RIP kinase

Receptor-interacting protein kinases; RIPK

Receptor-interacting protein (RIP) kinases are a group of threonine/serine protein kinases with a relatively conserved kinase domain but distinct non-kinase regions. There are seven members of the RIPK family, RIPK1-7, some of which have emerged as critical effectors of immunity to infection with a diverse array of bacterial, viral, and protozoal pathogens.

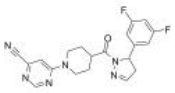
RIP kinases are cellular signaling molecules that are critical for homeostatic signaling in both communicable and non-communicable disease processes. RIPK1, RIPK2, RIPK3 and RIPK7 have emerged as key mediators of intracellular signal transduction including inflammation, autophagy and programmed cell death, and are thus essential for the early control of many diverse pathogenic organisms.

RIP kinase Inhibitors & Activators

(Rac)-GSK547

Cat. No.: HY-114492A

(Rac)-GSK547 is the racemate of GSK547. GSK547 is a highly selective and potent inhibitor of receptor-interacting serine/threonine protein kinase 1 (RIP1), inhibits macrophage-mediated adaptive immune tolerance in pancreatic cancer.

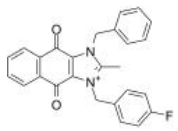


Purity: 99.92%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg

cRIPGBM

Cat. No.: HY-125466

cRIPGBM, a proapoptotic derivative of RIPGBM, a cell type-selective inducer of **apoptosis** in GBM cancer stem cells (CSCs) by binding to receptor-interacting protein kinase 2 **(RIPK2)**, with an EC_{50} of 68 nM in GBM-1 cells.



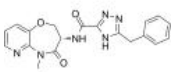
Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

Eclitasertib

(DNL-758; SAR-443122)

Cat. No.: HY-114371

Eclitasertib (DNL-758) is a potent **receptor-interacting protein kinase 1 (RIPK1)** inhibitor with an IC_{50} of <1 μM (From patent WO2017136727A2, example 42).

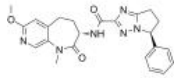


Purity: 99.92%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

GNE684

Cat. No.: HY-128585

GNE684 is a potent inhibitor of **potent receptor interacting protein 1 (RIP1)**, with mean K_i^{app} values of 21 nM, 189 nM and 691 nM for human mouse and rat RIP1, respectively.



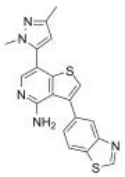
Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

GSK-843

(GSK'843)

Cat. No.: HY-125402

GSK-843 (GSK'843) is a **receptor-interacting protein kinase 3 (RIP3 or RIPK3)** inhibitor, which binds RIP3 kinase domain with an IC_{50} of 8.6 nM, and inhibits kinase activity with an IC_{50} of 6.5 nM.

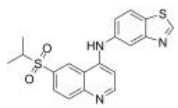


Purity: 98.43%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg

GSK-872

Cat. No.: HY-101872

GSK-872 is a **RIPK3** inhibitor, which binds RIP3 kinase domain with an IC_{50} of 1.8 nM, and inhibits kinase activity with an IC_{50} of 1.3 nM.

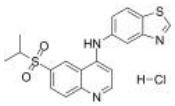


Purity: 99.91%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

GSK-872 hydrochloride

Cat. No.: HY-101872A

GSK-872 hydrochloride is a **RIPK3** inhibitor, which binds RIP3 kinase domain with an IC_{50} of 1.8 nM, and inhibits kinase activity with an IC_{50} of 1.3 nM.



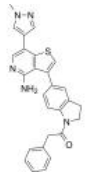
Purity: 99.64%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

GSK2593074A

(GSK'074)

Cat. No.: HY-122909

GSK2593074A (GSK'074) is a **necroptosis** inhibitor with dual targeting ability to both **RIP1** and **RIP3**.

