

United States Patent [19]

Kornfelt et al.

[11] **Patent Number:** 5,652,216[45] **Date of Patent:** Jul. 29, 1997[54] **PHARMACEUTICAL PREPARATION**

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[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.

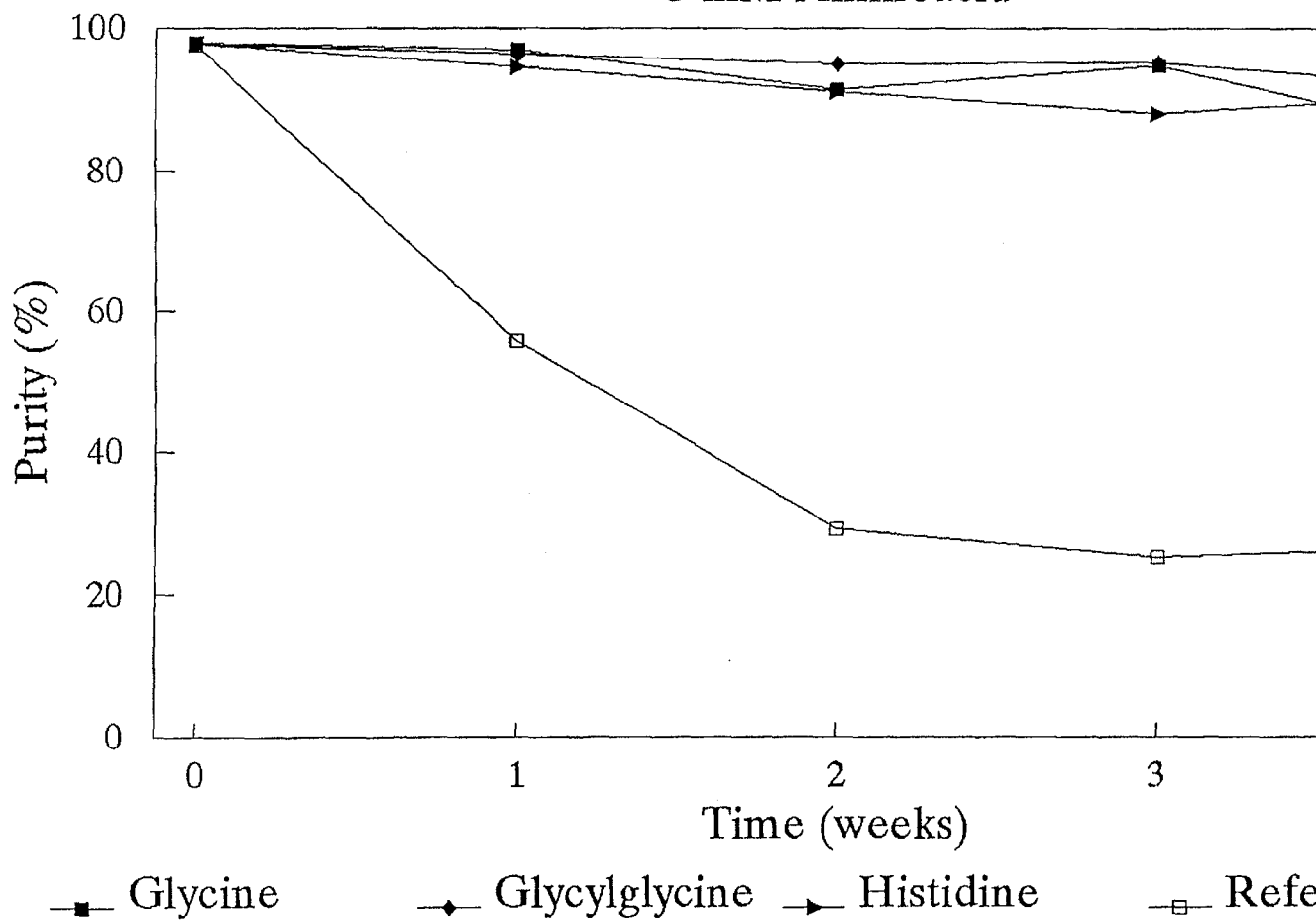
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13 Claims, 9 Drawing Sheets

