Peptides**

**Biotin-εAhx-Gly-Arg-Gly-Asp-Ser-OH**  
H-7938  
Biotin-labeled GRGD.

**FITC-εAhx-Gly-Arg-Gly-Asp-Ser-Pro-OH**  
H-7944  
Fluorescent dye-labeled GRGDSP. FITC-LC-GRGDSP can be conjugated using EDC (Q-1955).


**Cilengitide**  
H-8174  
The cyclic RGD peptide cilengitide is a potential cancer drug. Cilengitide is under investigation for the treatment of glioblastoma, where it may act by inhibiting angiogenesis, and influencing tumor invasion and proliferation.


**H-Gly-Arg-Gly-Asp-Ser-NH₂**  
H-7936  
Control peptide for H-7702, c(RGDyK).


**Cyclo(-Arg-Ala-Asp-D-Tyr-Lys)**  
H-8144  
Control peptide for H-7702, c(RGDyK).


**Cyclo(-Arg-Gly-Asp-D-Tyr-Lys)(Tide Fluor™ 7WS))**  
H-8322  
Cyclic RGD peptide labeled with a fluorophor absorbing at 749 nm and emitting at 775 nm.

**Cyclo(-Gly-Arg-Gly-Glu-Ser-Pro)**  
H-7934  
Negative control for cGRGDSP.

**H-Glu[cyclo(-Arg-Gly-Asp-D-Phe-Lys) - cyclo(-Arg-Gly-Asp-D-Phe-Lys)]**  
H-7952  
E(c(RGDfK))₉, a dimeric form of c(RGDfK), showed improved tumor targeting properties compared to the monomer. E(c(RGDfK))₉ can be easily conjugated to dyes, drug molecules, or chelators. The ⁶⁶Ga complex of DOTA-E(c(RGDfK))₉ has been evaluated as theranostic radiopharmaceutical.


**H-Gly-Arg-Gly-Asp-Ser-Pro-Lys-OH Acetate salt**  
H-8234  
**RGD-targeted Proapoptotic Peptide**  
H-7948  
RGD-4C conjugated to an all-D proapoptotic peptide.

**Various Peptides**

**Abaloparatide**  
H-8334  
The pTHrP-analog abaloparatide (BIM-44058) promoting bone growth has been developed for the treatment of osteoporosis.


**(Pyr¹)-Apelin-13 (human, bovine, mouse, rat) acetate salt**  
H-8298  
Non-mammalian Arg-vasopressin/oxytocin analog.


**BQ-788 Ammonium salt**  
H-8242  
**BQ-788 Sodium salt**  
H-8152  
**ET-B receptor antagonist.**

**Calcitonin C-Terminal Flanking Peptide (human) Acetate salt (Katakalcin)**  
H-8236  
**β-Defensin 2 (human)**  
H-8256  
Two β-defensins (hBD1 and hBD2) have been identified in humans. They are inducible, potent, and selectively killing mainly Gram-negative bacteria and yeast. β-Defensins mobilize cells engaged in adaptive immune responses.


**(D-Ala²,D-Leu⁶)-Enkephalin Trifluoroacetate salt (DADLE)**  
H-8232  
**Trifluorocacetate salt (DADLE)**

**Gastric Juice Peptide Fragment (BPC-157)**  
H-2074  
The pentadecapeptide BPC-157 shows a protective effect on
stomach and duodenum when administered to stress ulcers, cysteamine-duodenal ulcers and ethanol lesions. Application of BPC 157 improved tendon healing.

References:

HHV-2 Envelope Glycoprotein G (552-574)  H-7998
Immunodominant region of the mature glycoprotein G (gG-2) of herpes simplex virus type 2 (HSV-2).

FITC-eAhx-HHV-2 Envelope Glycoprotein G (561-578)  H-8002

Leptin (116-130) amide (mouse)  H-8244
Ammonium salt
Leptin (116-130) amide mimicked the effects of recombinant leptin on body weight and food intake in female ob/ob mice that lack endogenously circulating active leptin.
P. Grasso et al., Endocrinology, 138, 1413 (1997)

Myelin Oligodendrocyte Glycoprotein (35-55) amide (rat, mouse)  H-7866
Trifluoroacetate salt

Murine MOG 35-55 amide.

Neurotensin (8-13) acetate salt  H-8178

Polybia-MP1  H-8154
A mastoparan-related antimicrobial insect venom peptide selectively inhibiting the proliferation of prostate and bladder cancer cells.

Uroguanylin Topoisomer B (human) (UGN Topoisomer B (human))  H-8142
Short peptides containing two disulfide bridges can form interconvertible topoisomers with the same disulfide connectivity. In case of uroguanylin (UGN), both are relatively stable and can be separated, and interconversion is slow. The topoisomers differ in biological activity: The UGN A topomer potently activates the guanylate cyclase C receptor found primarily in the intestine. The B topomer is a very weak agonist of this receptor. Moss et al. could show that UGN B has potent natriuretic activity in the kidney.

Z-Val-Glu-Ile-Asp-AFC  H-8246
Ammonium salt
Z-VEID-AFC, fluorogenic substrate for caspase-6 (Mch2).

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