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United States Patent [19][11] **Patent Number:** **5,932,547**

Stevenson et al.

[45] **Date of Patent:** **Aug. 3, 1999**[54] **NON-AQUEOUS POLAR APROTIC PEPTIDE FORMULATIONS**[75] Inventors: **Cynthia L. Stevenson; Steven J. Prestrelski**, both of Mountain View, Calif.[73] Assignee: **ALZA Corporation**, Palo Alto, Calif.[21] Appl. No.: **08/874,233**[22] Filed: **Jun. 13, 1997****Related U.S. Application Data**

[60] Provisional application No. 60/022,699, Jul. 3, 1996.

[51] **Int. Cl.**⁶ **A61K 38/00**; C07K 5/00; C07K 7/00[52] **U.S. Cl.** **514/15**; 530/313; 530/328[58] **Field of Search** 530/328, 313; 514/15[56] **References Cited**

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Primary Examiner—Avis M. Davenport*Attorney, Agent, or Firm*—Pauline Ann Clarke; Stephen F. Stone; Mary Ann Dillahunty[57] **ABSTRACT**

This invention relates to stable non-aqueous polar aprotic formulations of peptide compounds. These stable formulations comprise peptide in non-aqueous polar aprotic solvent. They may be stored at elevated temperatures for long periods of time and are especially useful in implantable delivery devices for long term delivery of drug.

