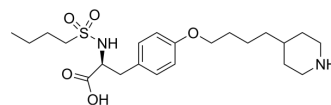


Tirofiban

Cat. No.:	HY-17369B		
CAS No.:	144494-65-5		
Molecular Formula:	C ₂₂ H ₃₆ N ₂ O ₅ S		
Molecular Weight:	440.6		
Target:	Integrin		
Pathway:	Cytoskeleton		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

1M HCl : 50 mg/mL (113.48 mM; ultrasonic and adjust pH to 1 with HCl)
 DMSO : < 1 mg/mL (ultrasonic;warming) (insoluble or slightly soluble)
 H₂O : < 0.1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)

Concentration	Solvent	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	2.2696 mL	11.3482 mL	22.6963 mL
	5 mM	0.4539 mL	2.2696 mL	4.5393 mL
	10 mM	0.2270 mL	1.1348 mL	2.2696 mL

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

Tirofiban (L700462) is a selective and reversible platelet integrin receptor (Gp IIb/IIIa) antagonist that inhibits fibrinogen binding to this receptor and has antithrombotic activity. Tirofiban induces proliferation and migration on endothelial cell by inducing production of VEGF. Tirofiban can significantly reduces myocardial no-reflow and ischemia-reperfusion injury by alleviating myocardial microvascular structural and endothelial dysfunction in the ischemic area^{[1][2][3]}.

IC₅₀ & Target

Gp IIb/IIIa Receptor^[1]

In Vitro

Tirofiban (0.25, 1, 3 µg/mL; 72 hours) increases proliferation of HAEC cells^[1].
 Tirofiban (24 hours) closes the scratch of HUVECs migration within 18 hours^[1].
 Tirofiban (0.25, 1 µg/mL; 1 hour) induces production of VEGF after 30 minutes which can stimulates proliferation of endothelial cells^[1].
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.
 Cell Proliferation Assay^[1]

Cell Line:	HAEC cells
Concentration:	0.25, 1, 3 µg/mL
Incubation Time:	72 hours
Result:	Increased proliferation of HAEC cells.

Cell Migration Assay ^[1]

Cell Line:	HUVEC cells
Concentration:	
Incubation Time:	24 hours
Result:	Stimulated the migratory capacity of endothelial cells.

Western Blot Analysis^[1]

Cell Line:	HAEC cells
Concentration:	0.05, 0.12, 0.25, 1 µg/mL
Incubation Time:	1 hour
Result:	Induced production of VEGF which stimulated proliferation of endothelial cells.

In Vivo

Tirofiban (60 µg/kg; i.v.; once) shows activity of increasing contraction force, ventricular compliance, and improving heart function by increasing HR, LVESP, dp/dtmax, and reducing LVEDP^[2].

Tirofiban (60 µg/kg; i.v.; once) enhances eNOS activity, decreases iNOS activity and reduces area of no-reflow after reperfusion following AMI^[2].

Tirofiban (50 µg/per; irrigate; once) shows anticoagulant effect with patency rates of 59% at 24 hours after microvascular anastomosis in the crush model^[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male Sprague-Dawley rats (10 to 15-week-age; 270-330 g) ^[2] .
Dosage:	60 µg/kg
Administration:	Intravenous injection; once.
Result:	Increased contraction force, ventricular compliance, and improved heart function. Reduced the size of no-reflow and infarct.

Animal Model:	Sprague-Dawley rats (350-400 g; crush injury model) ^[3]
Dosage:	50 µg/per (50 µg/mL, 1 mL for each)
Administration:	Irrigate 1 mL within the vessel lumen (before placement of the last suture); once.
Result:	Showed anticoagulant effect with patency rates of 59%.

REFERENCES

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- [1]. Giordano A, et al. Tirofiban induces VEGF production and stimulates migration and proliferation of endothelial cells. *Vascul Pharmacol*. 2014 May-Jun;61(2-3):63-71.
- [2]. Liu X, et al. Effects of tirofiban on the reperfusion-related no-reflow in rats with acute myocardial infarction. *J Geriatr Cardiol*. 2013 Mar;10(1):52-8.
- [3]. Yates YJ, et al. The effect of tirofiban on microvascular thrombosis: crush model. *Plast Reconstr Surg*. 2005 Jul;116(1):205-8.
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Caution: Product has not been fully validated for medical applications. For research use only.

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