

Selleck Human iPSC Enhancer Kit

A media additive to make reprogramming and expansion of human iPSCs more efficient

Catalog No. K2010

URL for this product: <http://www.selleckchem.com/kits/human-ipsc-enhancer-kit.html>

Catalog No.	Size	Price
K2010	500 µL	USD 98

Product Overview

A unique collection of 4 specific signaling pathway inhibitors: PD0325901, an ERK/MEK inhibitor; CHIR99021 HCl, a GSK3 inhibitor; Thiazovivin, a Rho/ROCK inhibitor; SB431542, a TGFβ/ALK inhibitor. This stem cell enhancer kit can be used as a media additive to make reprogramming and expansion of human iPSCs (induced pluripotent stem cells) more efficient.

Advantages

- Effectively enhances human iPSC reprogramming by 35-fold
- Increases human iPSC yield and viability during recovery from cryopreservation
- Improves recovery and survival of human iPSC after single cell sorting and single cell passage
- Maintains genomic stability and key human iPSC characteristics during long-term single cell culture
- High purity and potency, excellent quality, and competitive price
- Endotoxin, bacteria, and fungi-free: ready-to-use as media supplement
- Worry-free: publication-validated

Product Details

Formulation	Four specific signaling pathway inhibitors supplied as pre-dissolved DMSO solutions
Container	Screw Cap Micro Tubes of WATSON
Storage Instruction	Store at -20°C. Maintain under sterile conditions
Shipping	Blue ice
Packaging	Inert gas

Data

Cat. No.	Inhibitor Name	Concentration 1000×	Targeted Pathway and Function	Information
S1036	PD0325901	5 mM	ERK/MEK pathway. To inhibit differentiation.	MEK , IC ₅₀ =0.33 nM.
S2924	CHIR-99021 (CT99021) HCl	1 mM	GSK3 pathway. To enhance proliferation and viability.	GSK-3α , IC ₅₀ =10 nM; GSK-3β , IC ₅₀ =6.7 nM.
S1459	Thiazovivin	0.4 mM	Rho/ROCK pathway. To promote durability.	ROCK , IC ₅₀ =0.5 µM.
S1067	SB 431542	2 mM	TGFβ/ALK5 pathway. To improve reprogramming.	ALK5 , IC ₅₀ =94 nM.

Human induced pluripotent stem cells (human iPSCs, hiPSCs), a Nobel prize-worthy discovery, hold enormous potential. They offer great promise for research and clinical applications, such as the modeling of human disease, screening of drug efficacy and safety, and ultimately serve as a source of autologous or allogeneic cells for regenerative medicine. Although rapid advances and adoption of this technology have already been accomplished, human iPSC generation is still a very slow

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(~4 weeks) and inefficient ($\leq 0.01\%$) process¹. The slow kinetics and low efficiency of current human iPSC reprogramming and culture methods have been obstacles to impede their utility in biomedical research and clinical applications.

As future applications of human iPSC technology, genetic alteration for disease correction, loci-specific modulation for reporter systems and clone selection for preferred differentiation potential will require higher throughput and more reliable methods for clone derivation and characterization². Consequently, there is still a tremendous need for a safer, easier and more efficient procedure for human iPSC generation, which would also facilitate identifying and characterizing fundamental mechanisms of reprogramming.

To address some of the challenges of deriving and expanding human iPSCs, Selleck Chemicals launches a novel tool, **Selleck Human iPSC Enhancer Kit**. It is a mixture composed of 4 small molecule inhibitors, including PD0325901, CHIR99021, Thiazovivin, and SB431542, inhibiting ERK/MEK, GSK3, Rho/ROCK, and TGF β ALK pathway, respectively. The combination of these 4 stem cells enhancers has been shown to effectively enhance reprogramming and survival of human iPSCs².

Reference:

1. Lin T, et al. A chemical platform for improved induction of human iPSCs. *Nat Methods*, 2009, 6(11), 805-808.
2. Valamehr B, et al. A novel platform to enable the high-throughput derivation and characterization of feeder-free human iPSCs. *Sci Reports*, 2012, 2, 213.

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