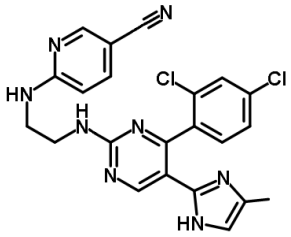
Product Specification Sheet

Product Name	Stemolecule™ CHIR99021 in Solution
Description	The aminopyrimidine CHIR99021 is the most selective inhibitor of glycogen synthase kinase 3β (GSK-3β) reported to date[1,2]. Unlike other potent inhibitors of GSK-3, CHIR99201 does not exhibit cross-reactivity against cyclin-dependent kinases (CDKs) and shows a 350-fold selectivity toward GSK-3β compared to CDKs[3]. Along with the elimination of differentiation-inducing signaling from mitogen-activated protein kinases, using CHIR99021 to block the activity of GSK-3β enables the self-renewal of embryonic stem cells[4]. Stemolecule CHIR99021 in Solution is a ready to use 10 mM stock solution for stem cell culture.
Catalog Number	04-0004-02
Size	2 mg
Concentration	10 mM in DMSO
Alternate Name	6-[[2-[[4-(2,4-dichlorophenyl)-5-(5-methyl-1H-imidazol-2-yl)-2 pyrimidinyl]amino]ethyl]amino]-3-pyridinecarbonitrile
Chemical Formula	$C_{22}H_{18}Cl_2N_8$
Structure	
Molecular Weight	465.34
CAS Number	252917-06-9
Purity	Greater than 95% by HPLC analysis
Formulation	10 mM solution of CHIR99021 in DMSO (2 mg in 429.8 µl)
Handling	Before opening, briefly centrifuge the vial to ensure full recovery of sample. Aliquotting the stock solution is recommended to avoid repetitive freeze-thaw cycles. For cell culture, the media should be prewarmed prior to adding the reconstituted compound. Note: for most cells, the maximum tolerance to DMSO is less than 0.5%.
Storage and Stability	Store solution at -20°C protected from light. Stable for 6 months from date of receipt when stored as directed.
Quality Control	The purity of CHIR99021 was determined by HPLC analysis. The accurate mass was determined by mass spectrometry. Cellular toxicity of CHIR99021 was tested on mouse embryonic stem cells.

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References

1. Ring, D.B., Johnson, K.W., Henricksen, E.J., Nuss, J.M., Goff, D., Kinnick, T.R., Ma, S.T., Reeder, J.W., Samules, I., Slabiak, T., Wagman, A.S., Hammond, M.E., and Harrison, S.D. (2003) Selective glycogen synthase kinase 3 inhibitors potentiate insulin activation of glucose transport and utilization in vitro and in vivo. Diabetes 52: 588-595.
2. Hall, R.K., Yamasaki, T., Kucera, T., Waltner-Law, M., O'Brien, R., and Granner, D.K. (2000) Regulation of phosphoenolpyruvate carboxykinase and insulin-like growth factor-binding protein-1 gene expression by insulin. The role of winged helix/forkhead proteins. J Biol Chem 275: 30169-30175.
3. Finlay, D., Patel, S., Dickson, C.M., Shpiro, N., Marquez, R., Rhodes, C.J., and Sutherland, C. (2004) Glycogen synthase kinase-3 regulates IGFBP-I gene transcription through the Thymine-rich Insulin Response Element. BMC Mol Biol 5: 15.
4. Ying, Q.L., Wray, J., Nichols, J., Batlle-Morera, L., Doble, B., Woodgett, J., Cohen, P., and Smith, A. (2008) The ground state of embryonic stem cell self-renewal. Nature 453: 519-523.