A 83-01

TGF-β/ALK inhibitor

A 83-01 is a potent and selective small-molecule inhibitor targeting the TGF-β type I receptor kinase (ALK5), activin type IB receptor (ALK4), and nodal type I receptor (ALK7) with an IC_{50} of 12 nM, 45 nM, and 7.5 nM, respectively. It inhibits phosphorylation of Smad2/3, thereby blocking TGF-β-induced epithelial-to-mesenchymal transition (EMT), a key process in fibrosis and cancer metastasis. A 83-01 is widely used in research to modulate TGF-β signaling pathways, particularly in studies involving fibrosis, cancer, and stem cell biology.

Key features and applications include:

- **Selective Inhibition:** Targets ALK5/4/7 with high potency, effectively blocking Smad2/3 phosphorylation.Cancer Research: Suppresses epithelial-to-mesenchymal transition (EMT), a key process in tumor metastasis.
- **Fibrosis Models:** Reduces fibroblast activation and extracellular matrix deposition in models of liver, lung, and skin fibrosis.
- **Stem Cell Studies:** Enhances reprogramming efficiency and supports maintenance of pluripotency in iPSCs and ESCs.
- **Cardiovascular Regeneration:** Promotes cardiomyocyte proliferation and repair in heart injury models.
- **Wound Healing:** Modulates TGF-β signaling to improve tissue regeneration and reduce scarring.

Relevant disease states include:

- **Cancer:** A 83-01 is used to study mechanisms of metastasis and drug resistance in cancers such as breast, pancreatic, and colorectal cancer.
- **Fibrotic Diseases:** It is a valuable tool in preclinical models of pulmonary, hepatic, and dermal fibrosis, where TGF-β plays a central role in pathological tissue remodeling.
- **Cardiovascular Disease:** By modulating TGF-β signaling, A 83-01 supports research into myocardial repair and prevention of cardiac

fibrosis.

- **Regenerative Medicine:** Its role in maintaining stem cell pluripotency and promoting tissue regeneration makes it relevant in wound healing and organ repair studies.

Ordering Information

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ENZ-CHM346-0025	25mg

Manuals, SDS & CofA

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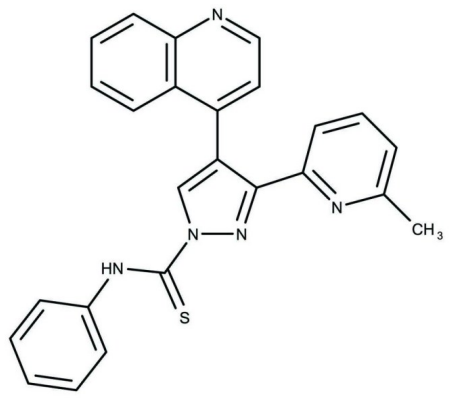	

Handling & Storage

Use/Stability	As indicated on product label or CoA when stored as recommended. The compound is unstable in solutions, freshly prepared is recommended.
Handling	Store as supplied desiccated at -20°C.
Short Term Storage	-20°C
Long Term Storage	-20°C
Shipping	Ambient Temperature

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	3-(6-methylpyridin-2-yl)-N-phenyl-4-(quinolin-4-yl)-1H-pyrazole-1-carbothioamide, TGF-β inhibitor A-83-01, Stemolecule A83-01
Appearance	Light yellow solid.
CAS	909910-43-6
Couple Target	Activin receptor, TGF-beta receptor
Couple Type	Inhibitor
Formula	$C_{25}H_{19}N_5S$
Identity	Determined by NMR.
MW	421.53
Purity	≥98% (TLC)
Solubility	Soluble in DMSO (up to 20 mg/mL).

ENZO LIFE SCIENCES, Inc.
Phone: 800.942.0430
info-usa@enzolifesciences.com

European Sales Office
ENZO LIFE SCIENCES (ELS) AG
Phone: +41 61 926 8989
info-eu@enzolifesciences.com

Belgium, The Netherlands & Luxembourg
Phone: +32 3 466 0420
info-be@enzolifesciences.com

France
Phone: +33 472 440 655
info-fr@enzolifesciences.com

Germany
Phone: +49 7621 5500 526
info-de@enzolifesciences.com

UK & Ireland
Phone (UK customers): 0845 601 1488
Phone: +44 1392 825900
info-uk@enzolifesciences.com