**Product Name:** Y-27632 dihydrochloride

**Revision Date:** 6/30/2016

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**Chemical Properties**

- **Product Name:** Y-27632 dihydrochloride
- **Cas No.:** 146986-50-7;129830-38-2
- **M.Wt:** 320.26
- **Formula:** C14H21N3O.2HCl
- **Synonyms:** y-27632, Y27632, Y-27632 dihydrochloride, Y 27632
- **Chemical Name:** 4-[(1R)-1-aminoethyl]-N-pyridin-4-ylcyclohexane-1-carboxamide
- **Canonical SMILES:** CC(C1CCC(CC1)C(=O)NC2=CC=NC=C2)N
- **Solubility:** >16mg/mL in DMSO
- **Storage:** Desiccate at RT
- **General tips:** For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.
- **Shopping Condition:** Evaluation sample solution: ship with blue ice
  All other available size: ship with RT, or blue ice upon request

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**Biological Activity**

**Targets:** ROCK

**Pathways:** TGF-β / Smad Signaling >> ROCK

**Description:**

Y-27632 dihydrochloride is a small-molecule inhibitor of Rho-associated protein kinase p160ROCK with the IC50 of 140 nM. Y-27632 suppresses the kinase activity of both ROCK-1 and ROCK-2 in vitro, and this compound inhibits the kinases by binding to the catalytic site of ROCK-1 and ROCK-2. Thus Y-27632 function on Rho-mediated stress fiber formation, the G1-S phase progression and cytokinesis.

**Reference:**
Cell experiment:

Cell lines: Human (hu) and rat(r) prostatic smooth muscle cells (PSM)

Preparation method: The solubility of this compound in DMSO is >10 mM. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Reacting conditions: 24h and 48h; 100 μM

Applications: After identifying prostatic smooth muscle cells and confirming the expression of Rho-kinase in these cells we investigated whether the Rho-kinase inhibitor Y-27632 affected the viability and proliferation of these cells. In serum-free medium huPSM and rPSM were made quiescent for 24 hours. Cell viability using neutral red and MTT assays was assessed 24 and 48 hours after stimulating the cells with 1% serum in the absence and presence of Y-27632 (0.01 to 100 μM). The results of these assays showed that the number of the cells increased between the 24- and 48-hour incubation periods after re-stimulation with 1% serum. However, in the presence of Y-27632 the increase in the number of live cells was less than in the control group. This effect was concentration dependent.

Animal experiment [3]:

Animal models: Adult Swiss male albino mice

Dosage form: 0.1 mg/kg/day; intraperitoneal injection

Applications: The drug was tested by histopathological examination showed that Y-27632 administration to EAC-bearing mice diminished pathological structure, to 60–70% degree, toward to normal intact histological structure especially in pre-carcinoma inoculation regime. Respect to this, ROCK inhibition by Y-27632 decreased significantly tumor invasion and metastasis. Our immunohistochemistry results showed that ROCK2 was mainly inhibited by Y-27632 in pre-carcinoma, but not in post-carcinoma, groups.
Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

Reference:

Product Citations


Product Validation

Total antioxidative status (TAS) and total oxidant status (TOS) values in all the groups. The mean total antioxidative status values were higher (P < .001), and mean total oxidant status values were lower (P < .002) in the Rho-kinase inhibitor Y-27632 treatment group, compared with the torsion-detorsion (T/D) group.

CRC amplification and increase in nasal airway basal progenitor cell clone forming frequency is dependent on Y-27632 stimulation. A. Comparison of burst size for airway basal cells grown with the CRC methods ± Y-27632. B-D. Effect of Y-27632 supplementation on cell behavior in CRC cultures: none, Y-27632 was not added; 0-6, 0-4, 0-2 indicate the intervals (in days) during which Y-27632 was present. Am J Respir Cell Mol Biol. 2016 May 4.
Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most ApexBio products are stable under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.