Vosoritide

Cat. No.:	HY-P3503
CAS No.:	1480724-61-5
Molecular Formula:	$C_{176}H_{290}N_{56}O_{51}S_3$
Molecular Weight:	4102.73
Sequence:	Pro-Gly-Gln-Glu-His-Pro-Asn-Ala-Arg-Lys-Tyr-Lys-Gly-Ala-Asn-Lys-Lys-Gly-Leu-Ser-Lys-Gly-Cys-Phe-Gly-Leu-Lys-Leu-Asp-Arg-Ile-Gly-Ser-Met-Ser-Gly-Leu-Gly-Cys (Disulfide bridge:Cys23-Cys39)
Sequence Shortening:	PGQEHPNARKYKGANKKGLSKGCFGLKLDRIGSMSGLGC (Disulfide bridge:Cys23-Cys39)
Target:	FGFR
Pathway:	Protein Tyrosine Kinase/RTK
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.

BIOLOGICAL ACTIVITY

Description

Vosoritide (BMN 111) is a modified recombinant CNP (C-type natriuretic peptide) analogue, binds to NPR-B (natriuretic peptide receptor type B) and reduces the activity of FGFR3 (fibroblast growth factor receptor 3). Vosoritide can be used in achondroplasia and dwarfism research[1][2][3].

In Vitro

Vosoritide (0.1 μM; 1 h) decreases NPR2 phosphorylation in chondrocytes[2].
Vosoritide (0.1 μM; 6 d) improves chondrocyte differentiation and increases the proliferative growth plate area of cultured $Fgfr3^{Y367C/+}$ femurs[2].
Vosoritide (10 μM; overnight) reduces ERK1/2 activation in ACH growth-plate chondrocytes[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[2]

Cell Line:	Chondrocyte cultures
Concentration:	0.1 μM
Incubation Time:	1 hour
Result:	Led to reduction in NPR2 phosphorylation.

Western Blot Analysis[3]

Cell Line:	Chondrocyte
Concentration:	10 μM
Incubation Time:	Overnight
Result:	Prevented FGF-mediated increase in ERK1/2 phosphorylation.

In Vivo

Vosoritide (subcutaneous injection; 800 μg/kg; once daily; 20 d) treatment leads to improvement in skeletal parameters in

Fgfr3 gain-of-function mutation mouse[3].

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Animal Model:	$Fgfr3^{Y367C/+}$ mice[3]
Dosage:	800 μg/kg
Administration:	Subcutaneous injection; 800 μg/kg; once daily; 20 days
Result:	Observed phenotypic changes including flattening of the skull, elongation of the snout, improvement of the anterior crossbite, larger paws and digits, and longer and straightened tibias and femurs.

REFERENCES

[1]. Duggan S. Vosoritide: First Approval. Drugs. 2021 Nov;81(17):2057-2062.

[2]. Shuhaibar LC, et al. Phosphatase inhibition by LB-100 enhances BMN-111 stimulation of bone growth. JCI Insight. 2021 May 10;6(9):e141426.

[3]. Lorget F, et al. Evaluation of the therapeutic potential of a CNP analog in a Fgfr3 mouse model recapitulating achondroplasia. Am J Hum Genet. 2012 Dec 7;91(6):1108-14.

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