34 Claims, 8 Drawing Sheets

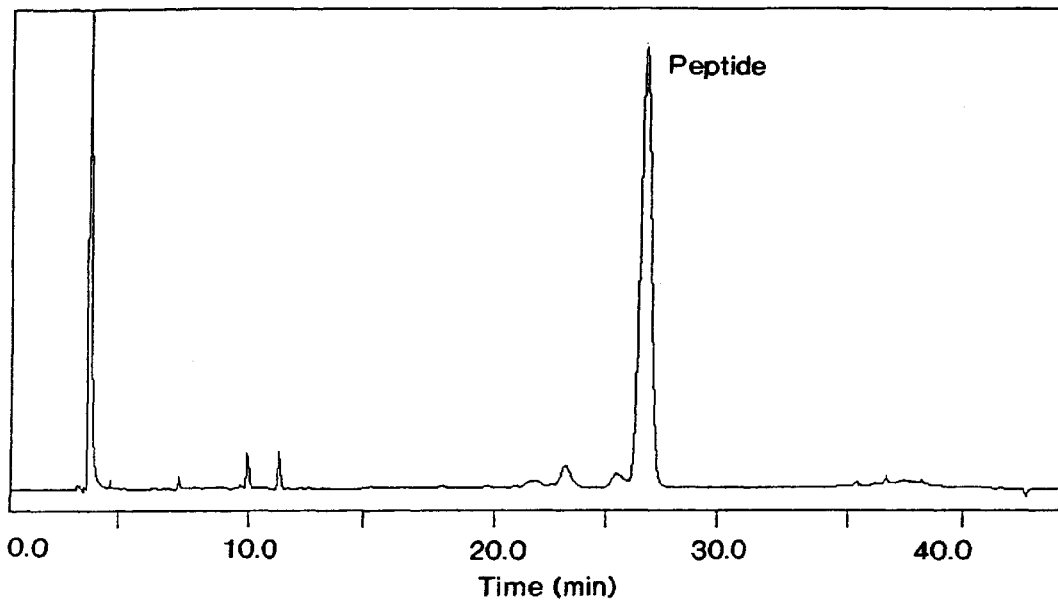


FIG. 1

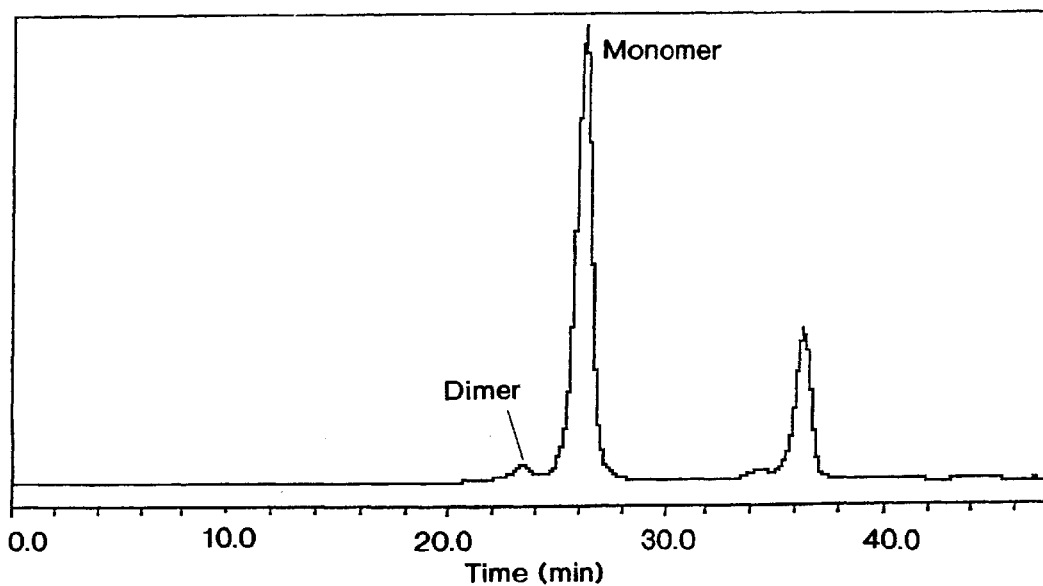


