Deubiquitinase

DUBs

Deubiquitinases (DUBs) are a family of proteases whose function is to cleave ubiquitin (Ub) or ubiquitin-like proteins from proproteins or ubiquitin(s) conjugated with target substrate. DUBs are divided into two main classes according to their enzymatic cleavage mechanism: cysteine proteases and zinc metalloproteases. These include ubiquitin-specific proteases (USPs), ubiquitin C-terminal hydrolases (UCHs), ovarian tumor proteases (OTUs), Machado-Joseph disease proteases (MJDs), Jab1/Mov34/Mpr1 (JAMM) metalloproteases, and MIU-containing novel DUB family, (MINDY) proteases.

Ubiquitination is an important post-translational modification that plays a key role in many vital cellular events. In this process, ubiquitin is attached to a substrate protein by the concerted action of an enzyme cascade involving E1, E2 and E3 enzymes and it is removed by DUBs. DUBs are therefore important regulators of the Ub system and regulate a plethora of cellular processes, including protein turnover, protein sorting, and trafficking. Altered DUB activity is associated with a multitude of pathologies including cancer. DUBs represent novel candidates for target-directed drug development.

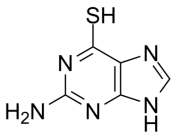
Deubiquitinase Inhibitors

6-Thioguanine

(Thioguanine; 2-Amino-6-purinethiol)

Cat. No.: HY-13765

6-Thioguanine (Thioguanine; 2-Amino-6-purinethiol) is an anti-leukemia and immunosuppressant agent, acts as an inhibitor of SARS and MERS coronavirus papain-like proteases (**PLpros**) and also potently inhibits **USP2** activity, with **IC_{50}**s of 25 μM and 40 μM for Plpros and recombinant human...

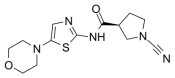


Purity: ≥95.0%
Clinical Data: Launched
Size: 10 mM × 1 mL, 100 mg, 500 mg

6RK73

Cat. No.: HY-133118

6RK73 is a covalent irreversible and specific **UCHL1** inhibitor with an **IC_{50}** of 0.23 μM. 6RK73 shows almost no inhibition of UCHL3 (IC_{50}=236 μM). 6RK73 specifically inhibit UCHL1 activity in breast cancer.



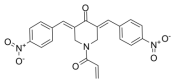
Purity: 99.41%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

b-AP15

(NSC 687852)

Cat. No.: HY-13989

b-AP15 is a specific inhibitor of the **deubiquitinating** enzymes **UCHL5** and **Usp14**.



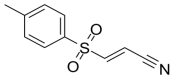
Purity: 98.75%
Clinical Data: No Development Reported
Size: 10 mg, 25 mg, 50 mg, 100 mg, 200 mg, 500 mg

BAY 11-7082

(BAY 11-7821)

Cat. No.: HY-13453

BAY 11-7082 is an **IκBα phosphorylation** and **NF-κB** inhibitor. BAY 11-7082 selectively and irreversibly inhibits the TNF-α-induced phosphorylation of IκB-α, and decreases NF-κB and expression of adhesion molecules.

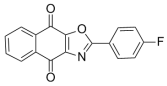


Purity: 99.98%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

C527

Cat. No.: HY-12988

C527 is a is a pan **DUB enzyme** inhibitor, with a high potency for the **USP1/UAF1** complex (**IC_{50}**=0.88 μM).



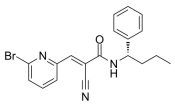
Purity: 99.88%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

Degrasyn

(WP1130)

Cat. No.: HY-13264

Degrasyn (WP1130) is a cell-permeable **deubiquitinase (DUB)** inhibitor, directly inhibiting DUB activity of USP9x, USP5, USP14, and UCH37. Degrasyn has been shown to downregulate the antiapoptotic proteins **Bcr-Abl** and **JAK2**.

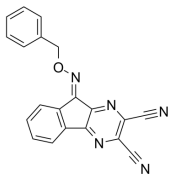


Purity: 99.70%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

DUB-IN-1

Cat. No.: HY-50736

DUB-IN-1 is an active inhibitor of **ubiquitin-specific proteases (USPs)**, with an **IC_{50}** of 0.85 μM for USP8.

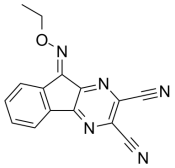


Purity: 99.59%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

DUB-IN-2

Cat. No.: HY-50737A

DUB-IN-2 is a potent **deubiquitinase** inhibitor with an **IC_{50}** of 0.28 μM for USP8.

