产品名称：Istradefylline
产品别名：伊曲茶碱

生物活性：

Description	Istradefylline is a very potent, selective and orally active adenosine A2A receptor antagonist with Ki of 2.2 nM in experimental models of Parkinson's disease.
IC_{50} & Target	Ki: 2.2 nM (adenosine A2A receptor)
In Vitro	Istradefylline has 70-fold greater affinity for the A2AR than the A1 receptor with Ki of 2.2 nM versus 150 nM[1]. Istradefylline causes concentration-dependent abolition of bFGF induction of astrogliosis in primary rat striatal astrocytes[4]. Istradefylline binds to A1 receptor, A2A receptor, and A3 receptor in human with Kis of >287 nM, 9.12 nM, and >681 nM, respectively, 50.9 nM and 1.57 nM for A1 receptor and A2A receptor in rat, 105.02 nM and 1.87 nM for A1 receptor and A2A receptor in mouse, respectively[5].
In Vivo	Istradefylline (3.3 mg/kg, i.p.) treatment before a single dose of MPTP attenuates the partial dopamine and DOPAC depletions measured in striata 1 week later[1]. Istradefylline reverses CGS21680-induced and reserpine-induced catalepsy with an ED50 of 0.05 mg/kg and 0.26 mg/kg, respectively. Istradefylline is over 10 times as potent in these models compared to other adenosine antagonists and dopamine agonist drugs. Istradefylline combined with L-dopa cuases potent effects on haloperidol-induced and reserpine-induced catalepsy[2]. Istradefylline (10 mg/kg, p.o.) results an increase in locomotor activity to approximately twice that of control and improves motor disability in MPTP-treated common marmosets. Istradefylline (10 mg/kg, p.o.) in combination with SKF80723, quinpirole, or L-DOPA produces a significant additive effect on locomotor activity and improvement of motor disability but not dysKinesia[3].
Solvent&Solubility	***In Vitro:*** **DMSO : 25.33 mg/mL (65.89 mM;** Need ultrasonic and warming)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.6013 mL	13.0063 mL	26.0125 mL
5 mM	0.5203 mL	2.6013 mL	5.2025 mL
10 mM	0.2601 mL	1.3006 mL	2.6013 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]. Chen JF, et al. Neuroprotection by caffeine and A(2A) adenosine receptor inactivation in a model of Parkinson's disease. J Neurosci. 2001 May 15;21(10):RC143.

[2]. Shiozaki S, et al. Actions of adenosine A2A receptor antagonist KW-6002 on drug-induced catalepsy and hypokinesia caused by reserpine or MPTP. Psychopharmacology (Berl). 1999 Nov;147(1):90-5.

[3]. Kanda T, et al. Combined use of the adenosine A(2A) antagonist KW-6002 with L-DOPA or with selective D1 or D2 dopamine agonists increases antiparkinsonian activity but not dyskinesia in MPTP-treated monkeys. Exp Neurol. 2000 Apr;162(2):321-7.

[4]. Brambilla R, et al. Blockade of A2A adenosine receptors prevents basic fibroblast growth factor-induced reactive astrogliosis in rat striatal primary astrocytes. Glia. 2003 Aug;43(2):190-4.

[5]. Mihara T, et al. Pharmacological characterization of a novel, potent adenosine A1 and A2A receptor

	dual antagonist, 5-[5-amino-3-(4-fluorophenyl)pyrazin-2-yl]-1-isopropylpyridine-2(1H)-one (ASP5854), in models of Parkinson's disease and cognition. J Pharm

实验参考：

Cell Assay	A CHO cell line permanently expressing the human adenosine A1or A2A receptor is cultured in α-MEM supplemented with 10% (v/v) fetal bovine serum, 50 U/mL penicillin, and 50 μg/mL streptomycin. Cells are grown at 37°C in an environment of 5% CO_2. These cells are seeded on black 96-well assay plates at a density of 15,000 cells/well, and then they are cultured for 24 h. [5]
Animal Administration	The animals are housed either in pairs or alone under standard conditions at a temperature of 24-26°C and 50-60% relative humidity using a 12-h light-dark cycle. Diet consisted of standard food pellets, fresh fruit, and Mazuri marmoset jelly. The animals are treated with MPTP in a dose of 2.0 mg/kg sc daily for 5 days. Following MPTP treatment the animals are allowed to recover from the acute effects over a period of some 6-8 weeks. During MPTP treatment and throughout the following weeks, the animals are hand-fed with Mazuri marmoset jelly and fresh fruit puree until they are able to maintain them-selves. Prior to behavioral testing, from 6-8 weeks to 8 months after exposure to MPTP, all animals show a marked reduction of basal locomotor activity, slower and less coordinated movements, abnormal postures of some parts of the body, and reduced checking movements and eye blinks. Istradefylline (KW-6002) is suspended in 0.3% Tween-80 and 10% sucrose solution and administered in a final volume of 2.0 mL/kg body weight by oral gavage. [3]
References	[1]. Chen JF, et al. Neuroprotection by caffeine and A(2A) adenosine receptor inactivation in a model of Parkinson's disease. J Neurosci. 2001 May 15;21(10):RC143. [2]. Shiozaki S, et al. Actions of adenosine A2A receptor antagonist KW-6002 on drug-induced catalepsy and hypokinesia caused by reserpine or MPTP. Psychopharmacology (Berl). 1999 Nov;147(1):90-5. [3]. Kanda T, et al. Combined use of the adenosine A(2A) antagonist KW-6002 with L-DOPA or with selective D1 or D2 dopamine agonists increases antiparkinsonian activity but not dyskinesia in MPTP-treated monkeys. Exp Neurol. 2000 Apr;162(2):321-7. [4]. Brambilla R, et al. Blockade of A2A adenosine receptors prevents basic fibroblast growth factor-induced reactive astrogliosis in rat striatal primary astrocytes. Glia. 2003 Aug;43(2):190-4. [5]. Mihara T, et al. Pharmacological characterization of a novel, potent adenosine A1 and A2A receptor dual antagonist, 5-[5-amino-3-(4-fluorophenyl)pyrazin-2-yl]-1-isopropylpyridine-2(1H)-one (ASP5854), in models of Parkinson's disease and cognition. J Pharm