

US007951131B2

(12) United States Patent

Eaton et al.

US 7,951,131 B2

*May 31, 2011

(54) SINUS DELIVERY OF SUSTAINED RELEASE THERAPEUTICS

(75) Inventors: **Donald J. Eaton**, Los Altos, CA (US);

 $\textbf{Mary L. Moran}, \textbf{Woodside}, \textbf{CA} \ (\textbf{US});$

 ${\bf Rodney\,A.\,Brenneman},\,{\rm San\,Juan}$

Capistrano, CA (US)

(73) Assignee: Intersect ENT, Inc., Palo Alto, 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.

This patent is subject to a terminal dis-

claimer.

(21) Appl. No.: 12/883,079

(22) Filed: Sep. 15, 2010

(65) Prior Publication Data

US 2011/0004195 A1 Jan. 6, 2011

Related U.S. Application Data

- (63) Continuation of application No. 12/258,277, filed on Oct. 24, 2008, which is a continuation of application No. 10/800,162, filed on Mar. 12, 2004, now Pat. No. 7,544,192.
- (60) Provisional application No. 60/454,918, filed on Mar. 14, 2003.
- (51) Int. Cl.

A61M 31/00 (2006.01) **A61F 13/00** (2006.01)

- (52) **U.S. Cl.** **604/506**; 604/510; 604/514; 424/434

See application file for complete search history.

(56) References Cited

(10) Patent No.:

(45) **Date of Patent:**

U.S. PATENT DOCUMENTS

4,580,568 A	4/1986	Gianturco
4,737,141 A	4/1988	Spits
4,753,636 A	6/1988	Free
5,035,706 A	7/1991	Giantureo et al.
5,116,311 A	5/1992	Löfstedt
5,139,832 A	8/1992	Hayashi et al.
5,189,110 A	2/1993	Ikematu et al.
5,246,455 A	9/1993	Shikani
5,342,296 A	8/1994	Persson et al.
	(Continued)	

FOREIGN PATENT DOCUMENTS

DE 101 05 592 A1 8/2002 (Continued)

OTHER PUBLICATIONS

Final Office Action mailed on Jan. 8, 2009 for U.S. Appl. No. 10/800,162, filed Mar. 12, 2004, 5 pages.

(Continued)

Primary Examiner — Theodore J Stigell
Assistant Examiner — Catherine N Witczak
(74) Attorney, Agent, or Firm — Morrison & Foester LLP

(57) ABSTRACT

The invention provides biodegradable implants for treating sinusitis. The biodegradable implants have a size, shape, density, viscosity, and/or mucoadhesiveness that prevents them from being substantially cleared by the mucociliary lining of the sinuses during the intended treatment period. The biodegradable implants include a sustained release therapeutic, e.g., an antibiotic, a steroidal anti-inflammatory agent, or both. The biodegradable implants may take various forms, such as rods, pellets, beads, strips, or microparticles, and may be delivered into a sinus in various pharmaceutically acceptable carriers.

32 Claims, 2 Drawing Sheets