FIG. 2

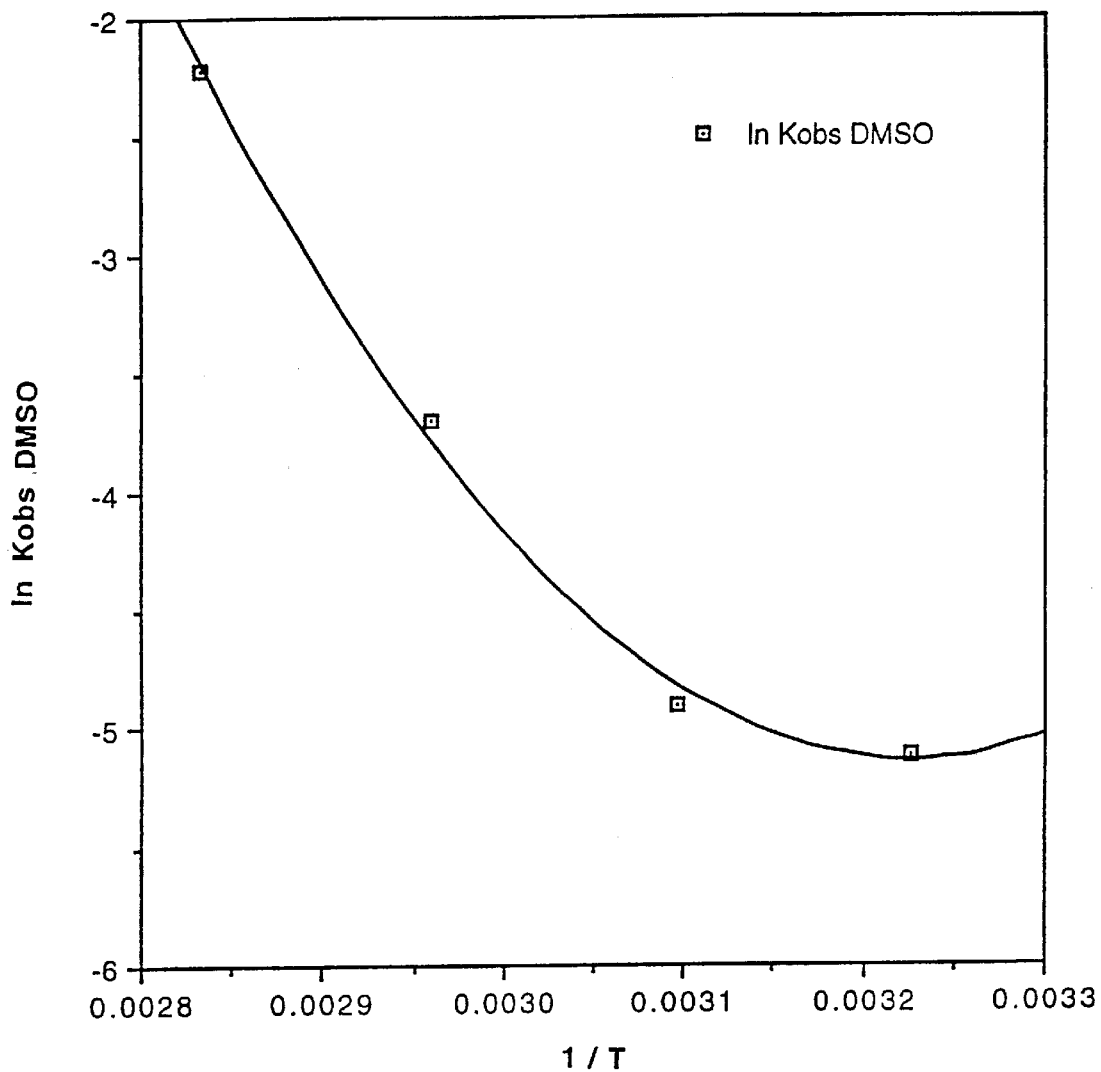


FIG. 3

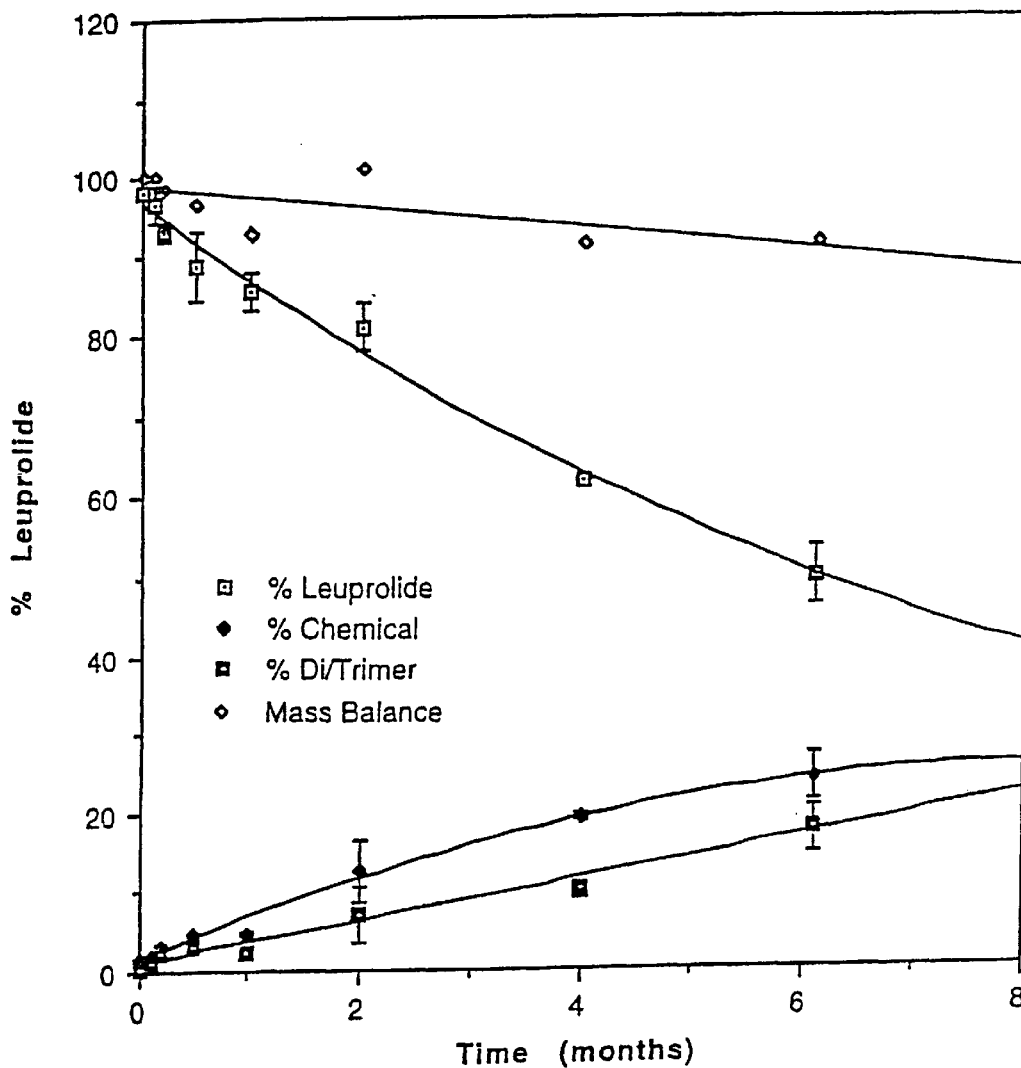


