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Young et al.

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(45) **Date of Patent:** ***Jun. 24, 2014**

(54) **METHODS OF TREATMENT USING
EXENDIN PEPTIDES OR GLP-1 PEPTIDES**

7,153,825 B2 12/2006 Young et al.
7,442,680 B2 10/2008 Young et al.
7,928,065 B2* 4/2011 Young et al. 514/6.7

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 541 days.

Barragan at al., Interactions of Exendin-(9-39) with the effects of glucagon-like peptide-1-(7-36) amide and of Exendin-4 on arterial blood pressure and heart rate in rats, *Regulatory Peptides* 67:63-68 (1996).

This patent is subject to a terminal disclaimer.

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(21) Appl. No.: **13/080,051**

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(22) Filed: **Apr. 5, 2011**

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(65) **Prior Publication Data**

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Related U.S. Application Data

(60) Continuation of application No. 12/247,141, filed on Oct. 7, 2008, now Pat. No. 7,928,065, which is a continuation of application No. 10/656,093, filed on Sep. 5, 2003, now Pat. No. 7,442,680, which is a division of application No. 09/622,105, filed as application No. PCT/US99/02554 on Feb. 5, 1999, now Pat. No. 6,703,359.

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(30) **Foreign Application Priority Data**

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(51) **Int. Cl.**

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C07K 14/575 (2006.01)

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(52) **U.S. Cl.**

USPC **514/11.7**; 514/15.4; 514/15.7; 514/16.4

(58) **Field of Classification Search**

None
See application file for complete search history.

(Continued)

Primary Examiner — Jeffrey E Russel

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(57) **ABSTRACT**

Methods for increasing urine flow are disclosed, comprising administration of an effective amount of GLP-1, an exendin, or an exendin or GLP-1 agonist. Methods for increasing urinary sodium excretion and decreasing urinary potassium concentration are also disclosed. The methods are useful for treating conditions or disorders associated with toxic hypervolemia, such as renal failure, congestive heart failure, nephrotic syndrome, cirrhosis, pulmonary edema, and hypertension. The present invention also relates to methods for inducing an inotropic response comprising administration of an effective amount of GLP-1, an exendin, or an exendin or GLP-1 agonist. These methods are useful for treating conditions or disorders that can be alleviated by an increase in cardiac contractility such as congestive heart failure. Pharmaceutical compositions for use in the methods of the invention are also disclosed.

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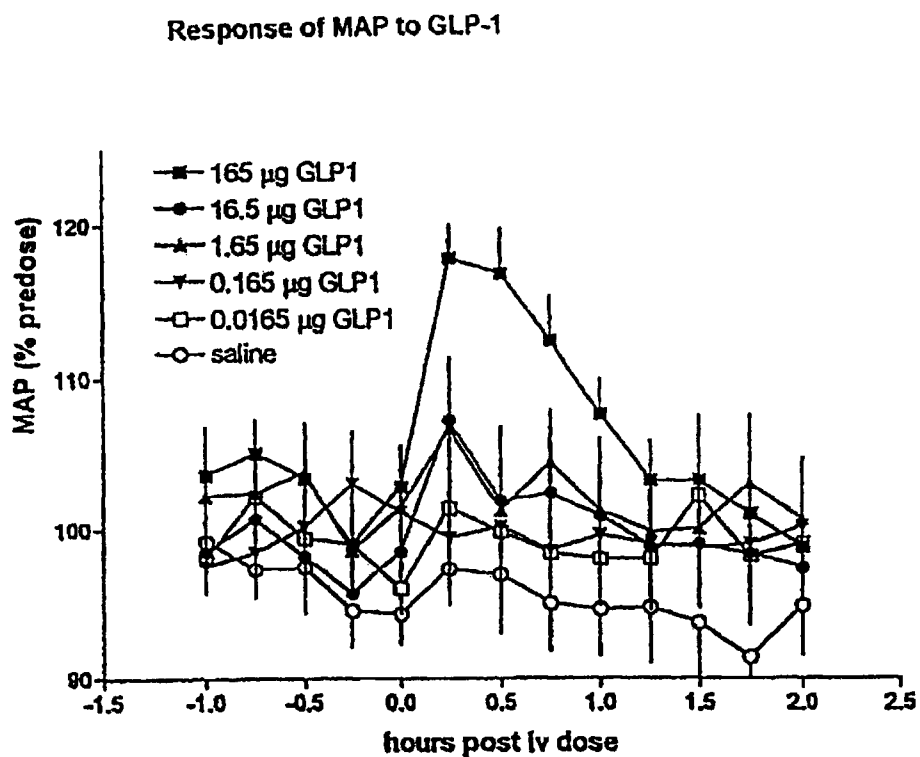


