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United States Patent [19]

Grinstaff et al.

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[54] **COMPOSITION USEFUL FOR IN VIVO DELIVERY OF BIOLOGICS AND METHODS EMPLOYING SAME**

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[73] Assignee: **Vivorx Pharmaceuticals, Inc.**, Santa Monica, Calif.

[*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,362,478.

[21] Appl. No.: **200,235**

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Related U.S. Application Data

[63] Continuation-in-part of Ser. No. 23,698, Feb. 22, 1993, Pat. No. 5,439,686, and a continuation-in-part of Ser. No. 35,150, Mar. 26, 1993, Pat. No. 5,362,478.

[51] **Int. Cl.^{6}** **A61K 37/22**; A61K 9/127
[52] **U.S. Cl.** **424/450**; 424/451; 424/455; 424/9.3; 424/9.34; 424/9.37; 424/9.4; 424/9.5
[58] **Field of Search** 424/451, 45, 450

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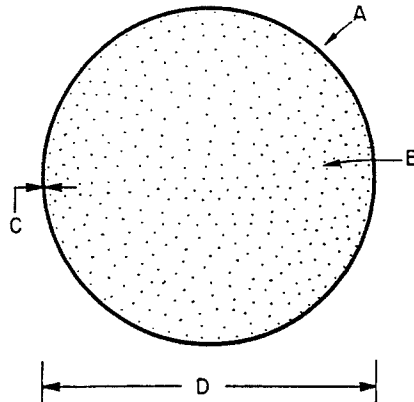*Primary Examiner*—Thurman K. Page
Assistant Examiner—William E. Benston, Jr.
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[57] **ABSTRACT**

In accordance with the present invention, there are provided compositions useful for the in vivo delivery of a biologic, wherein the biologic is associated with a polymeric shell formulated from a biocompatible material. The biologic can be associated with the polymeric shell itself, and/or the biologic, optionally suspended/dispersed in a biocompatible dispersing agent, can be encased by the polymeric shell. In another aspect, the biologic associated with polymeric shell is administered to a subject, optionally dispersed in a suitable biocompatible liquid.

