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United States Patent [19]
Kornfelt et al.

[11] **Patent Number:** **5,652,216**
[45] **Date of Patent:** **Jul. 29, 1997**

[54] **PHARMACEUTICAL PREPARATION**

5,059,587 10/1991 Yamamoto 514/12

[75] Inventors: **Troels Kornfelt**, Virum; **Henrik Rasmussen**, Copenhagen; **Flemming Steen Jensen**, Allerød, all of Denmark

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[73] Assignee: **Novo Nordisk A/S**, Bagsvaerd, Denmark

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[21] Appl. No.: **275,855**

Primary Examiner—Peter O'Sullivan
Attorney, Agent, or Firm—Steve T. Zelson, Esq.; Valeta A. Gregg, Esq.

[22] Filed: **Jul. 15, 1994**

[30] **Foreign Application Priority Data**

[57] **ABSTRACT**

May 26, 1994 [DK] Denmark 0590/94

[51] **Int. Cl.⁶** **A61K 38/26**

[52] **U.S. Cl.** **514/12**

[58] **Field of Search** 514/12

The present invention relates to a pharmaceutical preparation comprising glucagon and a stabilizing amount of a pharmaceutically acceptable ampholyte, especially an amino acid or dipeptide or a mixture thereof and optionally an excipient.

[56] **References Cited**

The preparation is stable for extended periods of time in solution at room temperature.

U.S. PATENT DOCUMENTS

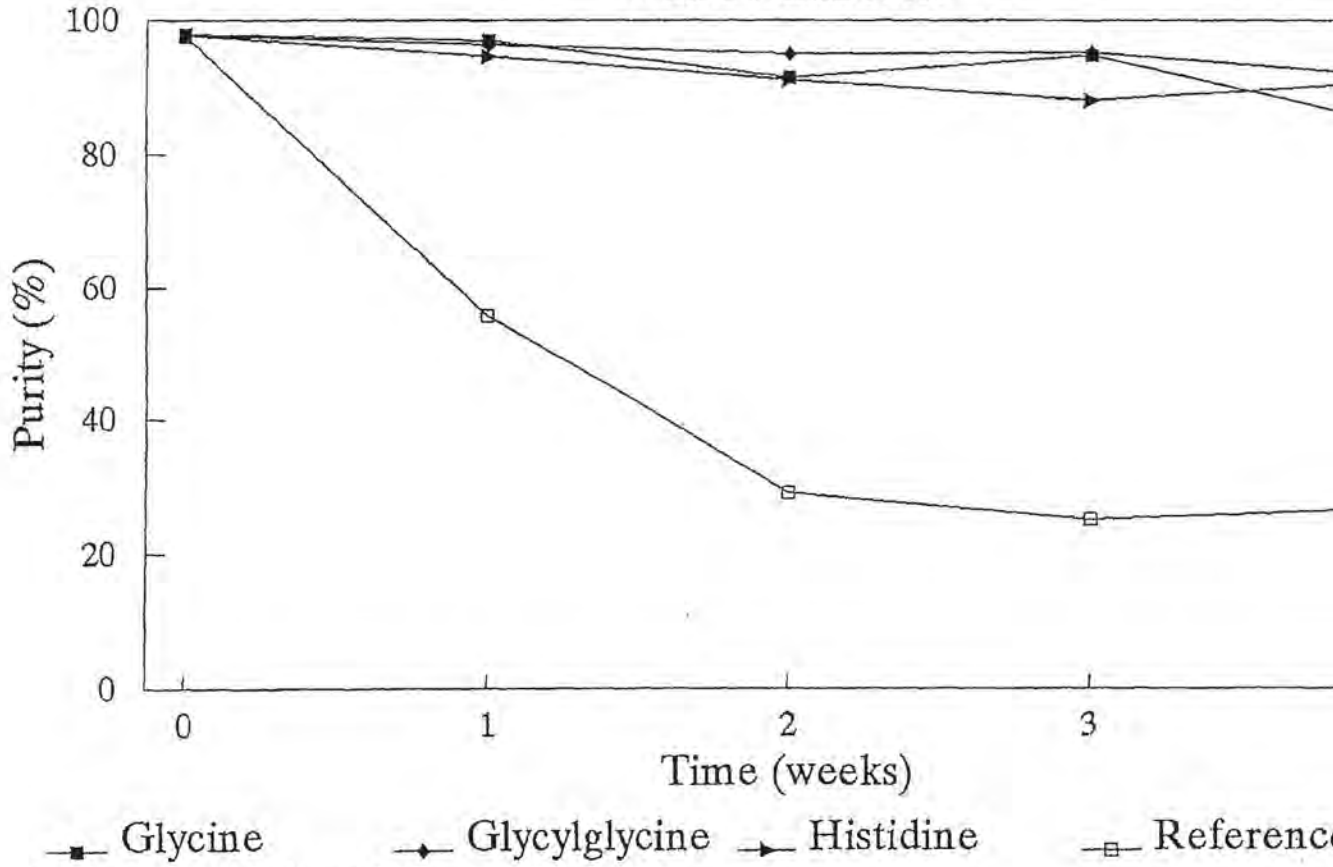
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13 Claims, 9 Drawing Sheets