FIG. 4

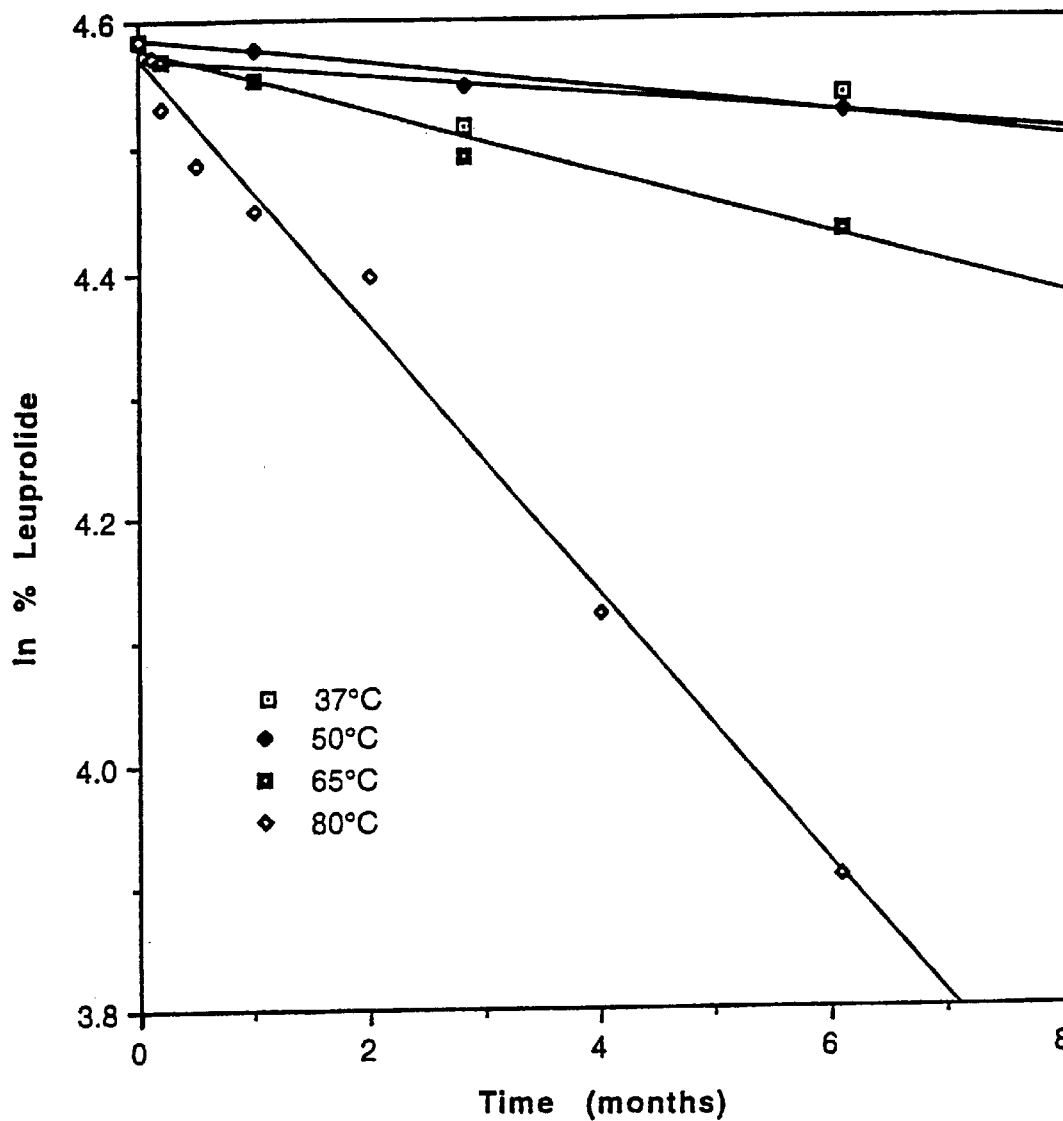


FIG. 5

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