Interleukin-1 receptor-associated kinase (IRAK) is first described as a signal transducer for the proinflammatory cytokine IL-1 and is later implicated in signal transduction of other members of the Toll-like receptor (TLR)/IL-1R family. Four different IRAK-like molecules have been identified: two active kinases, IRAK-1 and IRAK-4, and two inactive kinases, IRAK-2 and IRAK-M. All IRAKs mediate activation of NF-κB and MAPK pathways. IRAKs are protein kinases involved in signaling innate immune responses from TLRs. After TLR-4 and TLR-2 recognize pathogen-associated molecular patterns, such as LPS and peptidoglycan, all IRAK members form multimeric receptor complexes.

IRAKs are essential signaling intermediates in the TLR/IL-1R pathway to both IKK and MAPKs activation. These two pathways are central to the activation of several transcription factors, including NF-κB and AP-1, which contribute to the establishment of an immune response.
# IRAK Inhibitors & Modulators

## AZ1495

**Bioactivity:** AZ1495 (compound 28) is an oral active inhibitor of Interleukin-1 receptor associated kinase 4 (IRAK4), with IC\(_{50}\) values of 5 nM and 23 nM for IRAK4 and IRAK1, respectively. Shows activity in treatment of mutant MYD88 L265P diff.

**Purity:** 99.83%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

## CA-4948

**Bioactivity:** CA-4948 is a selective and potent IRAK4 inhibitor.

**Purity:** 98.44%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 2 mg, 5 mg, 10 mg, 50 mg, 100 mg

## Ginsenoside Rb1

**Bioactivity:** Ginsenoside Rb1, a main constituent of the root of Panax ginseng, inhibits Na\(^+\), K\(^-\)-ATPase activity with an IC\(_{50}\) of 6.3±1.0 μM. Ginsenoside also inhibits IRAK-1 activation and phosphorylation of NF-κB p65.

**Purity:** 98.0%

**Clinical Data:** No Development Reported

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

## IRAK inhibitor 1

**Bioactivity:** IRAK inhibitor 1 is a potent IRAK-4 inhibitor with IC\(_{50}\) of 216 nM, is poorly active against Jnk-1 and Jnk-2 with IC\(_{50}\) of 3.801 μM, and >10 μM, respectively.

**Purity:** 99.47%

**Clinical Data:** No Development Reported

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

## IRAK inhibitor 2

**Bioactivity:** IRAK inhibitor 2 is interleukin-1 receptor associated kinase inhibitor.

**Purity:** 97.23%

**Clinical Data:** No Development Reported

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

## IRAK inhibitor 3

**Bioactivity:** IRAK inhibitor 3 is an interleukin-1 (IL-1) receptor-associated kinase (IRAK) kinase modulator extracted from patent WO2008030579 A2.

**Purity:** 96.20%

**Clinical Data:** No Development Reported

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

## IRAK inhibitor 4

**Bioactivity:** IRAK inhibitor 4 is an interleukin-1 receptor associated kinase 4 (IRAK4) inhibitor.

**Purity:** 99.24%

**Clinical Data:** No Development Reported

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

## IRAK inhibitor 4 trans

**Bioactivity:** IRAK inhibitor 4 (trans) is the trans form of IRAK inhibitor 4. IRAK inhibitor 4 is an interleukin-1 receptor associated kinase 4 (IRAK4) inhibitor.

**Purity:** 99.50%

**Clinical Data:** No Development Reported

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

## IRAK inhibitor 6

**Bioactivity:** IRAK inhibitor 6 is an inhibitor of interleukin-1 receptor associated kinase 4 (IRAK-4) with IC\(_{50}\) of 160 nM.

**Purity:** 99.75%

**Clinical Data:** No Development Reported

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

## IRAK-1-4 Inhibitor I

**Bioactivity:** IRAK-1-4 Inhibitor I is an inhibitor of interleukin-1 receptor-associated kinase 1/4 (IRAK 1/4) with IC\(_{50}\) of 0.2 μM and 0.3 μM, respectively.

**Purity:** 98.49%

**Clinical Data:** No Development Reported

**Size:** 10mM x 1mL in DMSO, 5 mg, 10 mg, 50 mg, 100 mg
<table>
<thead>
<tr>
<th><strong>IRAK4-IN-1</strong></th>
<th><strong>PF06650833</strong></th>
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<tbody>
<tr>
<td><strong>Cat. No.:</strong> HY-101922</td>
<td><strong>Cat. No.:</strong> HY-19836</td>
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<tr>
<td><strong>Bioactivity:</strong> IRAK4-IN-1 is an interleukin-1 receptor associated kinase 4 (IRAK4) inhibitor with an IC₅₀ of 7 nM.</td>
<td><strong>Bioactivity:</strong> PF06650833 is an inhibitor of interleukin-1 receptor associated kinase 4 (IRAK4), and used to treat diseases such as rheumatoid arthritis, lupus, and lymphomas.</td>
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<td><strong>Purity:</strong> 99.01%</td>
<td><strong>Purity:</strong> 98.68%</td>
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<td><strong>Clinical Data:</strong> No Development Reported</td>
<td><strong>Clinical Data:</strong> Phase 2</td>
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