L-JNKi1

Jnk inhibitor

This L-stereoisomer is a cell permeable JNK (c-Jun N-terminal kinase) inhibitor. For increased cell permeability the peptide was covalently linked to the 10 aa recognized by the TAT transporter. Neuroprotective agent for stroke. Inhibits the interaction between JNK (JNK-1, -2 and –3) and its substrate with the same IC_{50} (*in vitro* IC_{50} ~ 1μM), but is degraded more readily than the D-stereoisomer, thus requiring higher treatment concentrations *in vitro* and *in vivo*.

A protein inhibitor named IB1 has been described that competitively blocks the interaction between JNK and c-Jun, thereby inhibiting the signalling events downstream of JNK like c-Jun, ATF2 and ELK1 phosphorylation. To convert IB1 into cell-permeable inhibitors of JNK (JNKI peptides) the minimal 20 aa inhibitory sequence of IB1 was covalently linked to the 10 amino acids recognized by TAT transporter. The L-JNKI1 and the protease resistant D-JNKI1 peptides represent the only potent inhibitors that are specific for JNK (JNK1, JNK2 and JNK3). Different from chemical inhibitors that directly affect kinase activity e.g. by competing with the ATP-binding site of the protein kinase, JNKI1 rather inhibits the interaction between JNK and its substrate, resulting in a JNK K.O. phenotype. In contrast to pure diffusion the TAT-peptides are actively transported into cells, where they remain until their proteolytic degradation. They can be used for *in vitro* as well as for *in vivo* applications (IC50~1μM). D-JNKI1 is the only form found to be active on neuronal cells, probably due to a high level of proteolytic degradation of the L-stereoisomer *(T. Borsello and C. Bonny; unpublished data)*.

Citations: 9 View Online »

Manuals, SDS & CofA View Online »

Handling & Storage

Use/Stability	As indicated on product label or CoA when stored as recommended. Stable for at least 2 years after receipt when stored at -20°C. Solutions can be stored at -20°C for up to 3 months.
Handling	Avoid freeze/thaw cycles.
Long Term Storage	-20°C
Shipping	Blue Ice

Regulatory Status

RUO - Research Use Only

Product Details

Alternative Name	JNK inhibitor 1 (L-stereoisomer), c-Jun N-terminal kinase peptide inhibitor 1, L-stereoisomer
Appearance	White to off-white solid.
Formula	$C_{164}H_{286}N_{66}O_{40}$
Formulation	Lyophilized.
MW	3822.5
Purity	≥95% (HPLC)
Sequence	H-Gly-Arg-Lys-Lys-Arg-Arg-Gln-Arg-Arg-Arg-Pro-Pro-Arg-Pro-Lys-Arg-Pro-Thr-Thr-Leu-Asn-Leu-Phe-Pro-Gln-Val-Pro-Arg-Ser-Gln-Asp-NH_2
Solubility	Soluble in water.

Technical Info / Product Notes

As these peptides tend to be toxic in neurons above concentrations of 5µM, it is recommended to use concentrations of ~1µM or less. When interpreting results of c-Jun inhibition, one should also note that a number of other c-Jun kinases are thought to contribute to c-Jun phosphorylation *(C. Bonny, personal communication)*.

For *in vivo* applications in mice it is suggested to start with 30-50µl of a 1mM stock solution administered intraperitoneally. Cellular uptake of L-JNKI1 peptides can now be confirmed using the FITC-conjugated L-TAT control peptide (Prod. No. ALX-168-009F).

Note: L-TAT control peptides should only be used with L-JNKI1.

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ENZO LIFE SCIENCES, INC.
Phone: 800.942.0430
info-usa@enzolifesciences.com

European Sales Office
ENZO LIFE SCIENCES (ELS) AG
Phone: +41 61 926 8989
info-eu@enzolifesciences.com

Belgium, The Netherlands & Luxembourg
Phone: +32 3 466 0420
info-be@enzolifesciences.com

France
Phone: +33 472 440 655
info-fr@enzolifesciences.com

Germany
Phone: +49 7621 5500 526
info-de@enzolifesciences.com

UK & Ireland
Phone (UK customers): 0845 601 1488
Phone: +44 1392 825900
info-uk@enzolifesciences.com

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