Opioid Receptor

Opioid receptors are a group of G protein-coupled receptors with opioids as ligands. The endogenous opioids are dynorphins, enkephalins, endorphins, endomorphins and nociceptin. Opioid receptors are distributed widely in the brain, and are found in the spinal cord and digestive tract. Opioid receptors are molecules, or sites, within the body that are activated by opioid substances. Opioid receptors inhibit the transmission of impulse in excitatory pathways within the human body system. These pathways include the serotonin, catecholamine, and substance P pathways, which are all implicated in pain perception and feelings of well-being. Opioid receptors are further subclassified into mu, delta, and kappa receptors. All the classes, while exhibiting differing modes of action, share some basic similarities. They all are driven by the potassium pump mechanism, which is found on the plasma membrane of the majority of cells.
### Opioid Receptor Inhibitors & Modulators

<table>
<thead>
<tr>
<th><strong>ADL-5859</strong></th>
<th><strong>Adrenorphin</strong> (Metorphamide)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cat. No.: HY-13044</strong></td>
<td><strong>Cat. No.: HY-P1087</strong></td>
</tr>
<tr>
<td><strong>Bioactivity:</strong></td>
<td><strong>Bioactivity:</strong> Adrenorphin is a opioid octapeptide, acting as a potent agonist of ( \mu )-opioid receptor, with ( K_i ) of 12 nM.</td>
</tr>
<tr>
<td>ADL5859 is a ( \delta )-opioid receptor agonist with ( K_i ) of 0.8 nM, selectivity against opioid receptor ( \kappa, \mu ), and weak inhibitory activity at the iERG channel.</td>
<td></td>
</tr>
<tr>
<td><strong>Purity:</strong> 99.65%</td>
<td><strong>Purity:</strong> 95.49%</td>
</tr>
<tr>
<td><strong>Clinical Data:</strong> Phase 2</td>
<td><strong>Clinical Data:</strong> No Development Reported</td>
</tr>
<tr>
<td><strong>Size:</strong> 10mM x 1mL in Water, 10 mg, 50 mg, 100 mg</td>
<td><strong>Size:</strong> 1 mg, 5 mg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Alvimopan</strong> (ADL 8-2698; LY 246736)</th>
<th><strong>Alvimopan dihydrate</strong> (ADL 8-2698 dihydrate; LY 246736 dihydrate)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cat. No.: HY-13243</strong></td>
<td><strong>Cat. No.: HY-76657</strong></td>
</tr>
<tr>
<td><strong>Bioactivity:</strong> Alvimopan(LY 246736; ADL 8-2698) is a peripherally acting mu-opioid receptor (PAM-OR, ( IC_{50} = 1.7 ) nM) antagonist for accelerating gastrointestinal recovery after surgery. ( IC_{50} ) Value: 1.7 nM (Mu-type opioid receptor) [1] Target: mu-opioid receptor in vitro: The dissociation rate of alvimopan from the...</td>
<td><strong>Bioactivity:</strong> Alvimopan dihydrate (ADL 8-2698 dihydrate; LY 246736 dihydrate) is a peripherally acting mu-opioid receptor (PAM-OR, ( IC_{50} = 1.7 ) nM) antagonist for accelerating gastrointestinal recovery after surgery. ( IC_{50} ) Value: 1.7 nM (Mu-type opioid receptor) [1] Target: mu-opioid receptor in vitro: The dissociation rate of alvimopan dihydrate from the...</td>
</tr>
<tr>
<td><strong>Purity:</strong> &gt;98%</td>
<td><strong>Purity:</strong> 98.02%</td>
</tr>
<tr>
<td><strong>Clinical Data:</strong> Launched</td>
<td><strong>Clinical Data:</strong> Launched</td>
</tr>
<tr>
<td><strong>Size:</strong> 5 mg, 10 mg, 50 mg</td>
<td><strong>Size:</strong> 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Alvimopan monohydrate</strong> (ADL 8-2698 monohydrate; LY 246736 monohydrate)</th>
