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(12) **United States Patent**  
**Chiu et al.**(10) **Patent No.:** **US 8,859,510 B2**  
(45) **Date of Patent:** **\*Oct. 14, 2014**(54) **MACROCYCLIC POLYMORPHS,  
COMPOSITIONS COMPRISING SUCH  
POLYMORPHS, AND METHODS OF USE AND  
MANUFACTURE THEREOF**(75) Inventors: **Yu-Hung Chiu**, San Diego, CA (US);  
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Lexington, MA (US)( \* ) Notice: Subject to any disclaimer, the term of this  
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U.S.C. 154(b) by 763 days.This patent is subject to a terminal dis-  
claimer.(21) Appl. No.: **12/523,790**(22) PCT Filed: **Jan. 22, 2008**(86) PCT No.: **PCT/US2008/000735**§ 371 (c)(1),  
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22, 2007.(51) **Int. Cl.****A61K 31/7048** (2006.01)**C07D 407/14** (2006.01)**C07H 17/08** (2006.01)(52) **U.S. Cl.**CPC ..... **C07H 17/08** (2013.01); **C07D 407/14**  
(2013.01)USPC ..... **514/28**; 536/7.1(58) **Field of Classification Search**

USPC ..... 514/28

See application file for complete search history.

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*Primary Examiner* — Shaojia Anna Jiang*Assistant Examiner* — Jonathan S Lau(74) *Attorney, Agent, or Firm* — Morgan Lewis & Bockius,  
LLP(57) **ABSTRACT**The invention relates to novel forms of compounds displaying  
broad spectrum antibiotic activity, especially crystalline  
polymorphic forms and amorphous forms of such com-  
pounds, compositions comprising such crystalline polymor-  
phic forms and amorphous forms of such compounds, pro-  
cesses for manufacture and use thereof. The compounds and  
compositions of the invention are useful in the pharmaceuti-  
cal industry, for example, in the treatment or prevention of  
diseases or disorders associated with the use of antibiotics,  
chemotherapies, or antiviral therapies, including, but not lim-  
ited to, colitis, for example, pseudo-membranous colitis; anti-  
biotic associated diarrhea; and infections due to *Clostridium*  
*difficile* ("C. difficile"), *Clostridium perfringens* ("C. perfrin-  
gens"), *Staphylococcus* species, for example, methicillin-re-  
sistant *Staphylococcus*, or *Enterococcus* including Vancomy-  
cin-resistant *enterococci*.