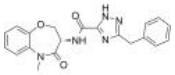


Purity: 98.67%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

GSK2982772

Cat. No.: HY-101760

GSK2982772 is a potent, orally active and ATP competitive **RIP1** kinase inhibitor with IC_{50} values of 16 nM and 20 nM for human and monkey RIP1, respectively.

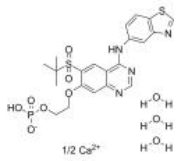


Purity: 98.98%
Clinical Data: Phase 2
Size: 10 mM × 1 mL, 1 mg, 5 mg, 10 mg, 50 mg, 100 mg

GSK2983559

Cat. No.: HY-112038A

GSK2983559 (compound 3) is a potent, specific and oral active **receptor interacting protein 2 (RIP2) kinase** inhibitor, which has excellent activity in blocking many proinflammatory cytokine responses in vivo and in human inflammatory bowel disease explant samples.



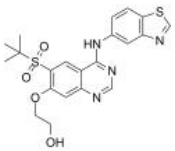
Purity: 99.24%
Clinical Data: Phase 1
Size: 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

Tel: 609-228-6898 Fax: 609-228-5909 Email: sales@MedChemExpress.com

GSK2983559 active metabolite

Cat. No.: HY-19764

GSK2983559 active metabolite is an active metabolite of GSK2983559. GSK2983559 active metabolite is a receptor interacting protein-2 (**RIP2**) kinase inhibitor extracted from patent WO/2014043446 A1, compound example 1.

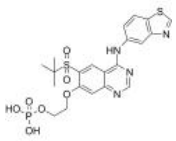


Purity: 98.87%
Clinical Data: Phase 1
Size: 10 mM × 1 mL, 1 mg, 5 mg, 10 mg, 50 mg, 100 mg

GSK2983559 free acid

Cat. No.: HY-112038

GSK2983559 free acid (compound 3) is a potent, specific and oral active **receptor interacting protein 2 (RIP2) kinase** inhibitor. GSK2983559 free acid has excellent activity in blocking many proinflammatory cytokine responses in vivo and in human inflammatory bowel disease explant samples.

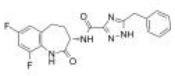


Purity: 99.51%
Clinical Data: Phase 1
Size: 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

GSK3145095

Cat. No.: HY-111946

GSK3145095 is a **RIP1 kinase** inhibitor with an IC_{50} of 6.3 nM .

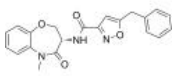


Purity: 99.23%
Clinical Data: Phase 2
Size: 10 mM × 1 mL, 1 mg, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

GSK481

Cat. No.: HY-100131

GSK481 is a highly potent, selective, and specific **receptor interacting protein 1 (RIP1) kinase** inhibitor with an IC_{50} of 1.3 nM, which inhibits Ser^{166} phosphorylation in wild-type human RIP1 (IC_{50}=2.8 nM).



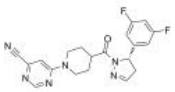
Purity: ≥98.0%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 2 mg, 5 mg, 10 mg, 50 mg, 100 mg

GSK547

(GSK'547)

Cat. No.: HY-114492

GSK547 (GSK'547) is a highly selective and potent inhibitor of **receptor-interacting serine/threonine protein kinase 1 (RIPK1)**, inhibits macrophage-mediated adaptive immune tolerance in pancreatic cancer.

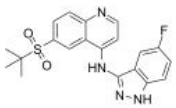


Purity: 99.84%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

GSK583

Cat. No.: HY-100339

GSK583 is a highly potent, orally active and selective inhibitor of **RIP2 Kinase**, with IC_{50} of 5 nM. GSK583 inhibits both TNF-α and IL-6 production with an IC_{50} value of 200 nM.