<th><strong>AR-M 1000390 hydrochloride</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cat. No.: HY-76657</strong></td>
<td><strong>Cat. No.: HY-101039A</strong></td>
</tr>
<tr>
<td><strong>Bioactivity:</strong> Alvimopan monohydrate (ADL 8-2698 monohydrate; LY 246736 monohydrate) is a peripherally acting mu-opioid receptor (PAM-OR, ( IC_{50} = 1.7 ) nM) antagonist for accelerating gastrointestinal recovery after surgery.</td>
<td><strong>Bioactivity:</strong> AR-M 1000390 hydrochloride is an exceptionally selective, potent ( \delta ) opioid receptor agonist with an ( EC_{50} ) of 7.2±0.9 nM for ( \delta ) agonist potency.</td>
</tr>
<tr>
<td><strong>Purity:</strong> 99.18%</td>
<td><strong>Purity:</strong> 99.80%</td>
</tr>
<tr>
<td><strong>Clinical Data:</strong> Launched</td>
<td><strong>Clinical Data:</strong> No Development Reported</td>
</tr>
<tr>
<td><strong>Size:</strong> 5 mg, 10 mg, 50 mg</td>
<td><strong>Size:</strong> 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Asimadoline</strong> (EMD-61753)</th>
<th><strong>Aticaprant</strong> (CERC-501; LY-2456302)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cat. No.: HY-107384</strong></td>
<td><strong>Cat. No.: HY-101718</strong></td>
</tr>
<tr>
<td><strong>Bioactivity:</strong> Asimadoline is a potent ( \kappa ) opioid receptor agonist with ( IC_{50} ) of 5.6 and 1.2 nM for guinea pig and human recombinant ( \kappa ) opioid receptor, respectively.</td>
<td><strong>Bioactivity:</strong> Aticaprant (CERC-501; LY-2456302) is a potent and centrally-penetrant kappa opioid receptor antagonist with a ( K_i ) of 0.807 nM.</td>
</tr>
<tr>
<td><strong>Purity:</strong> 99.36%</td>
<td><strong>Purity:</strong> 99.24%</td>
</tr>
<tr>
<td><strong>Clinical Data:</strong> Phase 3</td>
<td><strong>Clinical Data:</strong> Phase 1</td>
</tr>
<tr>
<td><strong>Size:</strong> 10mM x 1mL in DMSO, 5 mg, 10 mg, 25 mg</td>
<td><strong>Size:</strong> 10mM x 1mL in DMSO, 1 mg, 5 mg, 10 mg, 20 mg</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>BAM-22P</strong> (Bovine adrenal medulla-22P)</th>
<th><strong>BAN ORL 24</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cat. No.: HY-P1331</strong></td>
<td><strong>Cat. No.: HY-13222</strong></td>
</tr>
<tr>
<td><strong>Bioactivity:</strong> BAM-22P, a highly potent opioid peptide, is a potent opioid agonist.</td>
<td><strong>Bioactivity:</strong> BAN ORL 24 is a potent and selective NOP receptor antagonist. ( IC_{50} ) values are 0.27, 2500, 6700 and &gt; 10000 nM for NOP, ( \kappa-, \mu- ) and ( \delta )-receptors respectively.</td>
</tr>
<tr>
<td><strong>Purity:</strong> &gt;98%</td>
<td><strong>Purity:</strong> 95.07%</td>
</tr>
<tr>
<td><strong>Clinical Data:</strong> No Development Reported</td>
<td><strong>Clinical Data:</strong> No Development Reported</td>
</tr>
<tr>
<td><strong>Size:</strong> 500u g, 1 mg, 5 mg</td>
<td><strong>Size:</strong> 10mM x 1mL in Water, 10 mg, 50 mg, 100 mg</td>
</tr>
</tbody>
</table>
**Bioactivity:** Bevenopran is a peripheral \( \mu \)-opioid receptor antagonist.

**Purity:** >98%

**Clinical Data:** No Development Reported

**Size:** 1 mg, 5 mg

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**Bioactivity:** Cebranopadol is an analgesic \( \text{NOP} \) and \( \text{opioid receptor} \) agonist with \( K_\text{d} \)/\( EC_{50} \) of 0.9 nM/13 nM, 0.7 nM/1.2 nM, 2.6 nM/17 nM, 18 nM/110 nM for human NOP, MOP, KOP and delta-opioid peptide (DOP) receptor, respectively.

**Purity:** 98.76%

**Clinical Data:** No Development Reported

**Size:** 1 mg, 5 mg, 10 mg, 25 mg

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**Bioactivity:** Cebranopadol is a stereoisomer of \( \text{cebranopadol} \). Cebranopadol is a potent agonist activity on ORL-1.

**Purity:** >98%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 2 mg, 5 mg

---

**Bioactivity:** Cebranopadol is a stereoisomer of \( \text{cebranopadol} \). Cebranopadol is a potent agonist activity on ORL-1.

**Purity:** >98%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 2 mg, 5 mg

---

**Bioactivity:** Cebranopadol ((1α,4α)stereoisomer) is a stereoisomer of \( \text{cebranopadol} \). Cebranopadol is a potent agonist activity on ORL-1.

**Purity:** >98%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 2 mg, 5 mg

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**Bioactivity:** CYT-1010 hydrochloride is a \( \mu \)-opioid receptor agonist extracted from patent WO2013173730A2, with \( EC_{50} \) of 13.1 nM and 0.0053 nM on beta-arrestin recruitment and inhibition of cAMP production, respectively \[1\].

**Purity:** >98%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg

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**Bioactivity:** CYT-1010 is a \( \mu \)-opioid receptor agonist extracted from patent WO2013173730A2, with \( EC_{50} \) of 13.1 nM and 0.0053 nM on beta-arrestin recruitment and inhibition of cAMP production, respectively \[1\].

**Purity:** >98%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg

---

**Bioactivity:** CYT-1010 hydrochloride is a \( \mu \)-opioid receptor agonist extracted from patent WO2013173730A2, with \( EC_{50} \) of 13.1 nM and 0.0053 nM on beta-arrestin recruitment and inhibition of cAMP production, respectively \[1\].

**Purity:** >98%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg

---

**Bioactivity:** CYT-1010 hydrochloride is a \( \mu \)-opioid receptor agonist extracted from patent WO2013173730A2, with \( EC_{50} \) of 13.1 nM and 0.0053 nM on beta-arrestin recruitment and inhibition of cAMP production, respectively \[1\].

**Purity:** >98%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg

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**Bioactivity:** DAMGO is a \( \mu \)-opioid receptor \( ( \mu \text{-OPR} ) \) selective agonist.

**Purity:** 98.10%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg

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**Bioactivity:** DAMGO is a \( \mu \)-opioid receptor \( ( \mu \text{-OPR} ) \) selective agonist.

**Purity:** >98%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg

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**Bioactivity:** Deltorphin 2 is a selective peptide agonist for the \( \delta \) opioid receptor.

**Purity:** 98.20%

**Clinical Data:** No Development Reported

**Size:** 1 mg, 5 mg, 10 mg, 25 mg

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**Bioactivity:** Deltorphin 1 is a \( \delta \)-opioid receptor agonist with high affinity and selectivity.

**Purity:** >98%

**Clinical Data:** No Development Reported

**Size:** 1 mg, 5 mg, 10 mg

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**Bioactivity:** Dermorphin is a natural heptapeptide \( \mu \)-opioid receptor (MOR) agonist found in amphibian skin.

**Purity:** 99.64%

**Clinical Data:** No Development Reported

**Size:** 1 mg, 5 mg, 10 mg, 25 mg

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**Bioactivity:** Dermorphin is a natural heptapeptide \( \mu \)-opioid receptor (MOR) agonist found in amphibian skin.

**Purity:** 99.64%

**Clinical Data:** No Development Reported

**Size:** 1 mg, 5 mg, 10 mg, 25 mg

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**Bioactivity:** Dynorphin A (1-10) (TFA), an endogenous opioid neuropeptide, binds to extracellular loop 2 of the \( \kappa \)-opioid receptor.

**Purity:** 95.04%

**Clinical Data:** No Development Reported

**Size:** 1 mg, 5 mg, 10 mg
Dynorphin A 1-10
Cat. No.: HY-P1594

Bioactivity: Dynorphin A (1-10) an endogenous opioid neuropeptide, binds to extracellular loop 2 of the κ-opioid receptor. Dynorphin A (1-10) also blocks NMDA-activated current with an IC\textsubscript{50} of 42.0 μM.

Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg, 10 mg

Dynorphin B 1-13
Cat. No.: HY-P1337

Bioactivity: Dynorphin B (1-13) acts as an agonist on opioid κ-receptor.

Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg, 10 mg

Endomorphin 1
Cat. No.: HY-P0185

Bioactivity: Endomorphin 1, a high affinity, highly selective agonist of the μ-opioid receptor, displays reasonable affinities for kappa\textsubscript{3} binding sites, with K\textsubscript{i} value between 20 and 30 nM.

Purity: 98.15%
Clinical Data: No Development Reported
Size: 10mM x 1mL in Water, 5 mg, 10 mg, 25 mg

Endomorphin 2
Cat. No.: HY-P0186

Bioactivity: Endomorphin 2, a high affinity, highly selective agonist of the μ-opioid receptor, displays reasonable affinities for kappa\textsubscript{3} binding sites, with K\textsubscript{i} value between 20 and 30 nM.

Purity: >98%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg

Endomorphin 2 TFA
Cat. No.: HY-P0186A

Bioactivity: Endomorphin 2 TFA, a high affinity, highly selective agonist of the μ-opioid receptor, displays reasonable affinities for kappa\textsubscript{3} binding sites, with K\textsubscript{i} value between 20 and 30 nM.

Purity: >98%
Clinical Data: No Development Reported
Size: 10mM x 1mL in Water, 5 mg, 10 mg, 25 mg

Gluten Exorphin B5
Cat. No.: HY-P1742

Bioactivity: Gluten Exorphin B5 is an exogenous opioid peptides derived from wheat gluten, acts on opioid receptor, increases postprandial plasma insulin level in rats \cite{1}.

Purity: >98%
Clinical Data: No Development Reported
Size:

Gluten Exorphin C
Cat. No.: HY-P1596

Bioactivity: Gluten exorphin C is an opioid peptide derived from wheat gluten. Its IC\textsubscript{50} values are 40 μM and 13.5 μM for μ opioid and δ opioid activities in the GPI and MVD assays, respectively.

Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg, 10 mg, 25 mg

Hemorphin-7
Cat. No.: HY-P0318

Bioactivity: Hemorphin-7 is a hemorphin peptide, an endogenous opioid peptide derived from the β-chain of hemoglobin. Hemorphin peptides exhibits antinociceptive and antihypertensive activities, activating opioid receptors and inhibiting angiotensin-converting enzyme (ACE).

Purity: 99.65%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg, 10 mg

JDTic
Cat. No.: HY-10486

Bioactivity: JDTic is a highly selective antagonist for the κ-opioid receptor, without affecting the μ- or δ-opioid receptors.

Purity: >98%
Clinical Data: Phase 1
Size: 5 mg, 10 mg, 50 mg

JDTic dihydrochloride
Cat. No.: HY-10487

Bioactivity: JDTic (dihydrochloride) is a potent antagonist of kappa-opioid receptors (KOR), blocking the κ-agonist U50, 488-induced antinociception.

Purity: 99.79%
Clinical Data: Phase 1
Size: 10mM x 1mL in Water, 5 mg, 10 mg, 50 mg
JTC-801  
**Bioactivity:** JTC-801 is a selective opioid receptor-like1 (ORL1) receptor antagonist, binding to ORL1 receptor with a $K_i$ value of 8.2nM.

**Purity:** 99.73%
**Clinical Data:** No Development Reported
**Size:** 5 mg, 10 mg, 50 mg

Kelatorphan  
**Bioactivity:** Kelatorphan is a full inhibitor of enkephalin degrading enzymes.

**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 500 mg, 250 mg

Loperamide hydrochloride  
(R-18553 (hydrochloride))  
**Bioactivity:** Loperamide (hydrochloride) (R-18553 (hydrochloride)) is an opioid receptor agonist for the treatment of diarrhea.

**Purity:** 99.69%
**Clinical Data:** Launched
**Size:** 10mM x 1mL in DMSO, 100 mg, 500 mg

LY-2940094  
**Bioactivity:** LY-2940094 is a potent, selective and orally available nociceptin receptor (NOP receptor) antagonist with high affinity ($K_i$=0.105 nM) and antagonist potency ($K_b$=0.166 nM). LY-2940094 reduces ethanol self-administration in ani...

