# Insulin Degludec（研究用级别）

Research Grade Insulin Degludec

货号：RB9T37017284

在您使用本产品前请认真阅读说明书，这对您顺利完成实验很有帮助。

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| 产品编码<br>RB9T37017284 | 中文名称<br>Insulin Degludec（研究用级别） |
| 英文名称<br>Research Grade Insulin Degludec | |
| 形态<br>Liquid | 纯度<br>>95% purity as determined by SDS-PAGE. |
| 内毒素水平<br>Please contact the lab for this information. | |
| 应用<br>ELISA, Functional assay, Research in vivo | |
| 表达系统<br>Mammalian Cells | 登录号<br>P01308 |
| 抗体亚型<br>Recombinant human Insulin analogue | 纯化方式<br>Purified by Nickel column. |
| 浓度<br>1mg/ml | 种属反应性<br>Human |

靶标

INS, Insulin

背景信息

Insulin glargine sold under the brand name Lantus among others is a long-acting modified form of medical insulin, used in the management of type 1 and type 2 diabetes. It is injected just under the skin. Effects generally begin an hour after use.Common side effects include low blood sugar, problems at the site of injection, itchiness, and weight gain. Other serious side effects include low blood potassium. NPH insulin rather than insulin glargine is generally preferred in pregnancy. After injection, microcrystals slowly release insulin for about 24 hours. This insulin causes body tissues to absorb glucose from the blood and decreases glucose production by the liver.Insulin glargine was patented, but the patent expired in most jurisdictions in 2014. It was approved for medical use in the United States in 2000. It is on the World Health Organization's List of Essential Medicines. In 2022, it was the 28th most commonly prescribed medication in the United States, with more than 18 million prescriptions. In July 2021, the US Food and Drug Administration (FDA) approved an interchangeable biosimilar insulin product called Semglee (insulin glargine-yfgn) for the treatment of diabetes.Medical usesThe long-acting insulin class, which includes insulin glargine, do not appear much better than neutral protamine Hagedorn (NPH) insulin, but do have a greater cost, making them, as of 2010, not cost effective for the treatment of type 2 diabetes. In a previous review it was unclear if there is a difference in hypoglycemia, as there was not enough data to determine any differences with respect to long term outcomes, however a more recent Cochrane systematic review did not find clinically significant difference when comparing insulin glargine to NPH insulin, insulin detemir or insulin degludec in the management of type 1 diabetes in either adults or children over periods of 6 months or longer. It is not typically the recommended long-acting insulin in the United Kingdom.Semglee is indicated to improve glycemic control in adults and children with type 1 diabetes and in adults with type 2 diabetes. Semglee is both biosimilar to, and interchangeable with its reference product Lantus (insulin glargine), a long-acting insulin analog.Mixing with other insulinsThe American Diabetes Association said in 2003 that, unlike some other longer-acting insulins, glargine should not be diluted or mixed with other insulin or solution in the same syringe, due to the low pH of its diluent. However, a 2004 study found that mixing glargine with other insulins did not affect short-term glycemic profile.Adverse effectsCommon side effects include low blood sugar, problems at the site of injection, itchiness, and weight gain. Serious side effects include low blood potassium.As of 2012, tentative evidence shows no association between insulin glargine and cancer. Previous studies had raised concerns.When comparing insulin glargine to NPH insulin, insulin detemir or insulin degludec, no significant adverse effects were found in the management of type 1 diabetes in either adults or children in periods of six months or longer.PharmacologyMechanism of actionInsulin glargine differs from human insulin by replacing asparagine with glycine in position 21 of the A-chain and by carboxy-terminal extension of B-chain by 2 arginine residues. The arginine amino acids shift the isoelectric point from a pH of 5.4 to 6.7, making the molecule more soluble at an acidic pH and less soluble at physiological pH. The isoelectric shift also allows for the subcutaneous injection of a clear solution. The glycine substitution prevents deamidation of the acid-sensitive asparagine at acidic pH. In the neutral subcutaneous space, higher-order aggregates form, resulting in a slow, peakless dissolution and absorption of insulin from the site of injection.HistoryIn June 2000, the European Commission formally approved the launching of Lantus by Sanofi-Aventis Germany in the European Union. The admission was prolonged on 9 June 2005.A three-fold more concentrated formulation, brand name Toujeo, was introduced after FDA approval in 2015.Legal statusBiosimilarsAbasaglar was approved for medical use in the European Union in September 2014.Lusduna was approved for medical use in the European Union in January 2017.In March 2018, insulin glargine (Semglee) was approved for medical use in the European Union.In July 2021, insulin glargine-yfgn (Semglee) was approved for medical use in the United States as the first interchangeable biosimilar of Lantus. The FDA granted approval of Semglee to Mylan Pharmaceuticals.Patent expiryPatent protection for insulin glargine expired in Europe and the US in 2014. Insulin glargine from competitor Eli Lilly became available in most countries during 2015, under the brand names Basaglar (as a follow-on in the US) and Abasaglar (as a biosimilar in the EU).Brand namesInsulin glargine is available under brand names including Basaglar, Lantus, and Toujeo.

- Genetic protection from type 1 diabetes resulting from accelerated insulin mRNA decay., PMID:40112799
- Generation of insulin-deficient piglets by disrupting INS gene using CRISPR/Cas9 system., PMID:29691708
- Improving effect of cordycepin on insulin synthesis and secretion in normal and oxidative-damaged INS-1 cells., PMID:35196519
- Quantification of Unmethylated Insulin DNA Using Methylation Sensitive Restriction Enzyme Digital Polymerase Chain Reaction., PMID:35462792
- ETV5 regulates proliferation and cell cycle genes in the INS-1 (832/13) cell line independently of the concentration of secreted insulin., PMID:37876309
- Scopoletin stimulates the secretion of insulin via a KATP channel-dependent pathway in INS-1 pancreatic β cells., PMID:35099527
- Magnetic particles for triggering insulin release in INS-1E cells subjected to a rotating magnetic field., PMID:36056640
- Long-Acting Insulin-Zwitterionic Polymer Conjugate Mitigates Hypoglycemia., PMID:36445789
- INS VNTR is a QTL for the insulin response to oral glucose in obese children., PMID:14657411
- Cell-penetrating peptide enhanced insulin buccal absorption., PMID:32470482

别名

NN1250, NN-1250, 2381089-83-2

## 储存缓冲液

0.01M PBS, pH 7.4.

## 稳定性和储存

Use a manual defrost freezer and avoid repeated freeze-thaw cycles. Store at 4° C

for short-term storage (1-2 weeks). Store at -20° C for up to 12 months. For long-term storage, store at -80° C.

For research use only. Not suitable for clinical or therapeutic use.