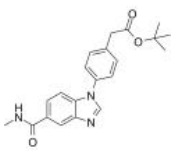
Purity: 98.74%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 2 mg, 5 mg, 10 mg, 50 mg, 100 mg

GSK840

(GSK'840)

Cat. No.: HY-104021

GSK840 (GSK'840) is a **receptor-interacting protein kinase 3 (RIP3 or RIPK3)** inhibitor, which binds RIP3 kinase domain with an IC_{50} of 0.9 nM, and inhibits kinase activity with an IC_{50} of 0.3 nM.

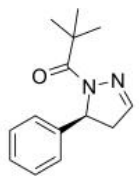


Purity: 98.02%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg

GSK963

Cat. No.: HY-103028A

GSK963 is a chiral, highly potent and selective inhibitor of **RIP1 kinase**, with an IC_{50} of 29 nM. GSK963 is a selective and potent inhibitor of necroptosis in murine and human cells in vitro.

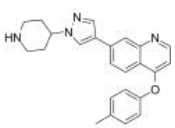


Purity: 99.15%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg

HS-1371

Cat. No.: HY-114349

HS-1371 is a potent and ATP-competitive **receptor-interacting protein kinase 3 (RIP3)** inhibitor with an IC_{50} of 20.8nM.

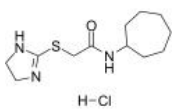


Purity: 98.03%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

ICCB-19 hydrochloride

Cat. No.: HY-138779

ICCB-19 hydrochloride is a **TRADD (TNFRSF1A associated via death domain)** inhibitor. ICCB-19 hydrochloride binds with N-terminal domain of TRADD (TRADD-N), disrupting its binding to both TRADD-C and TRAF2. ICCB-19 hydrochloride is indirect inhibitor of **RIPK1 kinase** activity.

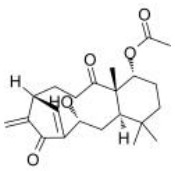


Purity: 99.20%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

Kongensin A

Cat. No.: HY-N3417

Kongensin A is a natural product isolated from Croton kongensis. Kongensin A is an effective, covalent **HSP90** inhibitor that blocks **RIP3**-dependent necroptosishas. Kongensin A is a potent **necroptosis** inhibitor and an **apoptosis** inducer.

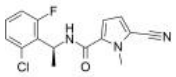


Purity: ≥98.0%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

Nec-4

Cat. No.: HY-18900

Nec-4, a tricyclic derivative, is a potent receptor interacting protein 1 **(RIP1)** inhibitor, with an IC_{50} of 2.6 μM, K_i of 0.46 μM.

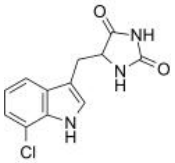


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

Necroptosis-IN-1

Cat. No.: HY-135826

Necroptosis-IN-1, an analog of Necrostatin-1, is a potent **necroptosis** inhibitor. Necroptosis-IN-1 is a **RIPK** inhibitor.

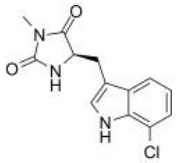


Purity: ≥98.0%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg

Necrostatin 2

Cat. No.: HY-14622

Necrostatin 2 is a potent **necroptosis** inhibitor. EC_{50} for inhibition of necroptosis in FADD-deficient Jurkat T cells treated with **TNF-α** is 0.05 μM. Necrostatin 2 is also a **RIPK1** inhibitor.



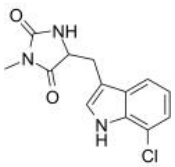
Purity: 99.97%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg

Necrostatin 2 racemate

(Necrostatin 1S; Nec-1S; 7-Cl-O-Nec1)

Cat. No.: HY-14622A

Necrostatin 2 racemate (Nec-1S), the Nec-1 stable, is a potent and specific **RIPK1** inhibitor lacking the IDO-targeting effect.