**Purity:** 99.56%
**Clinical Data:** No Development Reported
**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

LY2795050  
**Bioactivity:** LY2795050 is a novel selective κ-opioid Receptor (KOR) antagonist (IC50=0.72 nM) and has the potential as a PET tracer to image KOR in vivo. IC50 Value: 0.72 nM (κ-opioid Receptor). 25.8 nM (κ-opioid) [1] Target: κ-opioid Receptor in vitro: LY2795050 displays full antagonist activity and high...

**Purity:** 98.02%
**Clinical Data:** No Development Reported
**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg, 100 mg

Matrine  
(Matridin-15-one; Vegard; α-Matrine)  
**Bioactivity:** Matrine (Matridin-15-one) is an alkaloid found in plants from the Sophora genus. It has a variety of pharmacological effects, including anti-cancer effects, and action as a kappa opioid receptor and u-receptor agonist.

**Purity:** 98.0%
**Clinical Data:** No Development Reported
**Size:** 10mM x 1mL in DMSO, 100 mg, 200 mg, 500 mg

MCOPPB triHydrochloride  
(MCOPPB 3HCl)  
**Bioactivity:** MCOPPB 3HCl is a nociceptin receptor agonist with pKi of 10.07; weaker activity at other opioid receptors. IC50 value: 10.07 (pKi) Target: nociceptin receptor MCOPPB trihydrochloride is a trihydrochloride form of MCOPPB that is a new nonpeptide nociceptin/orphanin FQ peptide (NOP)-receptor...

**Purity:** 99.35%
**Clinical Data:** No Development Reported
**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

MT-7716 free base  
(W-212393)  
**Bioactivity:** MT-7716 free base (W-212393) is a selective non-peptide nociceptin receptor (NOP) agonist and promising potential treatment drug for alcohol abuse and relapse prevention [1].

**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:**

MT-7716 hydrochloride  
(W-212393 hydrochloride)  
**Bioactivity:** MT-7716 hydrochloride (W-212393 hydrochloride) is a selective non-peptide nociceptin receptor (NOP) agonist and promising potential treatment drug for alcohol abuse and relapse prevention [1].

**Purity:** >98%
**Clinical Data:** No Development Reported
**Size:** 100 mg, 500 mg, 250 mg

N-Desmethylclozapine  
(Norclozapine; Desmethylclozapine; Normethylclozapine)  
**Bioactivity:** N-Desmethylclozapine is a dengue virus inhibitor, and an agonist of δ-opioid receptor.

