Tirofiban hydrochloride

Cat. No.: HY-17369A

CAS No.: 142373-60-2

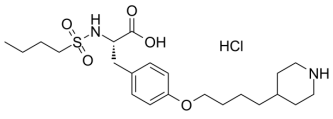
Molecular Formula: $C_{22}H_{37}ClN_2O_5S$

Molecular Weight: 477.06

Target: Integrin

Pathway: Cytoskeleton

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Tirofiban (L700462) hydrochloride is a selective and reversible platelet integrin receptor (Gp IIb/IIIa) antagonist that inhibits fibrinogen binding to this receptor and has antithrombotic activity. Tirofiban hydrochloride induces proliferation and migration on endothelial cell by inducing production of VEGF. Tirofiban hydrochloride 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].

IC_{50} & Target

Gp IIb/IIIa receptor[1].

In Vitro

Tirofiban hydrochloride (0.25, 1, 3 μg/mL; 72 hours) increases proliferation of HAEC cells[1].
Tirofiban hydrochloride (24 hours) closes the scratch of HUVECs migration within 18 hours[1].
Tirofiban hydrochloride (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 hydrochloride (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 hydrochloride (60 μg/kg; i.v.; once) enhances eNOS activity, decreases iNOS activity and reduces area of no-reflow after reperfusion following AMI[2].

Tirofiban hydrochloride (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

[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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