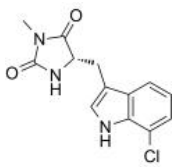


Purity: 99.59%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 1 mg, 5 mg, 10 mg, 50 mg

Necrostatin 2 S enantiomer

Cat. No.: HY-14622B

Necrostatin 2 S enantiomer is the S enantiomer of Necrostatin 2. Necrostatin 2 is a potent necroptosis inhibitor, acts as a RIPK1 inhibitor lacking the IDO-targeting effect.



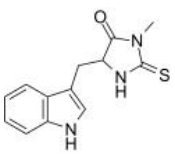
Purity: 99.58%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 1 mg, 5 mg, 10 mg, 50 mg

Necrostatin-1

(Nec-1)

Cat. No.: HY-15760

Necrostatin-1 (Nec-1) is a potent necroptosis inhibitor with an EC_{50} of 490 nM in Jurkat cells. Necrostatin-1 inhibits **RIP1 kinase** (EC_{50}=182 nM). Necrostatin-1 is also an **IDO** inhibitor.

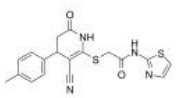


Purity: 99.87%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 10 mg, 50 mg, 100 mg

Necrostatin-34

Cat. No.: HY-132203

Necrostatin-34 (Nec-34), a **RIPK1** kinase inhibitor, stabilizes RIPK1 kinase in an inactive conformation by occupying a distinct binding pocket in the kinase domain.

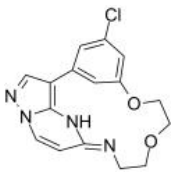


Purity: 98.75%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

OD36

Cat. No.: HY-19628

OD36 is a **RIPK2** inhibitor with an IC_{50} of 5.3 nM. OD36 is a macrocyclic inhibitor with potent binding to the **ALK2** kinase ATP pocket. OD36 shows **ALK2**-directed activity with K_Ds of 37 nM.

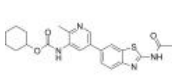


Purity: >98%
Clinical Data: No Development Reported
Size: 5 mg

PK68

Cat. No.: HY-128348

PK68 is a potent and selective type II inhibitor of **receptor-interacting kinase 1 (RIPK1)** with an IC_{50} of ~90nM, displays inhibition of RIPK1-dependent necroptosis.

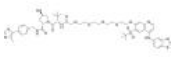


Purity: 99.92%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg

PROTAC RIPK degrader-2

Cat. No.: HY-111866

PROTAC RIPK degrader-2 is a nonpeptidic **PROTAC** based on **von Hippel-Lindau** ligand which potently targets serine-threonine kinase **RIPK2** and has highly selective for RIPK2 degradation.



Purity: 99.05%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg

PROTAC RIPK degrader-6

Cat. No.: HY-111870

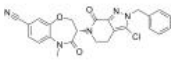
PROTAC RIPK degrader-6 (example 1) is a **Cereblon**-based **PROTAC** targeting **RIP Kinase** degradation wherein the RIP2 kinase inhibitor is linked via a linker to a cereblon binder.

Purity: 99.32%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg

RIP1 kinase inhibitor 1

Cat. No.: HY-111409

RIP1 kinase inhibitor 1 (compound 22) is a highly potent, orally available, and brain-penetrating **RIP1 kinase** inhibitor (pK_i=9.04).

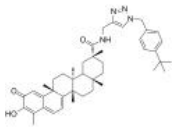


Purity: 99.68%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 50 mg, 100 mg

RIP1/RIP3/MLKL activator 1

Cat. No.: HY-144828

RIP1/RIP3/MLKL activator 1 (Compound 6i) is a potent **anti-glioma** agent. RIP1/RIP3/MLKL activator 1 induces **necroptosis** through **RIP1/RIP3/MLKL** pathway. RIP1/RIP3/MLKL activator 1 exerts acceptable BBB permeability.

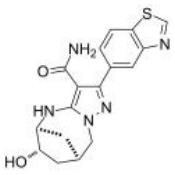


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIP2 kinase inhibitor 1

Cat. No.: HY-133014

RIP2 kinase inhibitor 1 (compound 11) is a potent and selective **receptor interacting protein 2 (RIP2)** kinase inhibitor with an IC_{50} of 0.03 μM for RIP2 FP. RIP2 kinase inhibitor 1 is used for autoinflammatory disorders.

