

## Insulin Detemir

Cat. No.:	HY-109556
CAS No.:	169148-63-4
Molecular Formula:	C <sub>267</sub> H <sub>402</sub> N <sub>64</sub> O <sub>76</sub> S <sub>6</sub>
Target:	Akt; ERK
Pathway:	PI3K/Akt/mTOR; MAPK/ERK Pathway; Stem Cell/Wnt
Storage:	Store at 4°C, do not freeze

## Insulin Detemir

### BIOLOGICAL ACTIVITY

<b>Description</b>	<p>Insulin Detemir is an artificial insulin, shows effect on controlling blood sugar levels. Insulin Detemir stimulates GLP-1 secretion as a consequence of enhanced Gcg expression by a mechanism involving activation of Akt- and/or extracellular signal-regulated kinase (ERK)-dependent-cat and CREB signaling pathways. Insulin Detemir can be used for type 2 diabetes research<sup>[1][2]</sup>.</p>								
<b>In Vitro</b>	<p>Insulin Detemir (d-INS) (100 nM; 0.5-4 h) increases Gcg mRNA expression in primary fetal rat intestinal cell (FRIC) cultures, and (100 nM; 5 min and 10 min) induces rapid phosphorylation of Akt, as well<sup>[1]</sup>.</p> <p>Insulin Detemir (100 nM; 5-120 min) increases β-catenin phosphorylation, its nuclear translocation, and enhances cAMP response element-binding protein (CREB) phosphorylation in a phosphatidylinositol 3-kinase and/or mitogen-activated protein kinase kinase/extracellular signal-regulated kinase-sensitive manner<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Western Blot Analysis<sup>[1]</sup></p> <table border="1"> <tr> <td>Cell Line:</td> <td>GLUtag cells</td> </tr> <tr> <td>Concentration:</td> <td>100 nM</td> </tr> <tr> <td>Incubation Time:</td> <td>0, 5, 10, 30, 60, and 120 min</td> </tr> <tr> <td>Result:</td> <td>Stimulated CREB, ERK1/2, Akt and its downstream glycogen synthase kinase (GSK)-3 phosphorylation at 5 min and 10 min.</td> </tr> </table>	Cell Line:	GLUtag cells	Concentration:	100 nM	Incubation Time:	0, 5, 10, 30, 60, and 120 min	Result:	Stimulated CREB, ERK1/2, Akt and its downstream glycogen synthase kinase (GSK)-3 phosphorylation at 5 min and 10 min.
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<b>In Vivo</b>	<p>Insulin Detemir (d-INS) (5 IU/kg; i.p.; once daily; 2 weeks) demonstrates weight-sparing effects compared with other insulin formulations, and shows a intestinal tissues preference, potentially involving the activation of insulin/-catenin/CREB signaling pathways<sup>[1]</sup>.</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <table border="1"> <tr> <td>Animal Model:</td> <td>Obese type 2 diabetic db/db mice<sup>[1]</sup></td> </tr> <tr> <td>Dosage:</td> <td>5 IU/kg</td> </tr> <tr> <td>Administration:</td> <td>Intraperitoneal injection; once daily for 2 weeks</td> </tr> </table>	Animal Model:	Obese type 2 diabetic db/db mice <sup>[1]</sup>	Dosage:	5 IU/kg	Administration:	Intraperitoneal injection; once daily for 2 weeks		
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Result:

Decreased body weight of the mice after 14-day daily injection of d-INS (5 IU/kg) significantly compared with those injected with the same dose of human Insulin or saline. Induced rapid phosphorylation of protein kinase B (Akt) in the gut L cells of normal mice.

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## REFERENCES

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[1]. Liu S, et al. Insulin detemir enhances proglucagon gene expression in the intestinal L cells via stimulating  $\beta$ -catenin and CREB activities. *Am J Physiol Endocrinol Metab.* 2012 Sep 15;303(6):E740-51.

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

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