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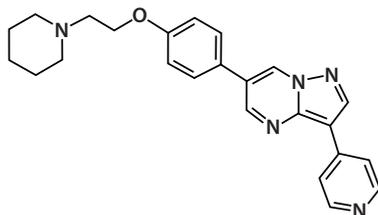
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1. Description

Components	StemMACS Dorsomorphin. A small molecule inhibitor of BMP signaling and AMP-activated protein kinase.
Size	2 mg
Product format	Off-white solid
Molecular weight	399.49
CAS number	866405-64-3
Systematic name	6-[4-(2-piperidin-1-ylethoxy)phenyl]-3-pyridin-4-ylpyrazolo[1,5-a]pyrimidine

Molecular formula C₂₄H₂₅N₅O

Structure



Purity	≥95%
Solubility	Soluble in DMSO.
Storage	Store powder at -20 °C. After reconstitution, store aliquots at -20 °C. Protect from light.

1.1 Background information

StemMACS Dorsomorphin is a potent small molecule inhibitor of bone morphogenetic protein (BMP) signaling. It inhibits the BMP type I receptors ALK2, ALK3, and ALK6 and prevents phosphorylation of their downstream targets Smad1, Smad5 and Smad8. BMP signaling is important for developmental patterning during embryogenesis. In pluripotent stem cell research, modulation of BMP signaling is used to direct ES and iPS cell differentiation, e.g. into neural lineages or cardiomyocytes. Dorsomorphin also acts as a reversible, ATP-competitive inhibitor of AMP-activated protein kinase (K_i = 109 nM). It is highly selective and does not inhibit structurally related kinases such as ZAPK, SYK, PKCθ, PKA, and JAK3.

2. Protocol

2.1 Preparation of stock solution

Effective concentrations of StemMACS Dorsomorphin for cell culture applications range from 0.5 μM to 20 μM. A 10 mM stock solution in DMSO will be appropriate for most applications and can be prepared as follows:

1. Reconstitute the entire vial contents by adding 501 μL of pure DMSO. Warm to 37 °C for 3–5 minutes to facilitate solubilization.

▲ **Note:** The vial may have turned upside down during transportation. Gently tap prior to reconstitution to collect all powder at the bottom of the vial.

2. Prepare appropriate aliquots and store at -20 °C. Avoid repeated freeze-thaw cycles.

▲ **Note:** The DMSO concentration in culture should not exceed 0.5%. Stock solutions of alternate concentration can be prepared using the following table. Add the solvent directly to the vial, it will hold up to 4 mL.

Desired stock	1 mM	2 mM	5 mM	10 mM
Volume of DMSO to add	Dilute 1:10 from a 10 mM stock	2505 μL	1002 μL	501 μL

2.2 Use in cell culture

1. Thaw aliquots at 37 °C as needed.
2. To avoid precipitation, prewarm the cell culture media prior to adding the reconstituted compound.
3. Mix and filter the supplemented media through a 0.2 μm low-protein binding filter.

Refer to www.miltenyibiotec.com for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com for local Miltenyi Biotec Technical Support contact information.

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