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# United States Patent [19]

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Gerhart et al.

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[54] **BIOERODIBLE POLYMERS FOR DRUG DELIVERY IN BONE**

[58] Field of Search ..... 528/354, 271; 623/16; 424/426, 409, 78; 523/113, 115; 514/772.3; 604/891.1

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[21] Appl. No.: **908,438**

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**Related U.S. Application Data**

[63] Continuation of Ser. No. 810,324, Dec. 19, 1991, abandoned, which is a continuation of Ser. No. 690,042, Apr. 23, 1991, abandoned, which is a continuation of Ser. No. 361,222, Jun. 5, 1989, abandoned, which is a continuation-in-part of Ser. No. 613,001, May 21, 1984, Pat. No. 4,906,474, which is a continuation of Ser. No. 477,710, Mar. 22, 1983, abandoned, said Ser. No. 361,222, is a continuation-in-part of Ser. No. 61,294, Jun. 12, 1987, Pat. No. 4,888,176, which is a continuation-in-part of Ser. No. 892,809, Aug. 1, 1983, Pat. No. 4,757,128, which is a continuation-in-part of Ser. No. 613,001, Aug. 1, 1983, Pat. No. 4,906,474, said Ser. No. 361,222, is a continuation-in-part of Ser. No. 313,953, Feb. 22, 1989, abandoned.

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[57] **ABSTRACT**

Bioerodible polymers which degrade completely into nontoxic residues over a clinically useful period of time, including polyanhydrides, polyorthoesters, polyglycolic acid, polylactic acid, and copolymers thereof, are used for the delivery of bioactive agents, including antibiotics, chemotherapeutic agents, inhibitors of angiogenesis, and simulators of bone growth, directly into bone.

[51] Int. Cl.<sup>5</sup> ..... **A61M 31/00; C08G 63/02**

[52] U.S. Cl. .... **514/772.4; 424/426; 523/113; 523/115; 528/271; 528/354; 604/891.1; 514/30; 514/40**

**8 Claims, No Drawings**