



Insulin Biosimilars, Follow-Ons, and Authorized Generics

Background

Multiple biosimilar insulins, follow-on brands, and authorized generics (AG) have come to market recently. Additionally, the first interchangeable biosimilar, Semglee, which is interchangeable for Lantus, is now available. There is also an AG for the interchangeable Semglee. These types of products often offer a lower cost without sacrificing efficacy, but confusion surrounding these products exist. When appropriate, consider prescribing insulin products that have interchangeable biosimilars or AG's. The pharmacist can then dispense the least expensive product to each patient without a new Rx in most states. Also, reassure patients that interchangeable biologics and AG's should provide the same effects as the reference brand.

Definitions

- **Biologics:** Usually isolated from a living system (human, animal, or microorganism) and may be produced by biotechnology methods or other technologies. They are much larger and more complex than a traditional drug.¹
 - Examples include monoclonal antibodies (e.g., dupilumab), interferons, cytokines, growth factors (epoetin alfa), thrombolytics, and immunomodulators.
 - In 2020, insulin and several other hormones, were reclassified as biologics.
- **Follow-on:** Biologics that use some safety and/or efficacy data from the reference product to receive FDA approval through an abbreviated pathway. Evidence is provided to show similarity to the reference product.²
 - Cannot be auto substituted by the pharmacist.
- **Biosimilar:** Demonstrated to be "highly similar" to and without "clinically meaningful differences" from the reference product.¹
 - Dosing and warnings for approved indications are the same.
 - Approved through an abbreviated pathway that uses existing safety and efficacy data of the reference product.¹
 - Cannot be auto substituted by the pharmacist.
- **Interchangeable:** Evidence provided to the FDA showing that it is expected to produce the same clinical results as the reference product.¹
 - Can be auto substituted by the pharmacist in most states.
- **Authorized generic (AG):** The exact same product as the brand-name drug without the brand name on the label. It is not listed in the FDA's orange book since it is marketed under the brand name drug's New Drug Application (NDA).
 - Can be auto substituted by the pharmacist in most states.

Available Injectable Insulin

Product Name	Type	AG Available	Auto Substitution Allowed
Humalog (insulin lispro)	Reference biologic	Yes	Yes (AG only)
Admelog (insulin lispro)	Follow-on to Humalog	No	No
Lyumjev (insulin lispro-aabc)	Follow-on to Humalog	No	No
Novolog (insulin aspart)	Reference biologic	Yes	Yes (AG only)
Fiasp (insulin aspart)	Follow-on to Humalog	No	No
Apidra (insulin glulisine)	Reference biologic	No	No
Humulin or Novolin R (insulin human)	Reference biologic	No	No
Humulin or Novolin N (insulin isophane human)	Reference biologic	No	No
Lantus (insulin glargine)	Reference biologic	No	Yes (Semglee)
Semglee (insulin glargine-yfgn)	Interchangeable	Yes	Yes (AG and Lantus)
Basaglar (insulin glargine)	Follow-on to Lantus	No	No
Levemir (insulin detemir)	Reference biologic	No	No
Toujeo (insulin glargine)	Reference biologic	No	No
Tresiba (insulin degludec)	Reference biologic	No	No
Humalog 75/25 (insulin lispro protamine/lispro)	Reference biologic	Yes	Yes (AG only)
Humalog 50/50 (insulin lispro protamine/lispro)	Reference biologic	No	No
Novolog 70/30 (insulin aspart protamine/aspart)	Reference biologic	Yes	Yes (AG only)
Humulin or Novolin 70/30 (NPH/regular)	Reference biologic	No	No

References

1. FDA. Biological product definitions. <https://www.fda.gov/files/drugs/published/Biological-Product-Definitions.pdf>. (Accessed July 15, 2022).
2. White J, Goldman J. Biosimilar and Follow-on Insulin: The Ins, Outs, and Interchangeability. *J Pharm Technol*. 2019 Feb;35(1):25-35. doi: 10.1177/8755122518802268. Epub 2018 Sep 28. PMID: 34861004; PMCID: PMC6313268.