CFAD Exhibit 1090
CFAD v. NPS
IPR2015-01093



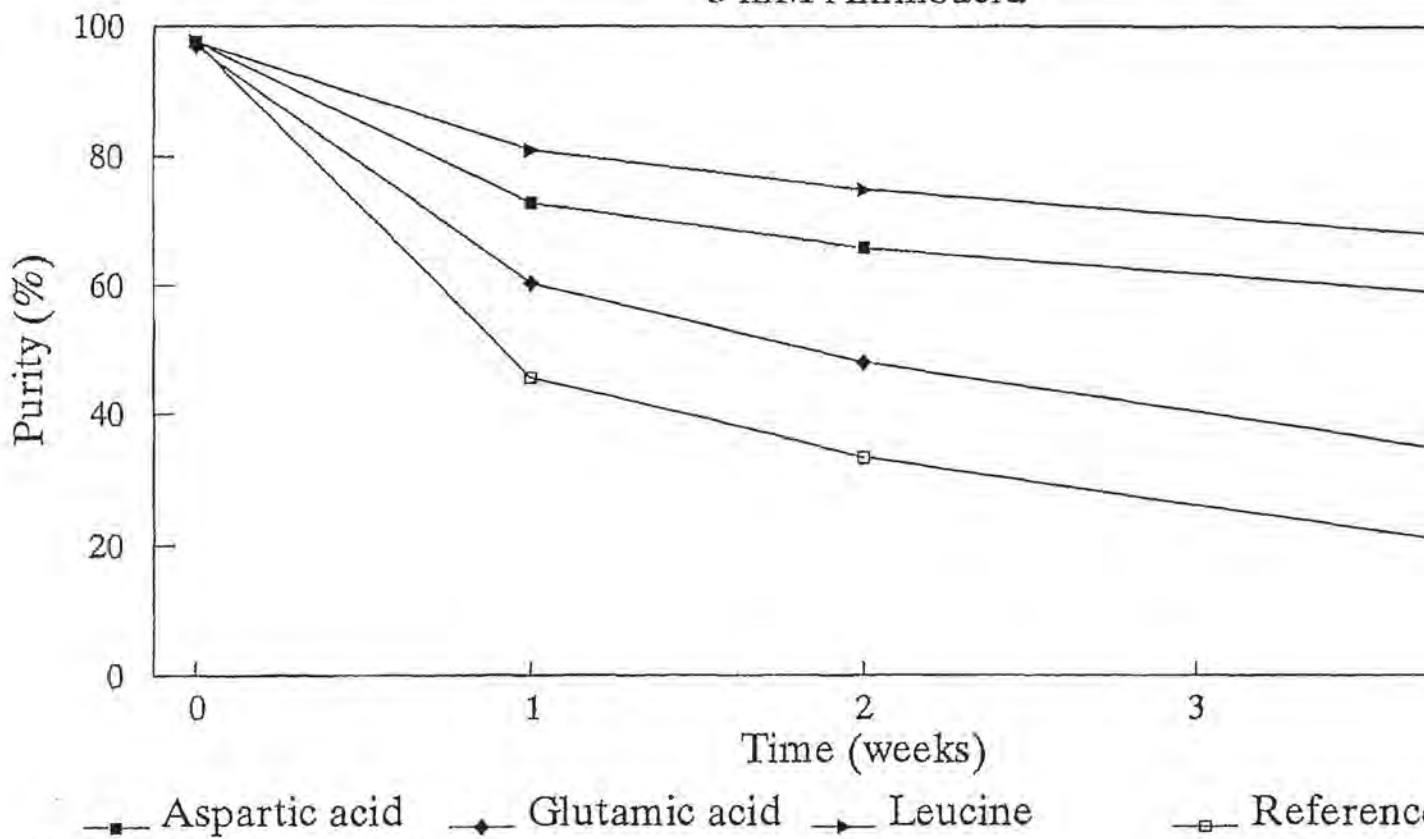
FUI-93-063, Decomposition determined by RP-HPLC. A1-A3 + Re
5 mM Aminoacid



Accelerated stability (60°C).

