产品名称：瓦他拉尼碱
产品别名：Vatalanib free base

生物活性：

Description	Vatalanib (PTK787; ZK-222584; CGP-79787) is an inhibitor of VEGFR2/KDR with IC50 of 37 nM.
IC_{50} & Target	VEGFR2 [1]
	37 nM (IC_{50})
In Vitro	Vatalanib also inhibits Flk, c-Kit and PDGFRβ with IC50 of 270 nM, 730 nM and 580 nM, respectively. Vatalanib shows the anti-proliferation effect by inhibiting thymidine incorporation induced by VEGF in HUVECs with and IC50 of 7.1 nM, and dose-dependently suppresses VEGF-induced survival and migration of endothelial cells in the same dose range without cytotoxic or antiproliferative effect on cells that do not express VEGF receptors[1]. A recent study shows that Vatalanib significantly inhibits the growth of hepatocellular carcinoma cells and enhances the IFN/5-FU induced apoptosis by increasing proteins levels of Bax and reduced Bcl-xL and Bcl-2[2].
In Vivo	Vatalanib induces dose-dependent inhibition of the angiogenic response to VEGF and PDGF in both a growth factor implant model and a tumor cell-driven angiogenesis model after once-daily oral dosing (25-100 mg/kg). In the same dose range, Vatalanib also inhibits the growth and metastasesof several human carcinomas in nude mice without significant effect on circulating blood cells or bone marrow leukocytes[1].
Solvent&Solubility	***In Vitro:*** **DMSO : 125 mg/mL** (**360.43 mM;** Need ultrasonic and warming)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.8834 mL	14.4171 mL	28.8342 mL
	5 mM	0.5767 mL	2.8834 mL	5.7668 mL
	10 mM	0.2883 mL	1.4417 mL	2.8834 mL

*请根据产品在不同溶剂中的溶解度选择合适的溶剂配制储备液；一旦配成溶液，请分装保存，避免反复冻融造成的产品失效。

储备液的保存方式和期限：-80°C, 6 months; -20°C, 1 month。-80°C 储存时，请在 6 个月内使用，-20°C 储存时，请在 1 个月内使用。

References	[1]. Wood JM, et al. PTK787/ZK 222584, a novel and potent inhibitor of vascular endothelial growth factor receptor tyrosine kinases, impairs vascular endothelial growth factor-induced responses and tumor growth after oral administration. Cancer Res. 2000, 60(8 [2]. Murakami M, et al. Tyrosine kinase inhibitor PTK/ZK enhances the antitumor effects of interferon-α/5-fluorouracil therapy for hepatocellular carcinoma cells. Ann Surg Oncol. 2011, 18(2), 589-596. [3]. Wan J, et al. Local recurrence of small cell lung cancer following radiofrequency ablation is induced by HIF-1α expression in the transition zone. Oncol Rep. 2016 Mar;35(3):1297-308.

实验参考：

	Subconfluent HUVECs are seeded into 96-well plates coated with 1.5% gelatin. After 24 h, growth medium is replaced by basal medium containing 1.5% FCS and a constant concentration of VEGF (50 ng/mL), bFGF (0.5 ng/mL), or FCS (5%), in the presence or absence of Vatalanib. As a control,

Cell Assay	wells without growth factor are also included. After 24 h of incubation, BrdUrd labeling solution is added, and cells incubated an additional 24 h before fixation, blocking, and addition of peroxidase-labeled anti-BrdUrd antibody. Bound antibody is then detected using 3,3' 5,5'-tetramethylbenzidine substrate[1].
Animal Administration	A porous Teflon chamber (volume, 0.5 mL) is filled with 0.8% w/v agar containing heparin (20 units/mL) with or without growth factor (3 μg/mL human VEGF, 2 μg/mL human PDGF) is implanted s.c. on the dorsal flank of C57/C6 mice. The mice are treated with Vatalanib (12.5, 25 or 50 mg/kg dihydrochloride p.o. once daily) or vehicle (water) starting 1 day before implantation of the chamber and continuing for 5 days after. At the end of treatment, the mice are killed, and the chambers are removed. The vascularized tissue growing around the chamber is carefully removed and weighed, and the blood content is assessed by measuring the hemoglobin content of the tissue[1].
Kinase Assay	Each GST-fused kinase is incubated under optimized buffer conditions. ATP in a total volume of 30 μL in the presence or absence of a test substance (Vatalanib) for 10 min at ambient temperature. The reaction is stopped by adding 10 μL of 250 mM EDTA[1].
References	[1]. Wood JM, et al. PTK787/ZK 222584, a novel and potent inhibitor of vascular endothelial growth factor receptor tyrosine kinases, impairs vascular endothelial growth factor-induced responses and tumor growth after oral administration. Cancer Res. 2000, 60(8 [2]. Murakami M, et al. Tyrosine kinase inhibitor PTK/ZK enhances the antitumor effects of interferon-α/5-fluorouracil therapy for hepatocellular carcinoma cells. Ann Surg Oncol. 2011, 18(2), 589-596. [3]. Wan J, et al. Local recurrence of small cell lung cancer following radiofrequency ablation is induced by HIF-1α expression in the transition zone. Oncol Rep. 2016 Mar;35(3):1297-308.