**Purity:** 98.66%
**Clinical Data:** No Development Reported
**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 25 mg
<table>
<thead>
<tr>
<th><strong>Bioactivity</strong></th>
<th><strong>Naloxegol (NKTR-118; AZ-13337019)</strong>  Cat. No.: HY-A0118</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxegol (NKTR-118; AZ-13337019) is an opioid-receptor antagonist</td>
<td><img src="image1.png" alt="Image" /></td>
</tr>
<tr>
<td>Purity: &gt;98%</td>
<td>Clinical Data: Launched</td>
</tr>
<tr>
<td>Size: 5 mg, 10 mg, 50 mg, 100 mg</td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bioactivity</strong></th>
<th><strong>Naloxegol oxalate (NKTR-118 oxalate; AZ-13337019 oxalate)</strong>  Cat. No.: HY-A0118A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naloxegol oxalate (NKTR-118 oxalate; AZ-13337019 oxalate) is an opioid-receptor antagonist</td>
<td><img src="image3.png" alt="Image" /></td>
</tr>
<tr>
<td>Purity: 99.90%</td>
<td>Clinical Data: Launched</td>
</tr>
<tr>
<td>Size: 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg, 100 mg</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bioactivity</strong></th>
<th><strong>Naltrindole hydrochloride</strong>  Cat. No.: HY-101177</th>
</tr>
</thead>
<tbody>
<tr>
<td>Naltrindole hydrochloride is a highly potent and selective non-peptide δ opioid receptor antagonist with a ( K_i ) of 0.02 nM.</td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td>Purity: 99.68%</td>
<td>Clinical Data: No Development Reported</td>
</tr>
<tr>
<td>Size: 10mM x 1mL in DMSO, 5 mg, 10 mg, 25 mg, 50 mg</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bioactivity</strong></th>
<th><strong>Neuropeptide AF (93-110), Human</strong>  Cat. No.: HY-P1246</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuropeptide AF (93-110), Human is an endogenous antiopioid peptide.</td>
<td><img src="image5.png" alt="Image" /></td>
</tr>
<tr>
<td>Purity: &gt;98%</td>
<td>Clinical Data: No Development Reported</td>
</tr>
<tr>
<td>Size: 500 µg, 1 mg, 5 mg</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bioactivity</strong></th>
<th><strong>Nociceptin (1-13), amide</strong>  Cat. No.: HY-P1317</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nociceptin (1-13), amide is a potent ORL1 (OP4) receptor agonist with a ( pEC_{50} ) of 7.9 for mouse vas deferens and a ( K_i ) of 0.75 nM for binding to rat forebrain membranes</td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td>Purity: &gt;98%</td>
<td>Clinical Data: No Development Reported</td>
</tr>
<tr>
<td>Size: 250 mg, 500 mg</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bioactivity</strong></th>
<th><strong>ORL1 antagonist 1</strong>  Cat. No.: HY-112263</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORL1 antagonist 1 is an opioid receptor-like 1 (ORL1) antagonist with an ( IC_{50} ) of 61 nM.</td>
<td><img src="image7.png" alt="Image" /></td>
</tr>
<tr>
<td>Purity: &gt;98%</td>
<td>Clinical Data: No Development Reported</td>
</tr>
<tr>
<td>Size: 250 mg, 500 mg</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bioactivity</strong></th>
<th><strong>PZM21</strong>  Cat. No.: HY-101386</th>
</tr>
</thead>
<tbody>
<tr>
<td>PZM21 is a potent and selective ( \mu ) opioid receptor agonist with an ( EC_{50} ) of 1.8 nM.</td>
<td><img src="image8.png" alt="Image" /></td>
</tr>
<tr>
<td>Purity: 99.45%</td>
<td>Clinical Data: No Development Reported</td>
</tr>
<tr>
<td>Size: 10mM x 1mL in DMSO, 1 mg, 5 mg, 10 mg, 50 mg, 100 mg</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Bioactivity</strong></th>
<th><strong>Sinomenine hydrochloride</strong>  Cat. No.: HY-15122A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sinomenine hydrochloride is a blocker of the NF-κB activation and also an activator of ( \mu )-opioid receptor.</td>
<td><img src="image9.png" alt="Image" /></td>
</tr>
<tr>
<td>Purity: 98.0%</td>
<td>Clinical Data: No Development Reported</td>
</tr>
<tr>
<td>Size: 10mM x 1mL in DMSO, 100 mg</td>
<td></td>
</tr>
</tbody>
</table>

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**Tel:** 609-228-6898  **Fax:** 609-228-5909  **Email:** sales@MedChemExpress.com
SR17018
Cat. No.: HY-111454
Bioactivity: SR17018 is an mu-opioid-receptor (MOR) agonist, binding with GTPγS, with an EC$_{50}$ of 97 nM.
Purity: 98.0%
Clinical Data: No Development Reported
Size: 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg, 100 mg

Trimebutine
Cat. No.: HY-B0380
Bioactivity: Trimebutine is a drug with antimuscarinic and weak mu opioid agonist effects.
Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg, 10 mg, 20 mg

Trimebutine maleate
Cat. No.: HY-B0380A
Bioactivity: Trimebutine maleate is a drug with antimuscarinic and weak mu opioid agonist effects.
Purity: 99.95%
Clinical Data: Launched
Size: 10mM x 1mL in DMSO, 5 g

Tyr-Gly-Gly-Phe-Met-OH
Cat. No.: HY-P0073
Bioactivity: Tyr-Gly-Gly-Phe-Met-OH regulates human immune function and inhibits tumor growth via binding to the opioid receptor.
Purity: 99.81%
Clinical Data: No Development Reported
Size: 10mM x 1mL in Water, 10 mg, 25 mg, 50 mg, 100 mg