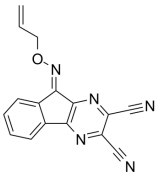


Purity: 98.72%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

DUB-IN-3

Cat. No.: HY-50737

DUB-IN-3 is a potent **deubiquitinase (USP)** enzyme inhibitor extracted from reference compound 22c with an **IC_{50}** of 0.56 μM for USP8.

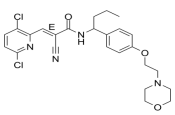


Purity: 99.0%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

EOAI3402143

Cat. No.: HY-111408

EOAI3402143 is a **deubiquitinase** (**DUB**) inhibitor, which inhibits dose-dependently inhibits **Usp9x/Usp24** and **Usp5**.

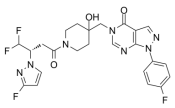


Purity: 99.52%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

FT671

Cat. No.: HY-107985

FT671 is a potent, non-covalent and selective **USP7** inhibitor with an IC_{50} of 52 nM and binds to the USP7 catalytic domain with a K_d of 65 nM.

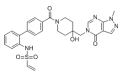


Purity: 99.79%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

FT827

Cat. No.: HY-111350

FT827 is a selective and covalent **ubiquitin-specific protease 7 (USP7)** inhibitor (K_i=4.2 μM). FT827 binds to the USP7 catalytic domain ($USP7_{CD}$; residues 208-560) with an apparent K_d value of 7.8 μM.

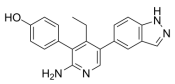


Purity: 98.48%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

GNE-6640

Cat. No.: HY-112937

GNE-6640 is a selective and non-covalent inhibitor of ubiquitin epecific peptidase 7 **(USP7)**, with IC_{50} values of 0.75 μM, 0.43 μM, 20.3 μM and 0.23 μM for full length USP7, USP7 catalytic domain, full length USP43 and Ub-MDM2, respectively.

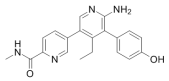


Purity: 99.96%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

GNE-6776

Cat. No.: HY-107986

GNE-6776 is a selective and orally bioavailable **USP7** inhibitor.

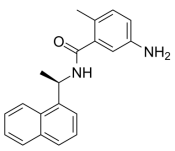


Purity: 98.29%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

GRL0617

Cat. No.: HY-117043

GRL0617 is a potent, selective and competitive noncovalent inhibitor of **severe acute respiratory syndrome (SARS-CoV) papain-like protease (PLpro)/deubiquitinase**, with an IC_{50} of 0.6 μM, and with a K_i of 0.49 μM.

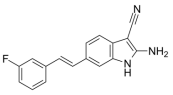


Purity: 99.78%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

GSK2643943A

Cat. No.: HY-111458

GSK2643943A is a deubiquitylating enzyme **(DUB)** inhibitor, with an IC_{50} of 160 nM for USP20/Ub-Rho.

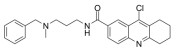


Purity: 98.31%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

HBX 19818

Cat. No.: HY-17540

HBX 19818 is a specific inhibitor of **ubiquitin-specific protease 7 (USP7)**, with an IC_{50} of 28.1 μM.

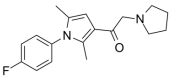


Purity: 98.93%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

IU1

Cat. No.: HY-13817

IU1 is a special **Usp14** inhibitor with an IC_{50} of 4-5 μM.

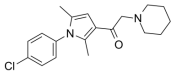


Purity: 99.45%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg, 200 mg

IU1-47

Cat. No.: HY-122243

IU1-47 is a potent and specific **USP14** inhibitor with an IC_{50} of 0.6 μM. IU1-47 inhibits IsoT/USP5 with an IC_{50} of 20 μM. IU1-47 induces tau elimination in cultured neurons.



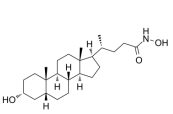
Purity: 99.76%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg

LCAHA

(LCA hydroxyamide)

Cat. No.: HY-120458

LCAHA (LCA hydroxyamide) is a **deubiquitinase USP2a** inhibitor with IC_{50}s of 9.7 μM and 3.7μM in Ub-AMC Assay and Di-Ub Assay, respectively. LCAHA destabilizes Cyclin D1 and induces G0/G1 arrest by inhibiting deubiquitinase USP2a.

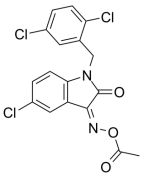


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

LDN-57444

Cat. No.: HY-18637

LDN-57444 is a reversible, competitive and site-directed inhibitor of **ubiquitin C-terminal hydrolase L1 (UCH-L1)**, with an IC_{50} of 0.88 μM and a K_i of 0.40 μM; LDN-57444 also suppresses UCH-L3 activity, with an IC_{50} of 25 μM.

