

GLP-2(1-33)(human)

Cat. No.:	HY-P1024
CAS No.:	223460-79-5
Molecular Formula:	C ₁₆₅ H ₂₅₄ N ₄₄ O ₅₅ S
Molecular Weight:	3766.19
Sequence:	His-Ala-Asp-Gly-Ser-Phe-Ser-Asp-Glu-Met-Asn-Thr-Ile-Leu-Asp-Asn-Leu-Ala-Ala-Arg-Asp-Phe-Ile-Asn-Trp-Leu-Ile-Gln-Thr-Lys-Ile-Thr-Asp HADGSFSDEMNTILDNLAARDFINWLIQTKITD
Sequence Shortening:	HADGSFSDEMNTILDNLAARDFINWLIQTKITD
Target:	GCGR
Pathway:	GPCR/G Protein
Storage:	Sealed storage, away from moisture and light Powder -80°C 2 years -20°C 1 year * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)

SOLVENT & SOLUBILITY

In Vitro

H₂O : 25 mg/mL (6.64 mM; ultrasonic and adjust pH to 9 with NH₄OH)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	0.2655 mL	1.3276 mL	2.6552 mL
	5 mM	0.0531 mL	0.2655 mL	0.5310 mL
	10 mM	---	---	---

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

BIOLOGICAL ACTIVITY

Description	GLP-2(1-33) (human) is an enteroendocrine hormone which can bind to the GLP-2 receptor and stimulate the growth of intestinal epithelium.
IC₅₀ & Target	GLP-2 receptor ^[1]
In Vitro	GLP-2-treated group demonstrates a 518±22% increase (P<0.05) in mucosal IGFBP-4 mRNA levels as compare with vehicle-treated controls. Because the mucosal expression of IGFBP-4 transcripts is found to be very low relative to that of the whole intestine, FRIC cultures are used as an in vitro model of the entire intestine. FRIC cultures have previously been established to express a functional GLP-2 receptor (GLP-2R) that displays a cAMP response, as well as enhances IGF-1 mRNA expression and IGF-1 secretion in response to GLP-2 treatment. When incubates with GLP-2 (10 ⁻⁸ M) for 2 hours, IGFBP-4 mRNA expression in the FRIC cultures is also found to be increased, by 40.8±15.2% (P<0.05), compare with vehicle-treated cells ^[1] .

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

In Vivo

GLP-2 quickly increases apoB48 mass in the TRL fraction of plasma, which is indicative of chylomicron number, and this is blocked by L-NAME. GLP-2 treatment alone increases postprandial TRL-lipids (slope $3.65 \pm 0.73 \times 10^{-3}$ g/L/min vs $1.63 \pm 0.28 \times 10^{-3}$ g/L/min, GLP-2 vs control), and this effect is completely mitigated by L-NAME pretreatment (slope $3.67 \pm 0.15 \times 10^{-4}$ g/L/min). The GLP-2-induced rise in TRL-apoB48 occurs within 30 minutes and precedes the rise in TRL-TG. GLP-2 acutely increases plasma tritium levels (slope, $1.66 \pm 0.25 \times 10^2$ dpm/mL/min vs $1.11 \pm 0.17 \times 10^2$ dpm/mL/min, GLP-2 vs control)^[2].
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PROTOCOL

Cell Assay ^[1]

Fetal rat intestinal cells (FRICs) are collected by enzymatical digestion of whole fetal rat intestines (mixed sex) and cultured overnight in DMEM containing 4.5 g/L glucose, 5% fetal bovine serum, and 40 U/mL penicillin and 40 µg/mL streptomycin in 10 cm plates. Cells are then treated with GLP-2 (10^{-8} M) or vehicle in low-glucose DMEM with 0.5% FBS for 0.5 to 24 hours^[1].
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Animal Administration ^[2]

Hamsters that undergo intraduodenal catheterization (idc) are allowed 7 days of recovery before jugular vein catheterization. For postprandial experiments, conscious fasted (16 h) hamsters receive a 75 mmol/kg iv bolus of L-NAME. After 10 minutes, baseline blood sample is collected (time 0), followed by an oralgastric gavage of 3 µL Ci [$9,10\text{-}^3\text{H(N)}$] triolein in 200 µL olive oil. At t=10 minutes, F-127 is given ip (1 g/kg) to inhibit peripheral TG-rich lipoprotein (TRL) catabolism. At t=20 minutes, the hamsters receive ip injections of either PBS or 0.25 mg/kg human GLP-2(1-33). Blood (400 µL) is collected every 30 minutes for 2 hours. Blood is centrifuged at 6000 rpm for 10 minutes at 4°C to isolate plasma. Radioactivity is assessed using a liquid scintillation counter^[2].
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REFERENCES

[1]. Kaori Austin, et al. IGF Binding Protein-4 is Required for the Growth Effects of Glucagon-Like Peptide-2 in Murine Intestine. *Endocrinology*. 2015 Feb; 156(2): 429-436.

[2]. Hsieh J, et al. Glucagon-Like Peptide 2 (GLP-2) Stimulates Postprandial Chylomicron Production and Postabsorptive Release of Intestinal Triglyceride Storage Pools via Induction of Nitric Oxide Signaling in Male Hamsters and Mice. *Endocrinology*. 2015 Oct;1

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA