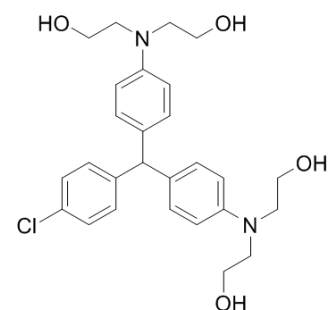


LM22B-10

Cat. No.:	HY-104047												
CAS No.:	342777-54-2												
Molecular Formula:	C ₂₇ H ₃₃ ClN ₂ O ₄												
Molecular Weight:	485.01												
Target:	Trk Receptor; Akt; ERK												
Pathway:	Neuronal Signaling; Protein Tyrosine Kinase/RTK; PI3K/Akt/mTOR; MAPK/ERK Pathway; Stem Cell/Wnt												
Storage:	<table border="0"> <tr> <td>Powder</td> <td>-20°C</td> <td>3 years</td> </tr> <tr> <td></td> <td>4°C</td> <td>2 years</td> </tr> <tr> <td>In solvent</td> <td>-80°C</td> <td>6 months</td> </tr> <tr> <td></td> <td>-20°C</td> <td>1 month</td> </tr> </table>	Powder	-20°C	3 years		4°C	2 years	In solvent	-80°C	6 months		-20°C	1 month
Powder	-20°C	3 years											
	4°C	2 years											
In solvent	-80°C	6 months											
	-20°C	1 month											



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 150 mg/mL (309.27 mM)
 * "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	2.0618 mL	10.3091 mL	20.6181 mL
	5 mM	0.4124 mL	2.0618 mL	4.1236 mL
	10 mM	0.2062 mL	1.0309 mL	2.0618 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

- Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
 Solubility: ≥ 2.5 mg/mL (5.15 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
 Solubility: ≥ 2.5 mg/mL (5.15 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil
 Solubility: ≥ 2.5 mg/mL (5.15 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

LM22B-10 is an activator of TrkB/TrkC neurotrophin receptor, and can induce TrkB, TrkC, AKT and ERK activation in vitro and in vivo.

IC₅₀ & Target

TrkB	TrkC	Akt	ERK
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In Vitro	<p>LM22B-10 exhibits maximum neurotrophic survival activity levels that are higher than those maximally achieved with BDNF ($53 \pm 7.2\%$ above BDNF at 0.7 nM) and NT-3 ($91 \pm 8.6\%$ above NT-3 at 0.7 nM) with an EC_{50} value of 200-300 nM. LM22B-10 (1000 nM) induces neurites of significantly larger average lengths, up to $-40 \mu\text{M}$. LM22B-10 (250-2000 nM) binds to TrkB-Fc and TrkC-Fc in a dose-dependent manner. LM22B-10 inhibits binding of BDNF to TrkB-expressing cells and NT-3 to TrkC-expressing cells. LM22B-10 promotes cell survival and functions preferentially through TrkB and TrkC. LM22B-10, but not BDNF or NT-3, promotes neurite outgrowth in an inhibitory environment. LM22B-10 induces patterns of Trk and downstream signaling activation that are distinct from those of BDNF and NT-3. LM22B-10 also induces TrkB, TrkC, AKT and ERK activation in hippocampal neurons in culture^[1].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
In Vivo	<p>LM22B-10 (0.5 mg/kg) activates TrkB, TrkC, AKT and ERK in C57BL/6J mice. LM22B-10 (50 mg/kg, i.p.) shows increased phosphorylation at TrkB^{Y817} and TrkC^{Y820}. LM22B-10 activates synaptic TrkB and TrkC and increases pre- and post-synaptic proteins and spine density in aged mice^[1].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

PROTOCOL

Cell Assay ^[1]

Mouse NIH-3T3 cells, mouse NIH-3T3 cells expressing TrkA (NIH-3T3-TrkA) or p75NTR (NIH-3T3-p75NTR), and NIH-3T3 cells expressing TrkB (NIH-3T3-TrkB) or TrkC (NIH-3T3-TrkC) are propagated in DMEM supplemented with 10% FBS and 200-400 $\mu\text{g/mL}$ Geneticin (for Trk-expressing cells) or 400 $\mu\text{g/mL}$ hygromycin (for p75NTR-expressing cells). Cells are seeded into 24-well plates (30,000 cells/well) and cultured in medium consisting of 50% PBS and 50% DMEM without supplements. Following exposure to growth factors (0.7 nM) or 1000 nM LM22B-10 for 72-96 h, cells are suspended in 50 μL lysis buffer, transferred to opaque 96-well culture plates and survival is measured using the Vialight Assay.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Mol Immunol. 2020 Jan 3.
- FASEB J. 2021 May;35(5):e21526.
- Life Sci. 2021 Jan 1;264:118696.
- J Immunol Res. 2020 Feb 10;2020:6457879.
- Neurochem Res. 2020 Feb;45(2):345-353.

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REFERENCES

[1]. Yang T, et al. A small molecule TrkB/TrkC neurotrophin receptor co-activator with distinctive effects on neuronal survival and process outgrowth. Neuropharmacology. 2016 Nov;110(Pt A):343-61.

Caution: Product has not been fully validated for medical applications. For research use only.

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