Valorphin
Cat. No.: HY-P1599
Bioactivity: Valorphin is an endogenous hemoglobin β-chain (33-39) fragment with opioid analgesic activity, binds to rat mu-opioid receptor, with an IC$_{50}$ of 14 nM; Valorphin also shows anti-tumor activity.
Purity: >98%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg

Vanilpyruvic acid
Cat. No.: HY-101416
Bioactivity: Vanilpyruvic acid is a catecholamine metabolite and precursor to vanillactic acid.
Purity: 98.0%
Clinical Data: No Development Reported
Size: 10mM x 1mL in DMSO, 10 mg

ZT 52656A hydrochloride
Cat. No.: HY-101582
Bioactivity: ZT 52656A is a selective kappa opioid agonist, used for the prevention or alleviation of pain in the eye.
Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg, 10 mg, 20 mg

[D-Ala2]leucine-enkephalin
Cat. No.: HY-P0098
Bioactivity: [D-Ala2]leucine-enkephalin, a delta opioid agonist, is a degradation resistant long-acting Leu-enkephalin.
Purity: 99.75%
Clinical Data: No Development Reported
Size: 10mM x 1mL in Water, 5 mg, 10 mg, 50 mg

[Leu5]-Enkephalin
Cat. No.: HY-P0288
Bioactivity: [Leu5]-Enkephalin is a pentapeptides with morphine like properties. [Leu5]-Enkephalin is a five amino acid endogenous peptide that acts as an agonist at opioid receptors.
Purity: 99.72%
Clinical Data: No Development Reported
Size: 10mM x 1mL in Water, 10 mg, 25 mg

[Leu5]-Enkephalin, amide
Cat. No.: HY-P1470
Bioactivity: [Leu5]-Enkephalin, amide is a δ opioid receptor agonist.
Purity: >98%
Clinical Data: No Development Reported
Size: 10 mg, 25 mg

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<table>
<thead>
<tr>
<th><strong>Bioactivity</strong></th>
<th><strong>Bioactivity</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>[Met5]-Enkephalin, amide</td>
<td>β-Casomorphin, bovine</td>
</tr>
<tr>
<td>(5-Methionine-enkephalin amide)</td>
<td>(β-Casomorphin-7 (bovine); Bovine β-casomorphin-7)</td>
</tr>
<tr>
<td>Purity: &gt;98%</td>
<td>Purity: &gt;98%</td>
</tr>
<tr>
<td>Clinical Data: No Development Reported</td>
<td>Clinical Data: No Development Reported</td>
</tr>
<tr>
<td>Size: 10 mg, 25 mg</td>
<td>Size: 5 mg, 10 mg, 25 mg</td>
</tr>
</tbody>
</table>

**Bioactivity**: [Met5]-Enkephalin, amide is an agonist for δ opioid receptors as well as putative ζ opioid receptors.

**Bioactivity**: β-casomorphin, bovine (β-casomorphin-7) is a opioid peptide with an IC₅₀ of 14 μM in an Opioid receptors binding assay.

<table>
<thead>
<tr>
<th><strong>Bioactivity</strong></th>
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<tbody>
<tr>
<td>β-Casomorphin, human</td>
<td>β-Endorphin, human</td>
</tr>
<tr>
<td>(Human β-casomorphin 7)</td>
<td>Cat. No.: HY-P1481</td>
</tr>
<tr>
<td>Purity: &gt;98%</td>
<td>Purity: &gt;98%</td>
</tr>
<tr>
<td>Clinical Data: No Development Reported</td>
<td>Clinical Data: No Development Reported</td>
</tr>
<tr>
<td>Size: 5 mg, 10 mg, 25 mg</td>
<td>Size: 1 mg, 5 mg, 10 mg</td>
</tr>
</tbody>
</table>

**Bioactivity**: β-Casomorphin, human is an opioid peptide, acts as an agonist of opioid receptor.

**Bioactivity**: β-Endorphin, human, a prominent endogenous peptide, existing in the hypophysis cerebri and hypothalamus, is an agonist of opioid receptor, with preferred affinity for μ-opioid receptor and δ-opioid receptor; β-Endorphin, human exhibits antinoiception activity.