



US006861068B2

(12) **United States Patent**  
Ng et al.

(10) **Patent No.:** US **6,861,068 B2**  
(45) **Date of Patent:** Mar. 1, 2005

(54) **PHARMACEUTICAL COMPOSITIONS  
USING SEMI-SOLID DELIVERY VEHICLE**

(75) Inventors: **Steven Y. Ng**, San Francisco, CA (US);  
**Hui-Rong Shen**, Fremont, CA (US);  
**Jorge Heller**, Woodside, CA (US)

(73) Assignee: **A.P. Pharma, Inc.**, Redwood City, CA  
(US)

(\* ) Notice: Subject to any disclaimer, the term of this  
patent is extended or adjusted under 35  
U.S.C. 154(b) by 0 days.

(21) Appl. No.: **10/765,768**

(22) Filed: **Jan. 26, 2004**

(65) **Prior Publication Data**

US 2004/0156907 A1 Aug. 12, 2004

**Related U.S. Application Data**

(60) Continuation of application No. 10/409,408, filed on Apr. 7,  
2003, now Pat. No. 6,790,458, which is a division of  
application No. 09/854,180, filed on May 11, 2001, now Pat.  
No. 6,613,355.

(60) Provisional application No. 60/325,790, filed on May 11,  
2000.

(51) **Int. Cl.**<sup>7</sup> ..... **A61K 9/58**; A61K 47/30

(52) **U.S. Cl.** ..... **424/462**; 424/424; 424/425;  
424/426; 424/457; 424/486; 525/437; 524/366;  
514/772.3; 514/785; 514/786

(58) **Field of Search** ..... 424/424, 425,  
424/426, 457, 462, 486; 525/437; 524/366;  
514/772.3, 785, 786

(56) **References Cited**

**U.S. PATENT DOCUMENTS**

4,079,038 A	3/1978	Choi et al. ....	260/47
4,093,709 A	6/1978	Choi et al. ....	424/19
4,131,648 A	12/1978	Choi et al. ....	424/22
4,138,344 A	2/1979	Choi et al. ....	252/1
4,180,646 A	12/1979	Choi et al. ....	528/153
4,304,767 A	12/1981	Heller et al. ....	424/78
4,946,931 A	8/1990	Heller et al. ....	528/230
5,968,543 A	10/1999	Heller et al. ....	424/425

**OTHER PUBLICATIONS**

Yolles et al. "*Polymer News*" 1: 9-15 (1970).

*Primary Examiner*—Samuel A. Acquah

(74) *Attorney, Agent, or Firm*—Heller Ehrman White &  
McAuliffe LLP

(57) **ABSTRACT**

A semi-solid delivery vehicle contains a polyorthoester and  
an excipient, and a semi-solid pharmaceutical composition  
contains an active agent and the delivery vehicle. The  
pharmaceutical composition may be a topical, syringable, or  
injectable formulation; and is suitable for local delivery of  
the active agent. Methods of treatment are also disclosed.

**19 Claims, No Drawings**