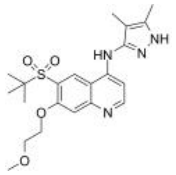


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIP2 kinase inhibitor 2

Cat. No.: HY-19761

RIP2 kinase inhibitor 2 is a receptor interacting protein-2 (**RIP2**) kinase inhibitor extracted from patent WO/2014043437 A1, compound example 9.

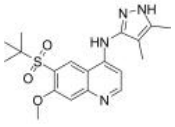


Purity: 99.16%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 1 mg, 5 mg, 10 mg, 50 mg, 100 mg

RIP2 Kinase Inhibitor 3

Cat. No.: HY-112907

RIP2 Kinase Inhibitor 3 is a highly potent and selective inhibitor of **receptor interacting protein-2 (RIP2) Kinase** with an IC_{50} of 1 nM .

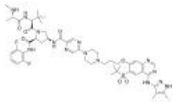


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIP2 Kinase Inhibitor 4

Cat. No.: HY-136010

RIP2 Kinase Inhibitor 4 is a potent and selective **RIPK2 PROTAC**. RIP2 Kinase Inhibitor 4 effectively degrades RIPK2 (**pIC**$_{50}$ of 8) and inhibits the release of related TNF-α.

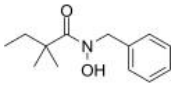


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIPA-56

Cat. No.: HY-101032

RIPA-56 is a highly potent, selective, and metabolically stable inhibitor of receptor-interacting protein 1 (**RIP1**) with an IC_{50} of 13 nM. RIPA-56 can be used for the treatment of systemic inflammatory response syndrome.

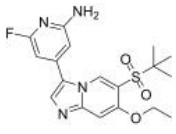


Purity: 99.96%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 10 mg, 50 mg, 100 mg, 200 mg

RIPK-IN-4

Cat. No.: HY-107978

RIPK-IN-4 is a potent and selective **RIPK2** inhibitor with excellent oral bioavailability, and has an IC_{50} of 3 nM.

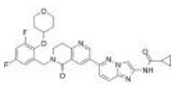


Purity: 99.35%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg

RIPK1-IN-10

Cat. No.: HY-143728

RIPK1-IN-10 is a potent RIPK1 inhibitor, example 37, extracted from patent WO2021160109.

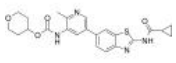


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIPK1-IN-11

Cat. No.: HY-144276

RIPK1-IN-11 is a potent and orally active **RIPK1** inhibitor (K_d=9.2 nM; IC_{50}=67 nM). RIPK1-IN-11 inhibits necroptosis in both human and mouse cells (EC_{50}=17-30 nM). Anti-inflammatory activity.

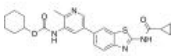


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIPK1-IN-12

Cat. No.: HY-144277

RIPK1-IN-12 is a potent **RIPK1** inhibitor. RIPK1-IN-12 inhibits necroptosis in both human and mouse cells, with EC_{50} values of 1.6 and 2.9 nM, respectively.

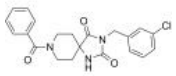


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIPK1-IN-13

Cat. No.: HY-146757

RIPK1-IN-13 (Compound 8) is a potent inhibitor of **RIPK1** with an IC_{50} value of 1139 nM. RIPK1-IN-13 blocks the activation of the necroptosis pathway via the inhibition of RIPK1. RIPK1-IN-13 has the potential for the research of inflammation diseases.

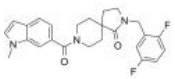


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIPK1-IN-14

Cat. No.: HY-146758

RIPK1-IN-14 (Compound 41) is a potent inhibitor of **RIPK1** with an IC_{50} value of 92 nM. RIPK1-IN-14 shows a significant anti-necroptotic effect in a necroptosis model in U937 cells.