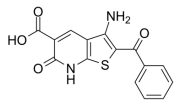


Purity: ≥95.0%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 10 mg, 50 mg, 100 mg

LDN-91946

Cat. No.: HY-12989

LDN-91946 is a potent, selective and uncompetitive ubiquitin C-terminal hydrolase-L1 (**UCH-L1**) inhibitor with a $K_{i\ app}$ **of 2.8 μM**.

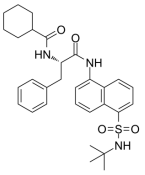


Purity: 98.13%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 10 mg, 50 mg

MF-094

Cat. No.: HY-112438

MF-094 is a potent and selective **USP30** inhibitor with an IC_{50} of 120 nM. MF-094 increases protein ubiquitination and accelerates mitophagy.

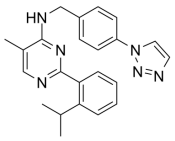


Purity: 98.96%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

ML-323

Cat. No.: HY-17543

ML-323 is a reversible, potent **USP1-UAF1** inhibitor with IC_{50} of 76 nM in a Ub-Rho assay. The measured inhibition constants of ML-323 for the free enzyme (K_i) is 68 nM.

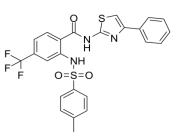


Purity: 99.97%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

ML364

Cat. No.: HY-100900

ML364 is a selective **ubiquitin specific peptidase 2 (USP2)** inhibitor (IC_{50}=1.1 μM) with anti-proliferative activity, which direct binds to USP2 (K_d=5.2 μM), induces an increase in cellular cyclin D1 degradation and causes cell cycle arrest.



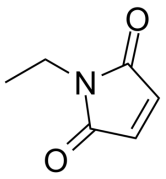
Purity: 99.94%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

N-Ethylmaleimide

(NEM)

Cat. No.: HY-D0843

N-Ethylmaleimide (NEM), a reagent that alkylates free sulfhydryl groups, is a **cysteine protease** inhibitor. N-ethylmaleimide specific inhibits phosphate transport in mitochondria. N-Ethylmaleimide is also a **deubiquitinating enzyme** inhibitor.

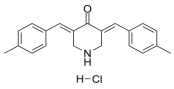


Purity: 99.67%
Clinical Data: Phase 2
Size: 10 mM × 1 mL, 10 mg

NSC632839

Cat. No.: HY-100708

NSC632839 is a nonselective isopeptidase inhibitor, which inhibits **USP2**, **USP7**, and **SENP2** with EC_{50}s of 45±4 μM, 37±1 μM, and 9.8±1.8 μM, respectively.

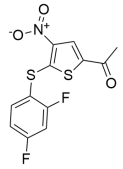


Purity: 98.43%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

P 22077

Cat. No.: HY-13865

P 22077 is a cell-permeable **ubiquitin-specific protease 7 (USP7)** inhibitor with an EC_{50} of 8.01 μM. P 22077 also inhibits USP47 with an EC_{50} of 8.74 μM.



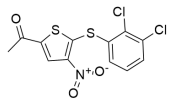
Purity: 99.97%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 10 mg, 50 mg, 100 mg

P005091

(P5091)

Cat. No.: HY-15667

P005091 is a selective and potent inhibitor of **ubiquitin-specific protease 7 (USP7)** with an EC_{50} of 4.2 μM.

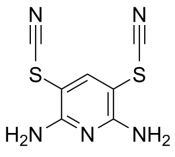


Purity: 99.94%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

PR-619

Cat. No.: HY-13814

PR-619 is a broad-range and reversible **DUB** inhibitor with EC_{50}s of 3.93, 4.9, 6.86, 7.2, and 8.61 μM for **USP4**, **USP8**, **USP7**, **USP2**, and **USP5**, respectively. PR-619 induces ER Stress and ER-Stress related apoptosis.

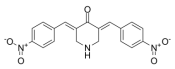


Purity: 98.89%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 10 mg, 50 mg

RA-9

Cat. No.: HY-136528

RA-9 is a potent and selective proteasome-associated **deubiquitinating enzymes (DUBs)** inhibitor with favorable toxicity profile and anticancer activity.

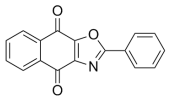


Purity: 98.12%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

SJB2-043

Cat. No.: HY-15757

SJB2-043 is an inhibitor of the native **USP1/UAF1** complex with IC_{50} of 544 nM.