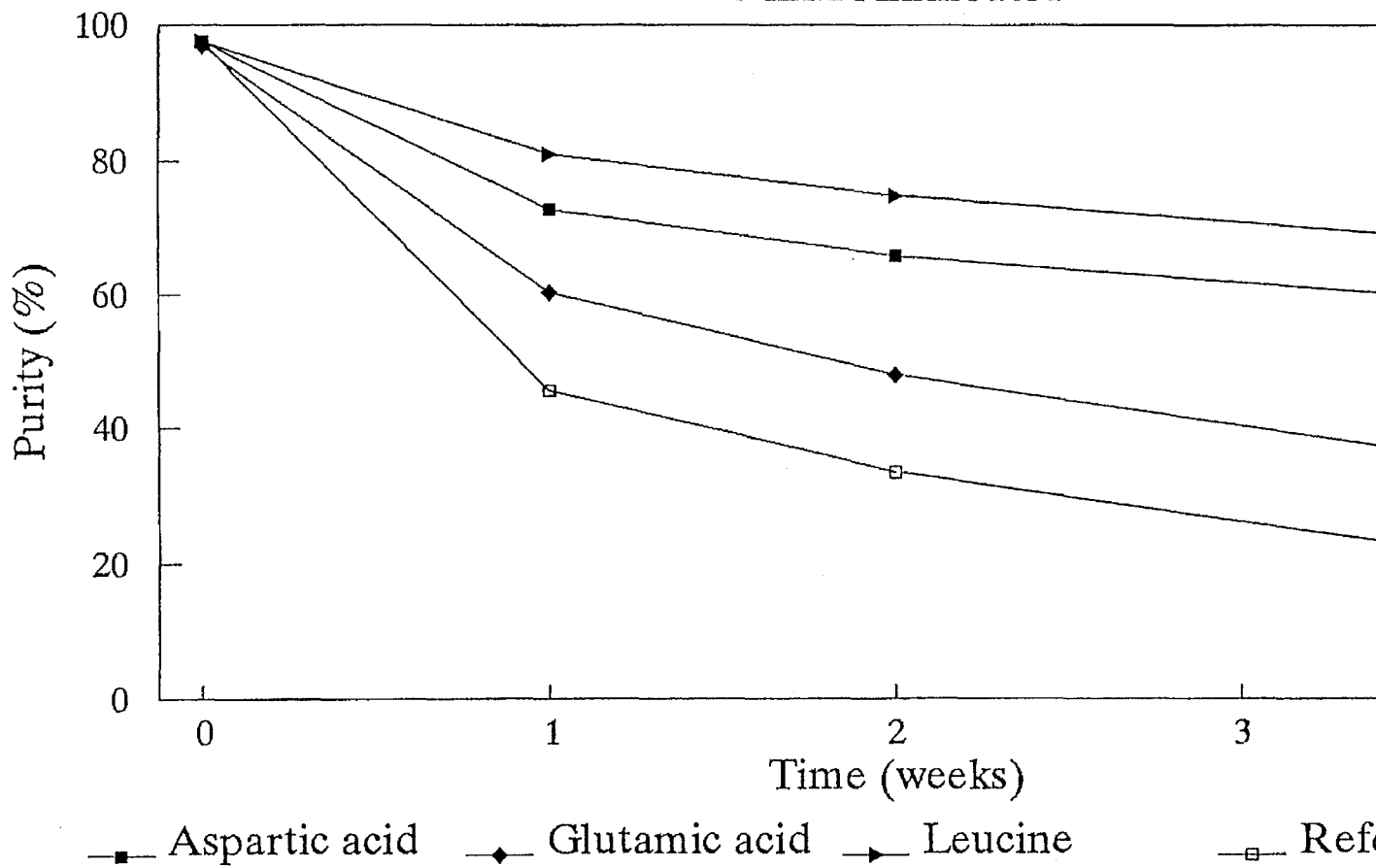
FUI-93-063. Decomposition determined by RP-HPLC. A1-A3
5 mM Aminoacid



Accelerated stability (60°C).

