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(54) **COMPOSITIONS AND METHODS FOR INHIBITING PROTEASES**

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See application file for complete search history.

(75) Inventors: **William H. Gerwick**, La Jolla, CA (US); **Alban R. Pereira-Badilla**, Hayward, CA (US); **Tara Byrum**, North Charleston, SC (US); **Frederick A. Valeriote**, Shelby Township, MI (US); **Michael Kenneth Gilson**, San Diego, CA (US); **Andrew T. Fenley**, San Diego, CA (US); **Bradley S. Moore**, La Jolla, CA (US); **Andrew Kale**, La Jolla, CA (US); **Hosana Debonisi**, São Paulo (BR)

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Primary Examiner — Satyanarayana R Gudibande

Assistant Examiner — Jia-Hai Lee

(74) *Attorney, Agent, or Firm* — Greer, Burns & Crain, Ltd.; Gregory P. Einhorn

(73) Assignee: **The Regents of the University of California**, Oakland, CA (US)

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CPC **C07K 5/0808** (2013.01); **A61K 31/336** (2013.01); **C07K 5/06052** (2013.01)

(58) **Field of Classification Search**

CPC A61K 2300/00; A61K 39/39558;

(57) **ABSTRACT**

In particular, in alternative embodiments, the invention provides pharmaceutical compounds and formulations comprising a family of epoxyketone compounds, which include racemic mixtures or racemates, isomers, stereoisomers, diastereoisomers, derivatives and analogs, and methods for making and using them. In alternative embodiments, pharmaceutical compositions and formulations of the invention are administered to an individual in need thereof in an amount sufficient to treat, prevent, reverse and/or ameliorate an infection, disease or condition that can be ameliorated, treated, prevented or reversed by partially or completely inhibiting a chymotrypsin-like protease or a proteasome activity, including e.g., a retroviral infection such as human immunodeficiency virus-1 (HIV-1) infection, an immune disorder, a neurodegenerative disease or condition, or a cancer such as a myeloma or multiple myeloma, an adenocarcinoma such as a lung adenocarcinoma, a pancreatic cancer, a B-cell related cancer, and lymphomas such as non-Hodgkin's lymphoma.

9 Claims, 6 Drawing Sheets