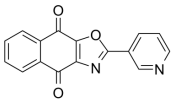


Purity: 99.25%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

SJB3-019A

Cat. No.: HY-80012

SJB3-019A is a potent and novel **USP1** inhibitor, 5 times more potent than SJB2-043 in promoting ID1 degradation and cytoxicity in K562 cells with IC_{50} of 0.0781 μM.



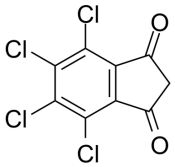
Purity: ≥98.0%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

TCID

(4,5,6,7-Tetrachloroindan-1,3-dione)

Cat. No.: HY-18638

TCID (4,5,6,7-Tetrachloroindan-1,3-dione) is a potent and selective **neuronal ubiquitin C-terminal hydrolase (UCH-L3)** inhibitor with an IC_{50} of 0.6 μM. TCID diminishes glycine transporter GlyT2 ubiquitination in brainstem and spinal cord primary neurons.



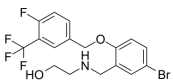
Purity: 99.76%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg

USP25/28 inhibitor AZ1

(AZ1)

Cat. No.: HY-117370

USP25/28 inhibitor AZ1 (AZ1) is an orally active, selective, noncompetitive, dual **ubiquitin specific protease (USP) 25/28** inhibitor with IC_{50}s of 0.7 μM and 0.6 μM, respectively. USP25/28 inhibitor AZ1 attenuates colitis and tumorigenesis in the mice model.

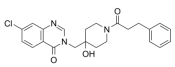


Purity: 98.10%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 25 mg, 50 mg, 100 mg

USP7-IN-1

Cat. No.: HY-16709

USP7-IN-1 is a selective and reversible inhibitor of **ubiquitin-specific protease 7 (USP7)**, with an IC_{50} of 77 μM, and can be used for the research of cancer.

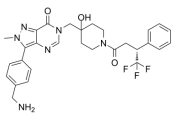


Purity: 98.92%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

USP7-IN-3

Cat. No.: HY-112128

USP7-IN-3 (Compound 5) is a potent and selective allosteric ubiquitin-specific protease 7 (**USP7**) inhibitor.

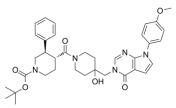


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

USP7-IN-5

Cat. No.: HY-129168

USP7-IN-5 is a potent **ubiquitin specific protease 7 (USP7)** inhibitor extracted from patent WO2017212012A1, example 40, has an IC_{50} of 49.9 nM.

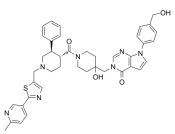


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

USP7-IN-6

Cat. No.: HY-129169

USP7-IN-6 is a potent **ubiquitin specific protease 7 (USP7)** inhibitor, extracted from patent WO2017212010A1, example 25, has an IC_{50} of 6.8 nM.

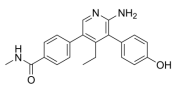


Purity: >98%
Clinical Data: No Development Reported
Size: 1 mg, 5 mg

USP7-IN-8

Cat. No.: HY-134817

USP7-IN-8 (example 81) is a selective **ubiquitin-specific protease 7 (USP7)** inhibitor with an IC_{50} of 1.4 μM in an Ub-Rho110 assay. USP7-IN-8 shows no activity against USP47 and USP5. USP7-IN-8 has anticancer effects.

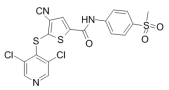


Purity: 98.80%
Clinical Data: No Development Reported
Size: 5 mg

USP7/USP47 inhibitor

Cat. No.: HY-13487

USP7/USP47 inhibitor is a selective **ubiquitin-specific protease 7/47 (USP7/USP47)** inhibitor, with **EC_{50}**s of 0.42 μM and 1.0 μM, respectively.

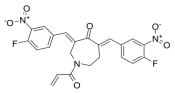


Purity: ≥98.0%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 5 mg, 10 mg, 50 mg, 100 mg

VLX1570

Cat. No.: HY-12471

VLX1570 is a competitive inhibitor of proteasome deubiquitinases (**DUBs**) with an **IC_{50}** of approximate 10 μM.

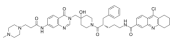


Purity: 98.06%
Clinical Data: No Development Reported
Size: 10 mM × 1 mL, 1 mg, 5 mg, 10 mg, 50 mg, 100 mg

XL177A

Cat. No.: HY-138794

XL177A is a highly potent and selective irreversible **USP7** inhibitor with an **IC_{50}** of 0.34nM. XL177A elicits cancer cell killing through a p53-dependent mechanism.



Purity: >98%
Clinical Data: No Development Reported
Size: 5 mg, 10 mg, 25 mg, 50 mg, 100 mg