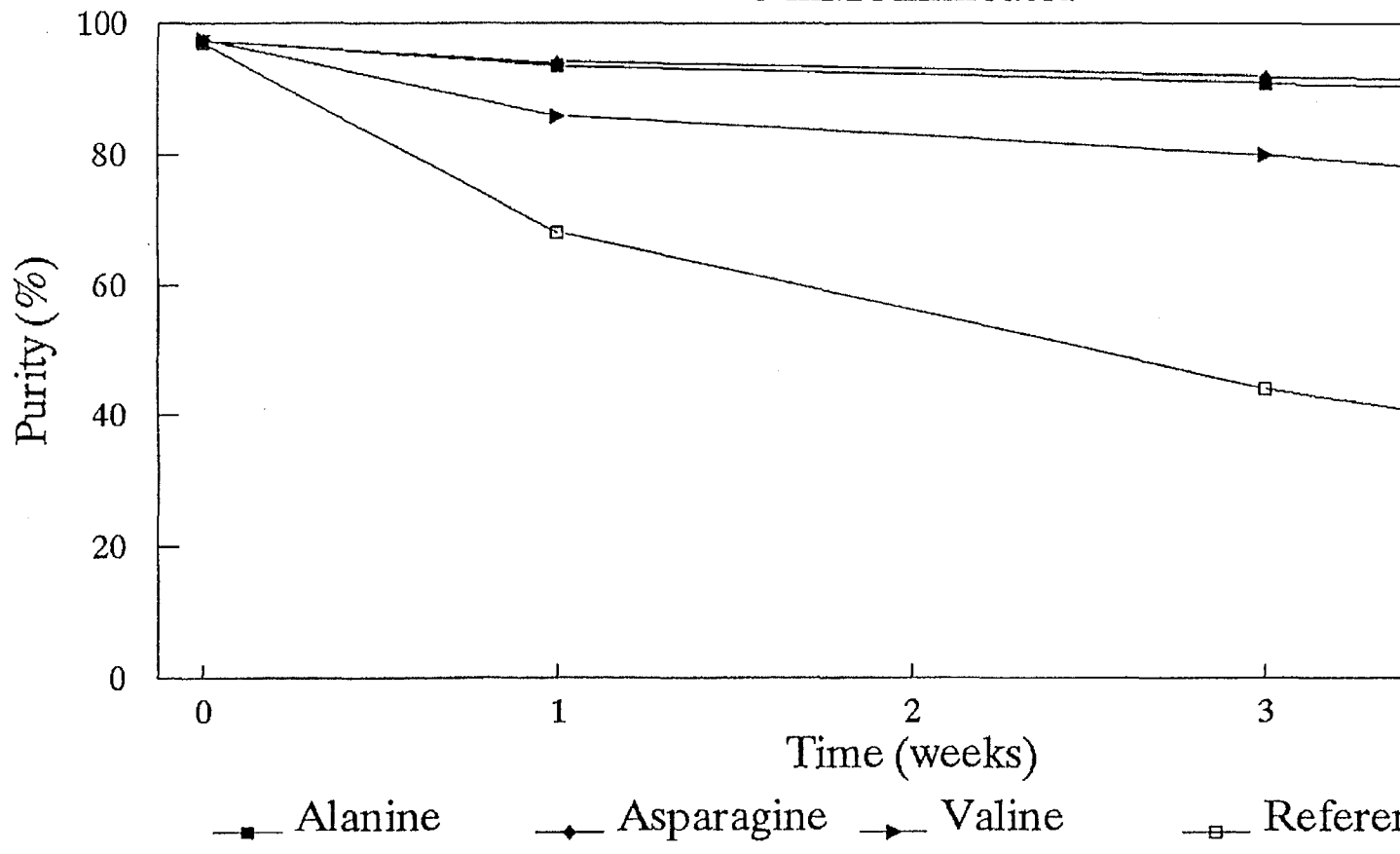
Figure 1

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



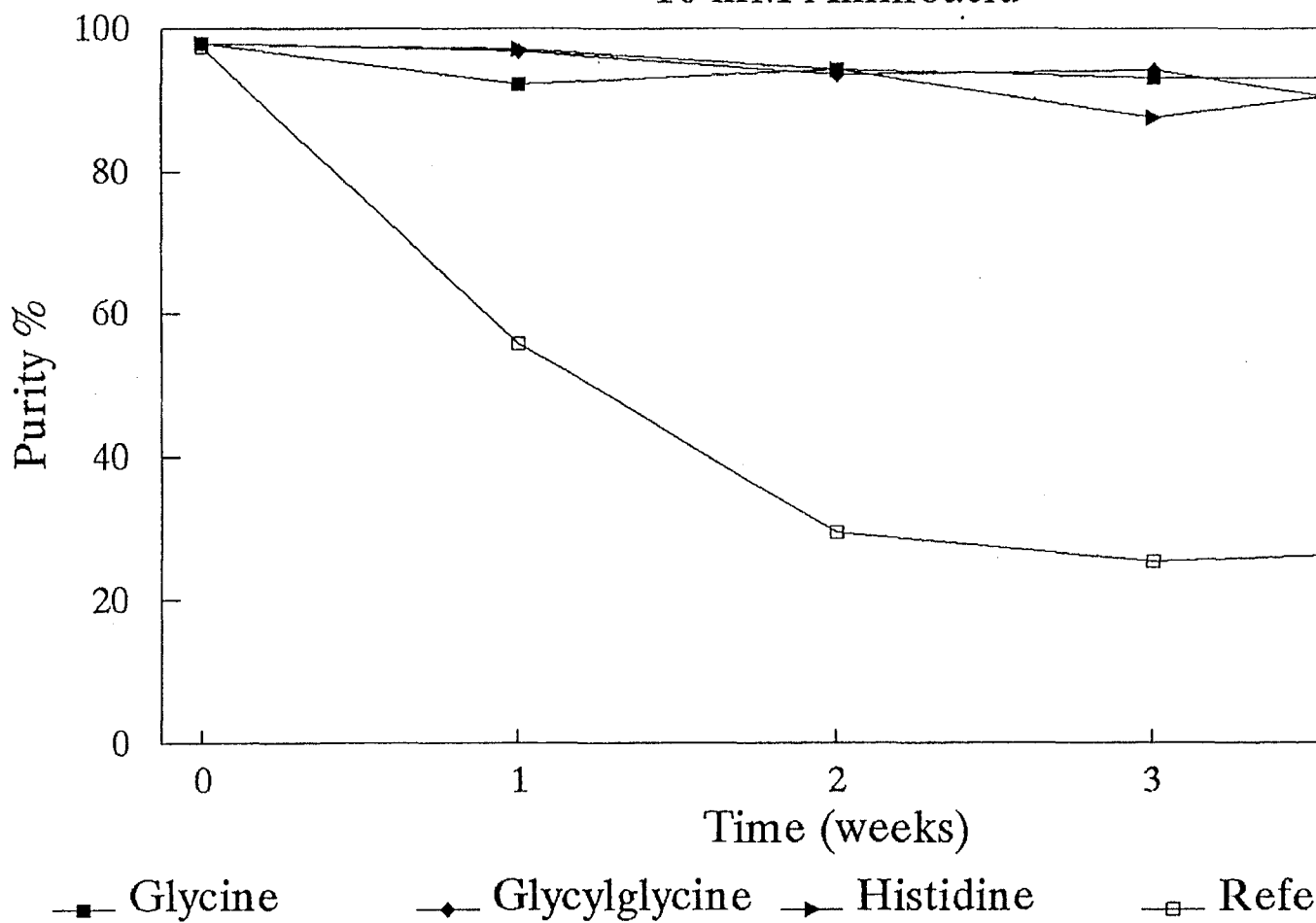
Accelerated stability (60°C).
Figure 2

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



Accelerated stability (60°C).
Figure 3

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



Accelerated stability (60°C).

Figure 4

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