

INSULIN FOR SUBCUTANEOUS OR IV USE

DRUG CLASS	Insulin
AVAILABILITY	<p>SHORT-ACTING INSULINS (regular human insulin): Actrapid and Humulin R contain 100 units/mL of human insulin.¹</p> <p>ULTRA SHORT-ACTING INSULINS: Apidra contains 100 units/mL of insulin glulisine.¹ Humalog contains 100 units/mL of insulin lispro.¹ NovoRapid contains 100 units/mL of insulin aspart.¹ Fiasp contains 100 units/mL of insulin aspart.¹</p> <p>Excipients include glycerol, metacresol, phenol, polysorbate-20, sodium chloride, sodium phosphate, trometamol, zinc, nicotinamide, arginine, hydrochloric or phosphoric acid and sodium hydroxide. See the individual product information for details.</p> <p>All solutions are clear and colourless.¹</p> <p>All preparations including multidose vials are for single patient use only.¹</p>
WARNING	Different brands of insulin are not bioequivalent. Do not substitute brands. ¹
pH	Actrapid: 7–7.8 ² Humulin R: 6.6–8 ¹ Apidra: 7.3 ¹ Humalog: 7–7.8 ¹ NovoRapid: 7.2–7.6 ² Fiasp: 7.1 ³
PREPARATION	Not required
STABILITY	Store at 2 to 8 °C. Do not freeze. Once in use store at room temperature (below 30 °C) and discard any unused product after 28 days (21 days for Humulin cartridges). ¹
ADMINISTRATION	
IM injection	Only in an emergency under medical guidance. Suitable for Actrapid and Humulin R . Withdraw the dose from a vial or cartridge with a syringe. ¹
SUBCUT injection	Preferred. Inject into the abdomen, upper arm, thigh or buttocks. Rotate the site of injection so that the same site is not used more than approximately once a month. Do not massage the injection site. ¹ Humalog , NovoRapid and Fiasp may be given by continuous subcutaneous insulin infusion (CSII) using an insulin pump. The entire infusion set, including the syringe and its contents, should be changed every 48 hours. Fiasp may be used in an infusion pump for up to 6 days. Ensure access to an alternative device, spare insulin and a U100 syringe at all times in case of pump failure. Do not mix with other insulins in an insulin pump. ¹ Do not use Actrapid in insulin pumps for continuous subcutaneous infusion as there is a risk of precipitation in pump catheters. ¹
IV injection	Suitable in an emergency under medical guidance or in the treatment of hyperkalaemia. ^{1,4} Withdraw the dose from an unopened vial or cartridge with a syringe. ¹
IV infusion	Suitable for Actrapid , Novorapid and Fiasp . Dilute 50 units in 50 mL of a compatible fluid to make a concentration of 1 unit/mL. ^{1,5} The rate of infusion will depend on the indication. Check your local guidelines or consult the pharmacist, pharmacy department or medicines information service for further information.

COMPATIBILITY

- Fluids** **Actrapid:** glucose 5%¹, glucose 10%¹, glucose 50%¹, sodium chloride 0.9%¹
Humulin R: Hartmann's via Y-site⁶, Ringer's via Y-site⁶
Apidra: sodium chloride 0.9%⁷
Humalog: glucose 5%⁷, sodium chloride 0.9%⁸
NovoRapid: glucose 5%⁵, glucose 10%⁵, sodium chloride 0.9%⁵
Fiasp: glucose 5%¹, sodium chloride 0.9%¹
- Y-site** **Actrapid:** caspofungin⁹, ceftaroline fosamil⁹, ceftolozane-tazobactam⁹, isavuconazole⁹, milrinone⁹, potassium chloride¹⁰
More information is available¹⁰
Novorapid¹¹: adrenaline (epinephrine), amiodarone, ceftazidime, ceftriaxone, ciclosporin, clonazepam, clonidine, fentanyl, flecainide, furosemide, glyceryl trinitrate, heparin sodium, isoprenaline, labetalol, levetiracetam, magnesium sulfate, midazolam, milrinone, morphine hydrochloride, noradrenaline (norepinephrine), octreotide, remifentanyl, salbutamol, sodium nitroprusside, sodium valproate, tirofiban, vancomycin, verapamil

INCOMPATIBILITY

- Fluids** **Apidra:** glucose 5%⁶, Ringer's⁷
- Drugs** Aminophylline¹, rocuronium¹
Actrapid: cefoxitin¹⁰, glycopyrronium¹⁰, isoprenaline¹⁰, labetalol¹⁰, micafungin⁹, noradrenaline (norepinephrine)¹⁰, pentamidine¹⁰, phentolamine¹⁰, phenylephrine¹⁰, piperacillin-tazobactam (EDTA-free)¹⁰, protamine¹⁰

SPECIAL NOTES

Short-acting insulins: the onset of action is about 30 minutes and the duration of action is 5 to 8 hours.¹

Ultra-short acting insulins: the onset of action is about 10 to 20 minutes. The duration of action is 3 to 5 hours.^{1,7}

Novorapid and Fiasp contain different formulations of insulin aspart. The onset of action is faster and duration of action is shorter with Fiasp than with Novorapid.¹

The onset of action is immediate when given intravenously.¹

Monitor blood glucose levels regularly.

Actrapid and **Humulin R** may be mixed with intermediate-acting insulin (Protaphane, Humulin NPH). Draw the short-acting insulin into the syringe first to prevent contamination of the vial with the longer-acting insulin. Use immediately after mixing. For subcutaneous injection only. Do not give the mixture intravenously.¹

Insulin will be adsorbed onto the surfaces of IV infusion containers (both glass and plastic), tubing and filters. Monitor response to therapy and adjust doses accordingly.⁹

REFERENCES

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