产品名称：Tideglusib
产品别名：NP031112

生物活性：

Description	Tideglusib (NP031112) is an irreversible GSK-3 inhibitor with IC_{50}s of 5 nM and 60 nM for GSK-3β^{WT} (1 h preincubation) and GSK-3β^{C199A} (1 h preincubation), respectively.

IC_{50} & Target [1]	GSK-3β(WT)	GSK-3β(C199A)
	5 nM (IC_{50})	60 nM (IC_{50})

In Vitro	Incubation of both astrocyte and microglial cultures with Tideglusib (NP031112) completely abrogates the induction of TNF-α and COX-2 expression after glutamate treatment. These effects of NP031112 are not caused by a loss of cell viability, because the 24 h exposure of astrocyte and microglial cells to this TDZD does not modify cell viability[2].
In Vivo	Injection of Tideglusib (NP031112) (50 mg/kg) into the rat hippocampus dramatically reduces kainic acid-induced inflammation, as measured by edema formation using T2-weighted magnetic resonance imaging and glial activation and has a neuroprotective effect in the damaged areas of the hippocampus[2].

Solvent&Solubility

In Vitro:

DMSO : 33.33 mg/mL (99.67 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	**1 mg**	**5 mg**	**10 mg**
	1 mM	2.9905 mL	14.9526 mL	29.9052 mL
	5 mM	0.5981 mL	2.9905 mL	5.9810 mL
	10 mM	0.2991 mL	1.4953 mL	2.9905 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。

In Vivo:

请根据您的实验动物和给药方式选择适当的溶解方案。以下溶解方案都请先按照 **In Vitro** 方式配制澄清的储备液，再依次添加助溶剂：

——为保证实验结果的可靠性，澄清的储备液可以根据储存条件，适当保存；体内实验的工作液，建议您现用现配，当天使用； 以下溶剂前显示的百分比是指该溶剂在您配制终溶液中的体积占比；如在配制过程中出现沉淀、析出现象，可以通过加热和/或超声的方式助溶

1.请依序添加每种溶剂： 10% DMSO→40% PEG300 →5% Tween-80 → 45% saline

Solubility: ≥ 2.5 mg/mL (7.48 mM); Clear solution

此方案可获得 ≥ 2.5 mg/mL (7.48 mM，饱和度未知) 的澄清溶液。

以 1 mL 工作液为例，取 100 μL 25.0 mg/mL 的澄清 DMSO 储备液加到 400 μL PEG300 中，混合均匀；向上述体系中加入 50 μL Tween-80，混合均匀；然后继续加入 450 μL 生理盐水定容至 1 mL。

2.请依序添加每种溶剂： 10% DMSO →90% corn oil

Solubility: ≥ 2.5 mg/mL (7.48 mM); Clear solution

此方案可获得 ≥ 2.5 mg/mL (7.48 mM，饱和度未知) 的澄清溶液，此方案不适用于实验周期在半个月以上的实验。

以 1 mL 工作液为例，取 100 μL 25.0 mg/mL 的澄清 DMSO 储备液加到 900 μL 玉米油中，混合均匀。

References	[1]. Domínguez JM, et al. Evidence for irreversible inhibition of glycogen synthase kinase-3β by tideglusib. J Biol Chem, 2012, 287(2), 893-90 [2]. Luna-Medina R, et al. NP031112, a thiadiazolidinone compound, prevents inflammation and neurodegeneration under excitotoxic conditions: potential therapeutic role in brain disorders. J Neurosci, 2007, 27(21), 5766-5776.

实验参考：

Animal Administration	Rats[2] Adult male Wistar rats (8-12 weeks old) are used in this study. Rats (n≥5 per group) are anesthetized by intraperitoneal injection of ketamine (60 mg/kg) and Domtor (5 μg/kg) and placed into a stereotaxic apparatus. KA (1 μg in 2.5 μL PBS) alone or in combination with Tideglusib (2 ng in 2.5 μL PBS) is injected into the hippocampus. Control animals of the same age are injected with vehicle.
Kinase Assay	[^{35}S]Tideglusib (207 Bq/nmol) at 55 μM is incubated with 5 μM GSK-3β for 1 h at 25°C in 315 μL of 50 mM Tris-HCl, pH 7.5, containing 150 mM NaCl and 0.1 mM EGTA. The incubation is extended for another 30 min after having added 35 μL of the same buffer with or without 100 mM DTE. Samples are then processed in three different ways. First, an aliquot of 125 μL of each sample is mixed with 375 μL of 8 M GdnHCl in H_2O and heated at 80°C for 5 min. A second aliquot of 125 μL is diluted up to 500 μL with H_2O and left at room temperature for 5 min. In both cases, the free drug is removed afterwards by gel filtration through Sephadex G-25, and the amount of bound drug is determined by liquid scintillation counting on a 1450-MicroBeta TriLux counter. Finally, a third 40 μL aliquot of each original sample is mixed with 10 μL of denaturing electrophoresis sample buffer without reducing agents, and 35 μL of this mixture is loaded onto a 10% polyacrylamide gel and subjected to SDS-PAGE (again in the absence of reducing agents except for the DTE already included in the corresponding sample), followed by fluorography of the dried gel[1]
References	[1]. Domínguez JM, et al. Evidence for irreversible inhibition of glycogen synthase kinase-3β by tideglusib. J Biol Chem, 2012, 287(2), 893-90 [2]. Luna-Medina R, et al. NP031112, a thiadiazolidinone compound, prevents inflammation and neurodegeneration under excitotoxic conditions: potential therapeutic role in brain disorders. J Neurosci, 2007, 27(21), 5766-5776.