DNA-based device for orally controlled insulin delivery

Technology #2494

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Orally Controlled Insulin Delivery Patients afflicted with diabetes mellitus typically require multiple injections of insulin throughout the day, or must resort to a wearable insulin pump in order to achieve control of their blood sugar. Being that these therapies interfere with many common activities, there is a need for insulin delivery methods that can reduce the need for frequent injections.

Quinine Triggers Insulin from Biodegradable Depot The technology is an orally controllable insulin delivery system for use as a therapy for diabetes mellitus. The system comprises a biodegradable polymeric depot containing insulin covalently bonded to an oligonucleotide whose secondary structure can be modified by the presence of quinine. After injection of the depot, the patient can trigger the dissociation of insulin from the oligonucleotide during a meal by ingesting an appropriate dose of quinine.

Applications:
– The technology can be used to facilitate glycemic control in diabetes mellitus patients.
– The technology can be used to perform orally controlled delivery of other peptide-based drugs.

Advantages:
– By providing a method for orally controlling the release of insulin, the technology obviates the need for multiple injections of insulin throughout the day or the use of a wearable insulin pump.


Licensing Status: Available for Sponsored Research Support


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