

CLAIMS

1. An insulin analogue, wherein the analogue comprises A9E or A9D and further comprises B3E and/or desB30 relative to human insulin.

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2. The insulin analogue according to claim 1, wherein the analogue further comprises at least one of B26E, B27E and/ or B28E.

3. The insulin analogue according to claim 2, wherein the analogue additionally comprises the A21A substitution.

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4. The insulin analogue according to any of the preceding claims, wherein the analogue is

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A9D, B3E;

A9E, B3E;

A9D, desB30;

A9E, desB30;

A9D, B3E, desB30;

A9E, B3E, desB30;

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A9D, B3E, B26E;

A9E, B3E, B26E;

A9D, B26E, desB30;

A9E, B26E, desB30;

A9D, B3E, B26E, desB30;

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A9E, B3E, B26E, desB30;

A9D, A21A, B3E, B26E;

A9E, A21A, B3E, B26E;

A9D, A21A, B26E, desB30;

A9E, A21A, B26E, desB30;

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A9D, A21A, B3E, B26E, desB30;

A9E, A21A, B3E, B26E, desB30;

A9D, B3E, B27E;

A9E, B3E, B27E;

A9D, B27E, desB30;

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A9E, B27E, desB30;

	A9D, B3E, B27E, desB30;
	A9E, B3E, B27E, desB30;
	A9D, A21A, B3E, B27E;
	A9E, A21A, B3E, B27E;
5	A9D, A21A, B27E, desB30;
	A9E, A21A, B27E, desB30;
	A9D, A21A, B3E, B27E, desB30;
	A9E, A21A, B3E, B27E, desB30;
	A9D, B3E, B28E;
10	A9E, B3E, B28E;
	A9D, B28E, desB30;
	A9E, B28E, desB30;
	A9D, B3E, B28E, desB30;
	A9E, B3E, B28E, desB30;
15	A9D, A21A, B3E, B28E;
	A9E, A21A, B3E, B28E;
	A9D, A21A, B28E, desB30;
	A9E, A21A, B28E, desB30;
	A9D, A21A, B3E, B28E, desB30;
20	A9E, A21A, B3E, B28E, desB30;
	A9D, B3E, B26E, B27E;
	A9E, B3E, B26E, B27E;
	A9D, B26E, B27E, desB30;
	A9E, B26E, B27E, desB30;
25	A9D, B3E, B26E, B27E, desB30;
	A9E, B3E, B26E, B27E, desB30;
	A9D, A21A, B3E, B26E, B27E;
	A9E, A21A, B3E, B26E, B27E;
	A9D, A21A, B26E, B27E, desB30;
30	A9E, A21A, B26E, B27E, desB30;
	A9D, A21A, B3E, B26E, B27E, desB30;
	A9E, A21A, B3E, B26E, B27E, desB30;
	A9D, B3E, B27E, B28E;
	A9E, B3E, B27E, B28E;
35	A9D, B27E, B28E, desB30;

- A9E, B27E, B28E, desB30;
 A9D, B3E, B27E, B28E, desB30;
 A9E, B3E, B27E, B28E, desB30;
 A9D, A21A, B3E, B27E, B28E;
 5 A9E, A21A, B3E, B27E, B28E;
 A9D, A21A, B27E, B28E, desB30;
 A9E, A21A, B27E, B28E, desB30;
 A9D, A21A, B3E, B27E, B28E, desB30;
 A9E, A21A, B3E, B27E, B28E, desB30;
 10 A9D, B3E, B26E, B28E;
 A9E, B3E, B26E, B28E;
 A9D, B26E, B28E, desB30;
 A9E, B26E, B28E, desB30;
 A9D, B3E, B26E, B28E, desB30;
 15 A9E, B3E, B26E, B28E, desB30;
 A9D, A21A, B3E, B26E, B28E;
 A9E, A21A, B3E, B26E, B28E;
 A9D, A21A, B26E, B28E, desB30;
 A9E, A21A, B26E, B28E, desB30;
 20 A9D, A21A, B3E, B26E, B28E, desB30;
 A9E, A21A, B3E, B26E, B28E, desB30;
 A9D, B3E, B26E, B27E, B28E;
 A9E, B3E, B26E, B27E, B28E;
 A9D, B26E, B27E, B28E, desB30;
 25 A9E, B26E, B27E, B28E, desB30;
 A9D, B3E, B26E, B27E, B28E, desB30;
 A9E, B3E, B26E, B27E, B28E, desB30;
 A9D, A21A, B3E, B26E, B27E, B28E;
 A9E, A21A, B3E, B26E, B27E, B28E;
 30 A9D, A21A, B26E, B27E, B28E, desB30;
 A9E, A21A, B26E, B27E, B28E, desB30;
 A9D, A21A, B3E, B26E, B27E, B28E, desB30; or
 A9E, A21A, B3E, B26E, B27E, B28E, desB30.
- 35 5. The insulin analogue according to claim 4, wherein the analogue is

A9E, B3E, B26E;
A9E, B3E, B27E, B28E;
A9E, B3E, B26E, desB30;
A9E, B3E, B27E, B28E, desB30;
5 A9D, B3E, B26E, desB30; or
A9E, A21A, B3E, B26E, desB30.

6. The insulin analogue according to claim 5, wherein the analogue is A9E, B3E, B26E, desB30.

7. A pharmaceutical composition comprising an insulin analogue according to any one of claims 1-6, and one or more pharmaceutically acceptable excipients.

8. The pharmaceutical composition according to claim 7, wherein the insulin analogue is in a concentration of from 0.6mM to 3mM.

9. The pharmaceutical composition according to claims 7-8, wherein the composition is free of zinc.

10. The pharmaceutical composition according to claims 7-9, comprising a nicotinic compound, and in particular nicotinamide.

11. The pharmaceutical composition according to claims 7-9, wherein the composition is free of a nicotinic compound, and in particular nicotinamide.

12. The insulin analogue according to any of the claims 1-6 is monomeric in a zinc free pharmaceutical composition.

13. The insulin analogue according to claim 7 is chemically and/or physically stable.

14. The insulin analogue according to any one of claims 1-6 or a pharmaceutically acceptable salt thereof or the pharmaceutical composition according to any one of claims 7-11, for use as a medicament.

15. A method of treatment, prevention or alleviation of a disease or disorder or condition of a human body, wherein the disease, disorder or condition relates to diabetes, in particular Type 1 diabetes, or Type 2 diabetes, wherein the method comprises the step of administering to such a living animal body in need thereof, a therapeutically effective amount of the insulin analogue according to any one of claims 1-6 or pharmaceutical composition according to any one claims 7-11.

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