



Stem Cell Expansion Reagent Kit (SCB)

Item No. 502886

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GENERAL INFORMATION

Materials Supplied

Item No.	Item Name	Quantity/Size	Storage
13031	SB-431542 (hydrate)	1 vial/10 mg	-20°C
13122	CHIR99021	1 vial/1 mg	-20°C
14434	bpV(pic) (potassium hydrate)	1 vial/5 mg	-20°C

If any of the items listed above are damaged or missing, please contact our Customer Service department at (800) 364-9897 or (734) 971-3335. We cannot accept any returns without prior authorization.



WARNING: THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Safety Data

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent *via* email to your institution.

Precautions

Please read these instructions carefully before beginning this assay.

If You Have Problems

Technical Service Contact Information

Phone: 888-526-5351 (USA and Canada only) or 734-975-3888

Email: techserv@caymanchem.com

In order for our staff to assist you quickly and efficiently, please be ready to supply the lot number of the kit (found on the outside of the box).

Storage and Stability

This kit will perform as specified if stored as directed in the **Materials Supplied** section (see page 3) and used before the expiration date indicated on the outside of the box.

Materials Needed But Not Supplied

1. Cell culture-grade DMSO

INTRODUCTION

Description

The components of this kit can be combined to produce the small molecule cocktail SCB. When mixed with the appropriate cell culture media, SCB promotes cell expansion and increases the clonogenic potential of genetically stable hematopoietic stem cells (HSCs).^{1,2} SB-431542 is a potent and selective inhibitor of activin-like kinase 5 (ALK5), also known as TGF- β receptor type 1 (TGF- β RI), that increases the proliferation of HSCs.³ CHIR99021 is an inhibitor of glycogen synthase kinase 3 (GSK-3) that regulates Wnt/ β -catenin signaling and plays an important role in the differentiation of HSCs.⁴ bpV(pic) is a selective PTEN inhibitor that increases HSC proliferation and survival.⁵

Each component in this kit is provided separately, and instructions are included to reconstitute and mix these reagents for direct dilution into cell culture media. The kit is intended to supplement up to 2 L of culture media. Some reagents may be provided in excess and may be properly disposed of after cell media preparation. Prior to use, reagents must be stored as indicated at -20°C.

Reagent Preparation

Preparation of Individual Stock Solutions

1. Prepare a 100 mM (10,000X) stock solution of SB-431542 by adding 260 μ l of sterile DMSO to the vial and vortexing until fully dissolved. This solution may be diluted in media to a final concentration of 10 μ M.
2. Prepare a 3.7 mM (10,000X) stock solution of CHIR99021 by adding 581 μ l of sterile DMSO to the vial and vortexing until fully dissolved. This solution may be diluted in media to a final concentration of 370 nM.
3. Prepare a 50 mM stock solution (10,000X) of bpV(pic) by adding 272 μ l of sterile DMSO to the vial and vortexing until fully dissolved. Gentle warming may be required to fully dissolve this material. This solution may be diluted in media to a final concentration of 5 μ M.
4. Upon addition of all reagents, sterile filtering of the final media formulation is recommended prior to use.

NOTE: Concentrated stock solutions may be stored at -20°C for up to one month, avoiding multiple freeze-thaw cycles. Sterile filtration may be required upon dilution in media.

References

1. Zarrabi, M., Afzal, E., Ebrahimi, M. *International Congress on Stem Cells and Regenerative Medicine* (2015).
2. Zarrabi, M., Afzal, E., Asghari, M.H., *et al. Stem Cell Res. Ther.* **11(1)**, 474 (2020).
3. Csaszar, E., Kirouac, D.C., Yu, M., *et al. Cell Stem Cell* **10**, 218-229 (2012).
4. Huang, J., Nguyen-McCarty, M., Hexner, E.O., *et al. Nat. Med.* **18(2)**, 1778-1785 (2012).
5. Zhu, A.Z., Ma, Z., Wolff, E.V., *et al. Stem Cell Res. Ther.* **15**, 235 (2024).

NOTES

Warranty and Limitation of Remedy

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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