30 Claims, 3 Drawing Sheets

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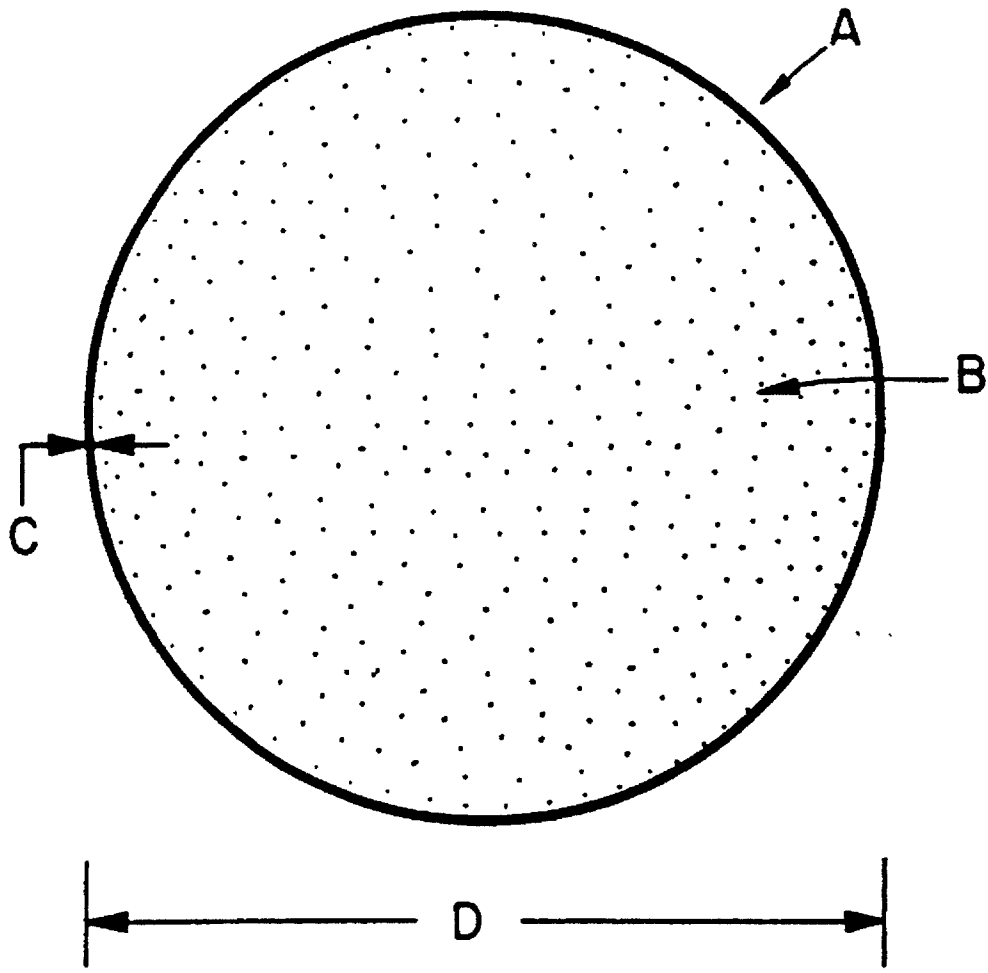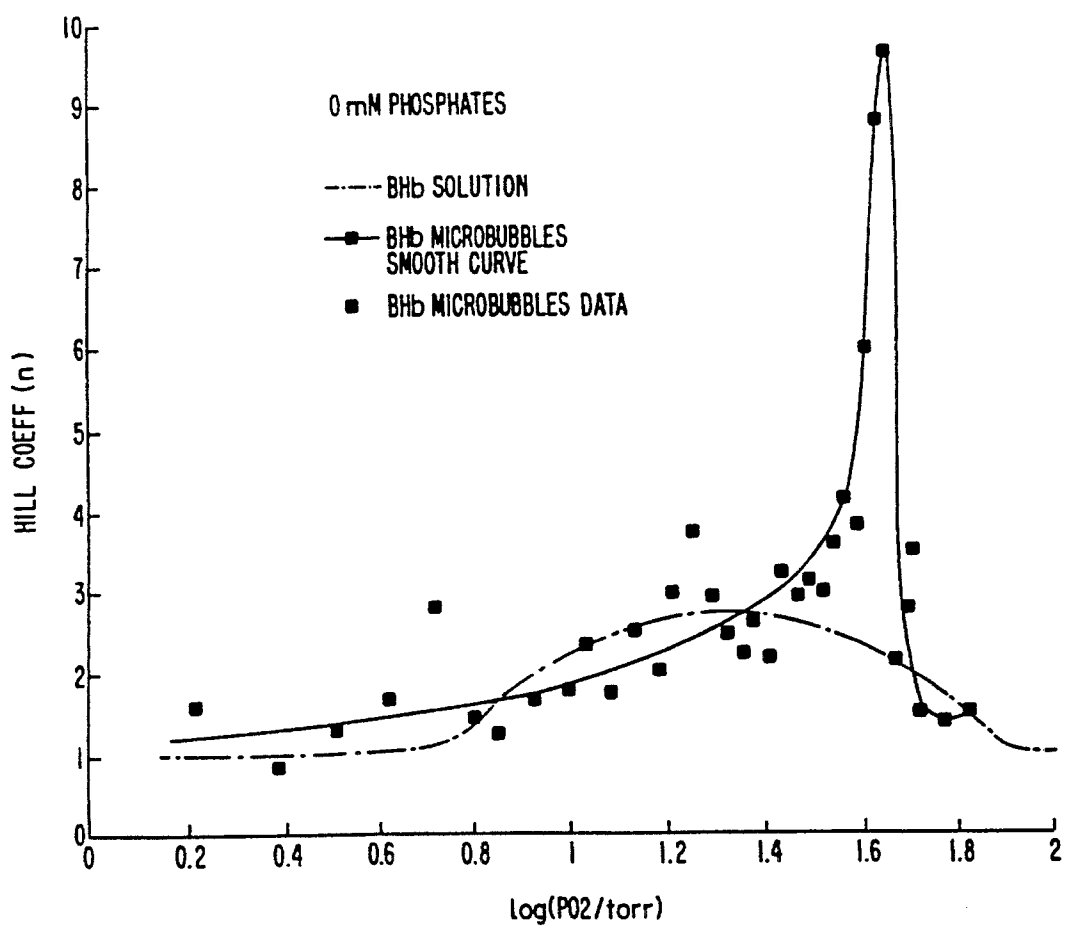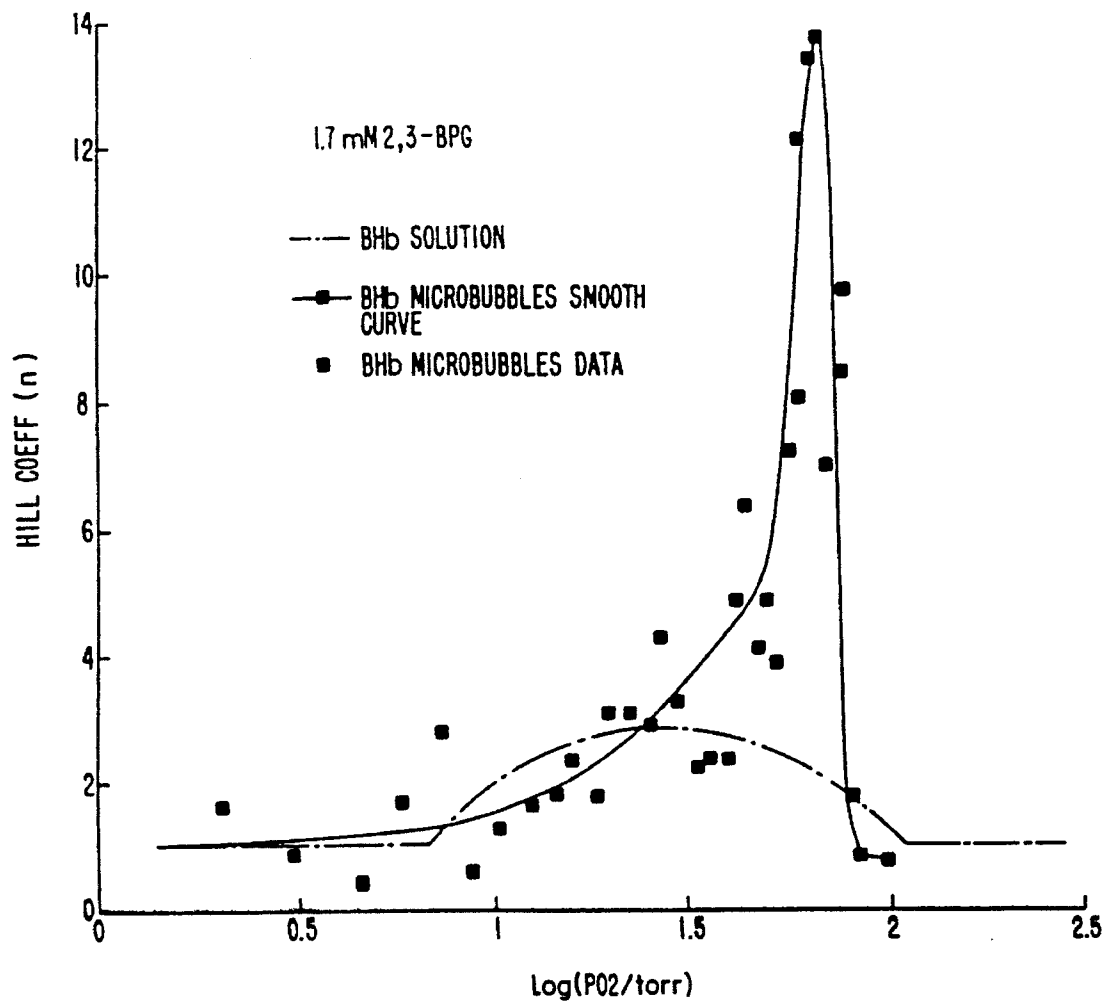
FIG.1

FIG. 2

FIG. 3

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