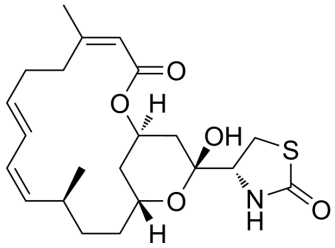
Latrunculin A

Cat. No.:	HY-16929
CAS No.:	76343-93-6
Molecular Formula:	$C_{22}H_{31}NO_5S$
Molecular Weight:	421.55
Target:	Arp2/3 Complex
Pathway:	Cytoskeleton
Storage:	Solution, -20°C, 2 years



BIOLOGICAL ACTIVITY

Description	Latrunculin A (LAT-A), found in the red sea sponge Latrunculia magnifica, is a G-actin polymerization inhibitor. Latrunculin A binds to actin monomers and inhibits polymerization of actin with K_ds of 0.1, 0.4, 4.7 μM and 0.19 μM for ATP-actin, ADP-Pi-actin, ADP-actin and G-actin, respectively. Latrunculin A has effective anti-metastatic properties for cancer research. Latrunculin A blocks cell migration[1][2][3][4][5][6].
IC_{50} & Target	Kd: 0.1 μM (ATP-actin), 0.4 μM (ADP-Pi-actin), 4.7 μM (ADP-actin), 0.19 μM (G-actin)[2]
In Vitro	Latrunculin A (50-1000 nM) exhibits potent anti-invasive activity against human prostate cancer PC-3M cells, inhibits PC-3M-CT+ spheroids disaggregation and cell migration[3]. ?Latrunculin A (3-30 μM) inhibits hypoxia-induced HIF-1 activation with an IC_{50} value of 6.7 μM in human breast carcinoma T47D cells[3]. ?Latrunculin A (0-0.2 μM, 4 hours) has a significant inhibitory effect on HuR levels at high concentrations such as 0.2 μM in human hepatoma HepG2 cells while inhibits HuR only at 0.02 μM but no inhibitory effect at high concentrations in human hepatoma Huh7 cells[4]. ?Latrunculin A (0.1 μM, 24 hours) can lead to a significant decrease in cell migration and has an inhibitory effect on cell proliferation in human hepatoma cell lines HepG2[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Latrunculin A (intraperitoneal injection, 0.05 mg/kg, three doses in the first 20 days, 120 days) has strong antitumor effect in male BALB/c nude mice models infected with adenocarcinoma (MKN45) or carcinoma (NUGC-4)[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male BALB/c nude mice models infected with adenocarcinoma (MKN45) or carcinoma (NUGC-4)[5]
Dosage:	0.05 mg/kg
Administration:	Intraperitoneal injection; three doses in the first 20 days; 120 days
Result:	Extended the mean life expectancy to 23.5 days comparing to control of 16 days in adenocarcinoma (MKN45) mice and the mean survival time was 42 days comparing to untreated of 31 days in carcinoma (NUGC-4) mice.

CUSTOMER VALIDATION

- Nat Commun. 2022 Sep 26;13(1):5657.
- J Extracell Vesicles. 2022 May;11(5):e12218.
- Adv Sci (Weinh). 2022 Aug 28;e2203173.
- Apoptosis. 2023 Apr 15.
- Talanta. 2023 Feb 1, 268(Part 1), 125286.

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REFERENCES

[1]. Khalid A El Sayed, et al. Latrunculin A and its C-17-O-carbamates inhibit prostate tumor cell invasion and HIF-1 activation in breast tumor cells. J Nat Prod. 2008 Mar;71(3):396-402.

[2]. Anke Doller, et al. The cytoskeletal inhibitors latrunculin A and blebbistatin exert antitumorigenic properties in human hepatocellular carcinoma cells by interfering with intracellular HuR trafficking. Exp Cell Res. 2015 Jan 1;330(1):66-80.

[3]. Hiroo Konishi, et al. Latrunculin a has a strong anticancer effect in a peritoneal dissemination model of human gastric cancer in mice. Anticancer Res. 2009 Jun;29(6):2091-7.

[4]. Liang Ma, et al. Discovery of the migrasome, an organelle mediating release of cytoplasmic contents during cell migration. Cell Res. 2015 Jan;25(1):24-38.

[5]. Fujiwara I, et al. Latrunculin A Accelerates Actin Filament Depolymerization in Addition to Sequestering Actin Monomers. Curr Biol. 2018 Oct 8;28(19):3183-3192.e2.

[6]. Coué M, et al. Inhibition of actin polymerization by latrunculin A. FEBS Lett. 1987 Mar 23;213(2):316-8.

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