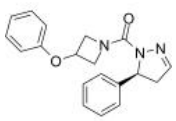


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIPK1-IN-15

Cat. No.: HY-143480

RIPK1-IN-15 (Compound 2.5) is a potent inhibitor of **RIPK1**. RIPK1-IN-15 has the potential for the research neurodegenerative, autoimmune, and inflammatory diseases.

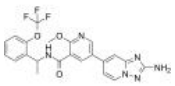


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIPK1-IN-3

Cat. No.: HY-126296

RIPK1-IN-3 (Example 38), a **RIPK1** inhibitor, extracted from patent WO2018148626A1, possesses anti-inflammatory proprieties.

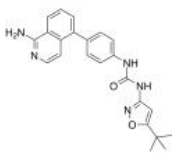


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIPK1-IN-4

Cat. No.: HY-18901

RIPK1-IN-4 (compound 8) is a potent and selective type II kinase inhibitor of **receptor interacting protein 1 (RIP1)** kinase and binds to a DLG-out inactive form of RIP1 with an IC_{50}s of 16 nM and 10 nM for RIP1 and ADP-Glo kinase.

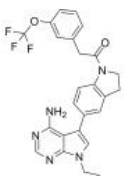


Purity: 98.22%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

RIPK1-IN-7

Cat. No.: HY-119933

RIPK1-IN-7 is a potent and selective **RIPK1** inhibitor with a K_d of 4 nM and an enzymatic IC_{50} of 11 nM. RIPK1-IN-7 exhibits excellent antimetastasis activity in the experimental B16 melanoma lung metastasis model.

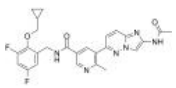


Purity: 98.67%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

RIPK1-IN-8

Cat. No.: HY-143726

RIPK1-IN-8 (example 16), an aminoimidazopyridine, is a potent and selective **RIPK1** inhibitor with an IC_{50} of 4 nM. RIPK1-IN-8 has the potential for inflammatory diseases research.

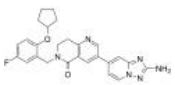


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIPK1-IN-9

Cat. No.: HY-143727

RIPK1-IN-9 (example 45), a dihydronaphthyridone compound, is a potent and selective **RIPK1** inhibitor. RIPK1-IN-9 inhibits U937 cell (IC_{50}=2 nM) and L929 cell (IC_{50}=1.3 nM).

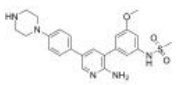


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIPK2-IN-1

Cat. No.: HY-146694

RIPK2-IN-1 (compound 18f) is a potent **RIPK2** inhibitor with an **IC_{50}** of 51 nM. RIPK2-IN-1 inhibits **ALK2** with an **IC_{50}** of 5 nM. RIPK2-IN-1 has an IC_{50} of 390 nM on RIPK2/NOD2 in cell assay.

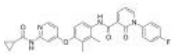


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

RIPK3-IN-1

Cat. No.: HY-131064

RIPK3-IN-1 is a **RIPK3** type II DFG-out inhibitor with an **IC_{50}** of 9.1 nM. RIPK3-IN-1 inhibits RIPK1 and RIPK2 with IC_{50}s of 5.5 and >10 μM. RIPK3-IN-1 is also a c-Met kinase inhibitor with an IC_{50} of 1.1 μM.

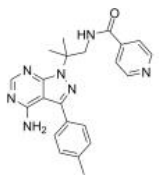


Purity: 98.82%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

WEHI-345

Cat. No.: HY-18937

WEHI-345 is a potent and selective **RIPK2 kinase** inhibitor with an **IC_{50}** of 0.13 μM, which delays **RIPK2** ubiquitylation and **NF-κB** activation on oligomerization domain (NOD) stimulation.



Purity: 98.77%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg