Title: DEVICE FOR ENHANCING TISSUE GLUCOSE PROCESSING

Abstract: The present invention is a device for delivering insulin to a subject to improve impaired total body tissue glucose processing. The device delivers one or more pulses of insulin to the subject over a period of time accompanied by ingestion of glucose in the form of a carbohydrate containing meal. The number of pulses, the amount of insulin in each pulse, the interval between pulses and the amount of time to deliver each pulse to the subject are selected so that total body tissue processing of glucose is restored in the subject. In subjects whose total body tissue glucose processing has been restored, there is a subsequent fall in circulating blood glucose levels of 50 mg/dl or more primarily and directly as a result of improved total body tissue glucose processing.
### A. CLASSIFICATION OF SUBJECT MATTER

**IPC:**
- A61K 47/26 (2006.01), 38/28 (2006.01), 47/26 (2006.01); A61M 31/00 (2006.01), 25/00 (2006.01), 3/00 (2006.01), 5/00 (2006.01); 5/162 (2006.01), 1/00 (2006.01); A61B 5/145 (2006.01)

**USPC:**
- 600/316, 319, 322, 341, 347, 365, 604/500, 504, 508, 151; 514/3, 23

According to International Patent Classification (IPC) or to both national classification and IPC

### B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
- U.S.: 600/316, 319, 322, 341, 347, 365, 604/500, 504, 508, 151; 514/3, 23

Documentation searched other than the minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
- PGPB, USPT, USOC, CAPLUS, MEDLINE, BIOSIS, EPAB, JPAB, DWPI, TDBD

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category *</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tbody>
<tr>
<td>Y</td>
<td>US 4,826,810 (Aoki) 2 May 1989 (02.05.1989), abstract; claims 1-21; Figures 4 and 5; col. 2, lines 5-15, 40-46; col. 3, lines 10-15, 59-61; col. 3, line 67 through col. 4, line 2; col. 4, lines 24-31 and 57-58; col. 5, lines 55-67; col. 7, lines 3-8, 18-54; col. 8, lines 16-23.</td>
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<td>Heinemann, L. et al. &quot;Pulsatile insulin infusion and glucose-homeostasis in well-controlled Type 1 (insulin-dependent) diabetic patients&quot; Journal of Internal Medicine, 1989, vol. 226, pp 325-330, especially abstract; pg. 326 left column, 1st full paragraph; pg. 326 1st paragraph of &quot;study protocol&quot; section; pg. 327, left column 3rd paragraph; pg. 328, right column 1st full paragraph.</td>
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* Further documents are listed in the continuation of Box C.  

*"I"* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

*"X"* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

*"Y"* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

*"&"* document member of the same patent family

### Date of the actual completion of the international search
13 June 2008 (13.06.2008)

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