

Technical Data Sheet

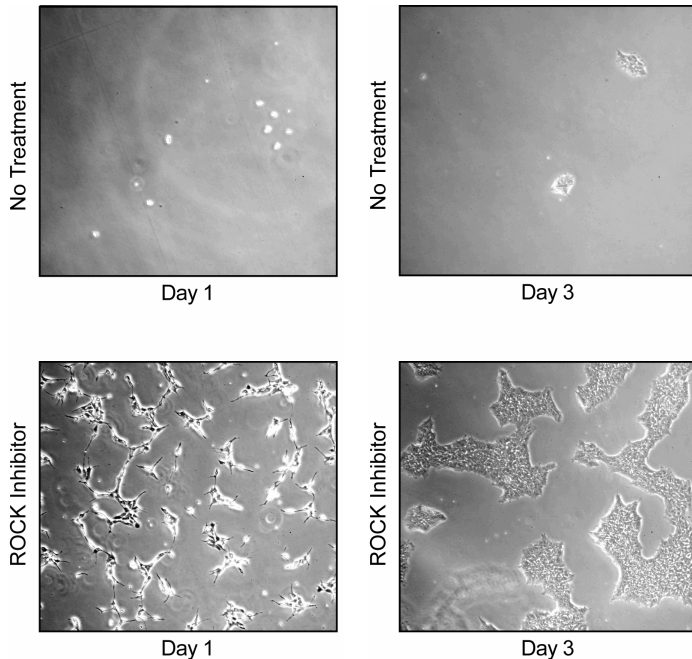
ROCK Inhibitor (Y-27632)

Product Information

Material Number: 562822
Alternate Name: Y-27632 dihydrochloride
Size: 1.0 mg

Description

The ROCK inhibitor, Y-27632, is a selective inhibitor of the p160-Rho-associated coiled kinase (ROCK) and is a factor that enhances embryonic stem cell survival upon single cell dissociation. In addition to increasing cell recovery after dissociation, Y-27632 has been used for various other applications in stem cell research including cryopreservation, sorting, reprogramming, transplantation, and differentiation.



ROCK inhibitor, Y-27632, improves the recovery of human embryonic stem cells (hESC) after fluorescence activated cell sorting. H9 hESC (WiCell, Madison, WI) were grown in mTESR™1 medium (StemCell Technologies) on BD Matrigel™ hESC-qualified Matrix (Cat. No. 354277), dissociated with BD™ Accutase™ Cell Detachment Solution (Cat. No. 561527), and sorted on a BD FACSAria™ II cell sorter based upon cell-surface expression of SSEA-3, TRA-1-81 and SSEA-1 using the BD Stemflow™ Human Pluripotent Stem Cell Sorting and Analysis Kit, (Cat. No. 560461). ROCK Inhibitor was either omitted or added for 24 hours post-sort. Bright-field images of the hESC at days 1 and 3 after sorting and culturing without or with ROCK Inhibitor are shown. Day 1, no treatment (Top left panel). Day 3, no treatment (Top right panel). Day 1, 10 µM Y-27632 treatment (Bottom left panel). Day 3, 10 µM Y-27632 treatment (Bottom right panel). For details please see Emre et al., 2010.

Preparation and Storage

Store at room temperature, desiccated and protected from prolonged exposure to light. Store aliquots of the reconstituted material at -20°C, protected from prolonged exposure to light, and avoid repeated freeze-thaw cycles.

Application Notes

Application

Cell culture	Tested During Development
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Recommended Assay Procedure:

For a working solution, dilute to 10 mM in sterile deionized water. [The molar mass of Y-27632 is 338.3 g/mol.]

Small aliquots may be stored at -20°C, avoiding repeated freeze-thaw cycles.

Use at 10 µM in culture medium. Since applications vary, each investigator should titrate the reagent to obtain optimal results.

Suggested Companion Products

Catalog Number	Name	Size	Clone
354277	BD Matrigel™ hESC-qualified Matrix	5.0 ml	(none)
560461	Human Pluripotent Stem Cell Sorting And Analysis Kit	50 tests	(none)
561527	Accutase™ Cell Detachment Solution	100 ml	(none)

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Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.
2. Avoid contact with skin and eyes.
3. Please refer to www.bdbiosciences.com/pharming/protocols for technical protocols.
4. mTESRT[™]1 is a trademark of StemCell Technologies.
5. Accutase is a registered trademark of Innovative Cell Technologies, Inc.

References

Braam SR, Nauw R, Ward-van Oostwaard D, et al. Inhibition of ROCK improves survival of human embryonic stem cell-derived cardiomyocytes after dissociation. *Ann N Y Acad Sci.* 2010; 1188:52-57. (Methodology: Cell cultur)

Emre N, Vidal JG, Elia J, et al. The ROCK inhibitor Y-27632 improves recovery of human embryonic stem cells after fluorescence-activated cell sorting with multiple cell surface markers. *PLoS ONE.* 2010; 5(8):e12148. (Methodology: Cell cultur)

Li X, Meng G, Krawetz R, Liu S, et al. The ROCK inhibitor Y-27632 enhances the survival rate of human embryonic stem cells following cryopreservation. *Stem Cells Dev.* 2008; 17(6):1079-1085. (Methodology: Cell cultur)

Narumiya S, Ishizaki T, Uehata M. Use and properties of ROCK-specific inhibitor Y-27632. *Methods Enzymol.* 2000; 325:273-284. (Biology)

Watanabe K, Ueno M, Kamiya D. A ROCK inhibitor permits survival of dissociated human embryonic stem cells. *Nat Biotechnol.* 2007; 25(6):681-686. (Methodology: Cell cultur)

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