FIGURE 1A

Dose-response curve:
MAP to GLP-1

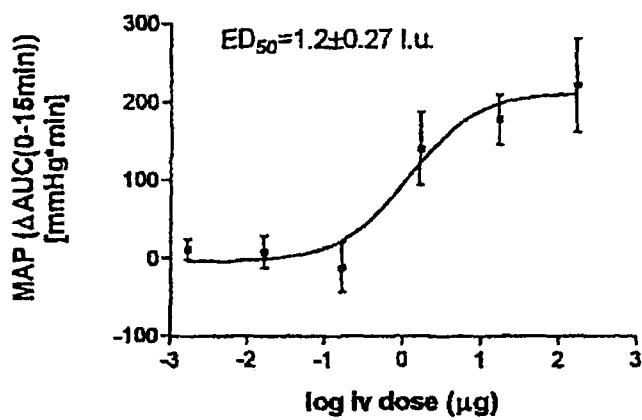


FIGURE 1B

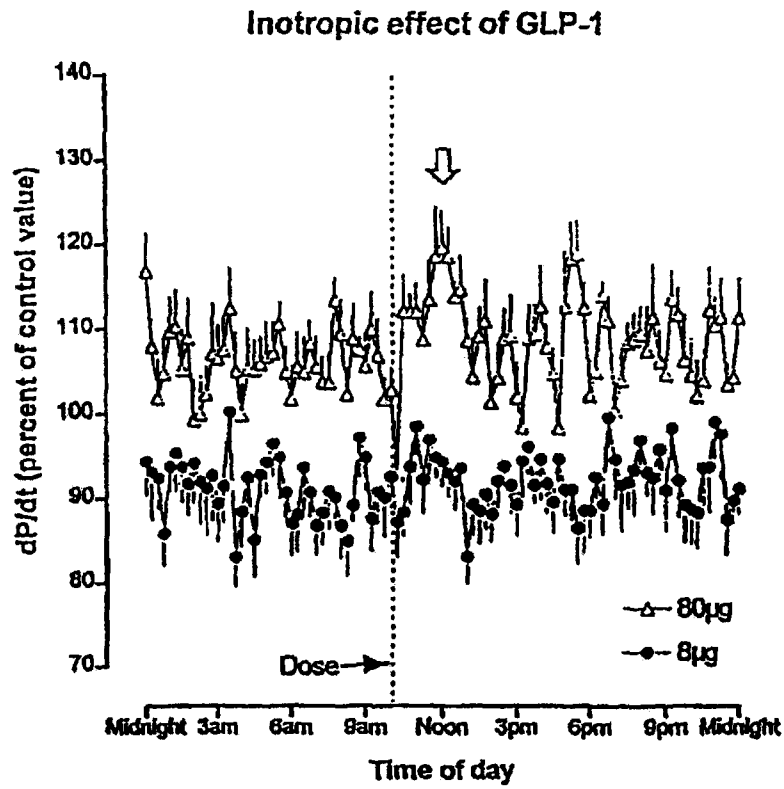


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