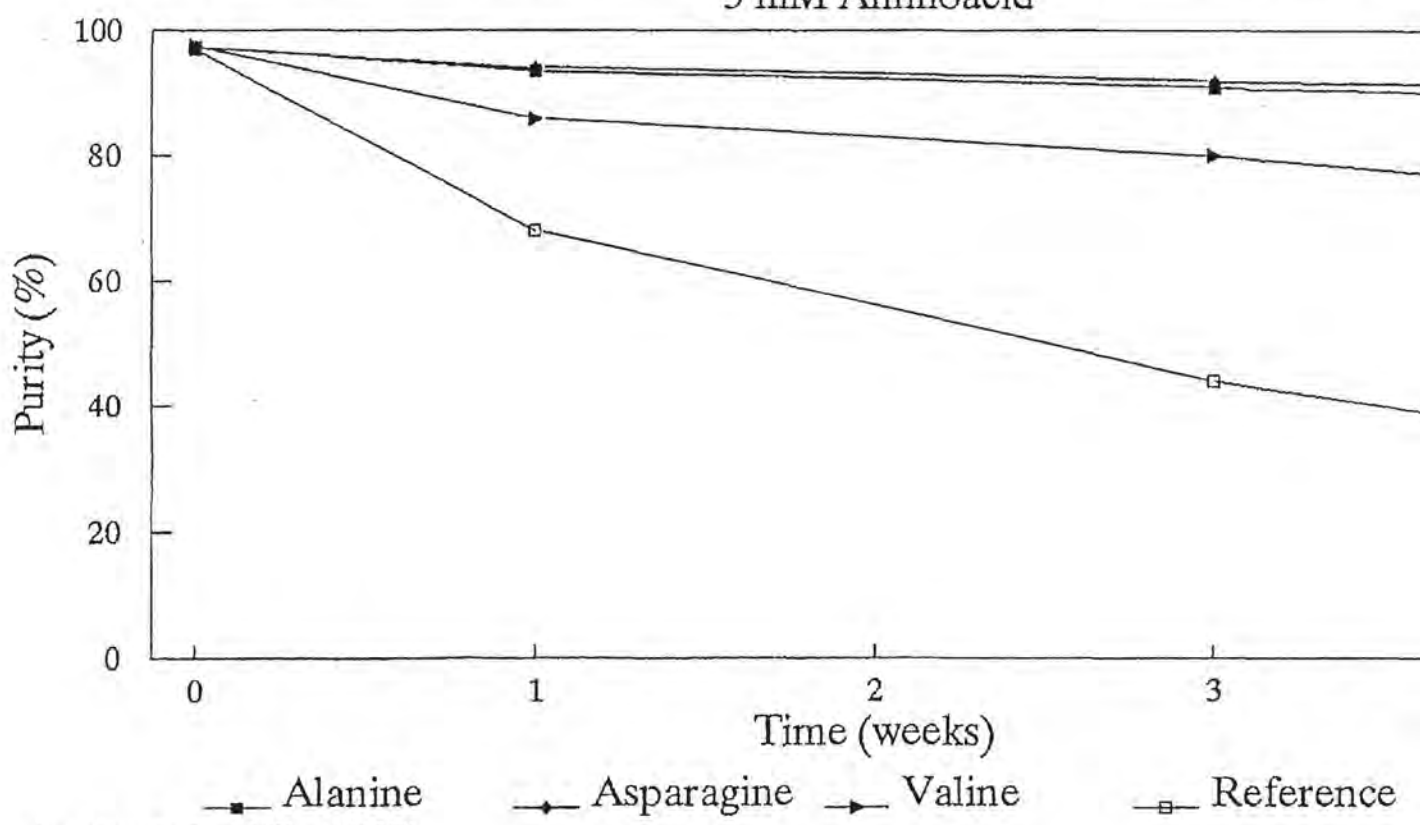
Figure 1

FUI-93-063. Decomposition determined by RP-HPLC. A4-A
5 mM Aminoacid



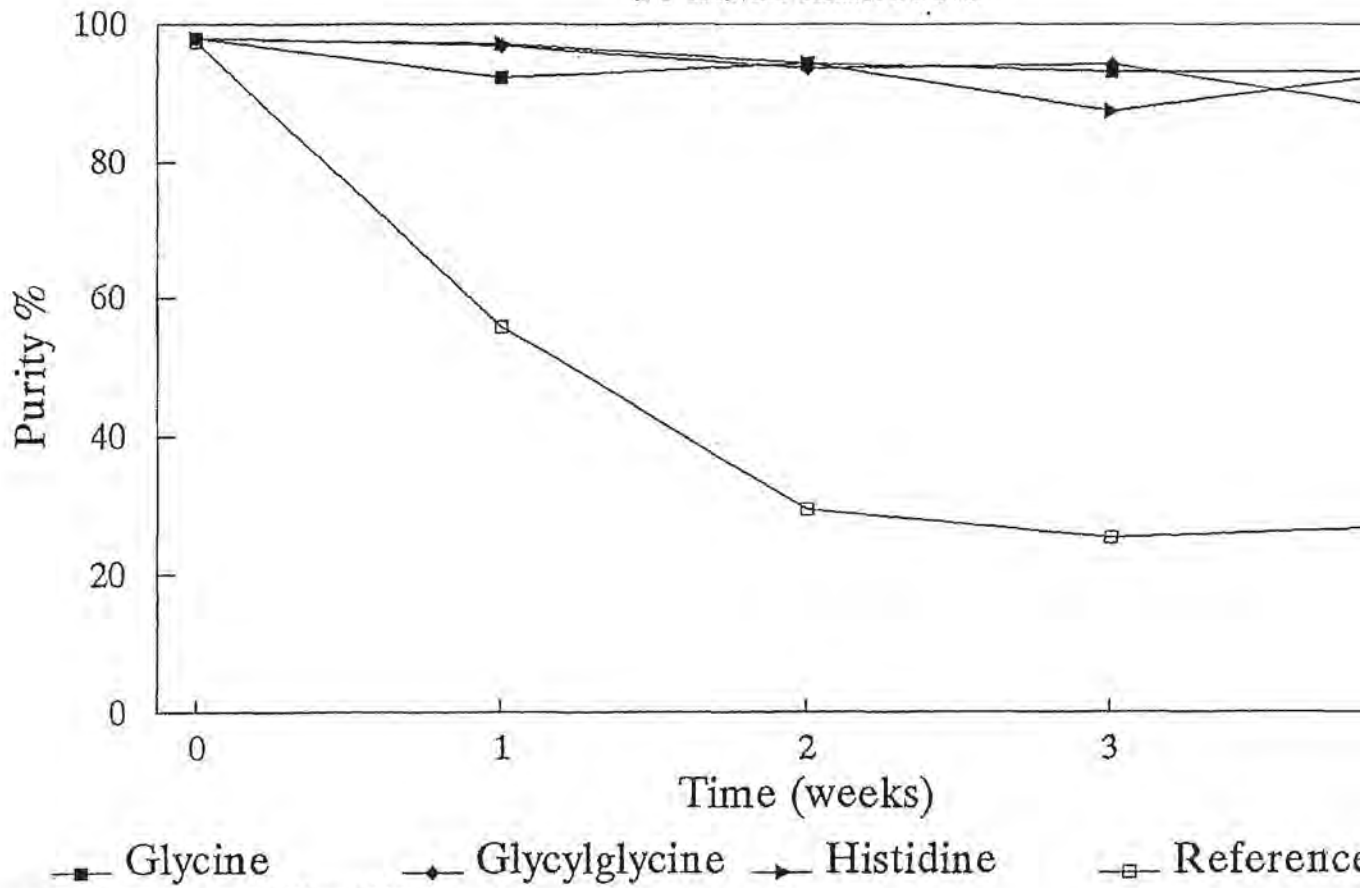
Accelerated stability (60°C).
Figure 2

FUI-93-063. Decomposition determined by RP-HPLC. A7-
5 mM Aminoacid



Accelerated stability (60°C).
Figure 3

FUI-93-063. Decomposition determined by RP-HPLC. A1 - A3 + Re
10 mM Aminoacid



■ Glycine ◆ Glycylglycine ▲ Histidine □ Reference
Accelerated stability (60°C).
Figure 4

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