(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
26 October 2006 (26.10.2006)

PCT

(10) International Publication Number
WO 2006/113331 A1

(51) International Patent Classification:
C07K 14/715 (2006.01) *C07K 16/28* (2006.01)
A61P 17/02 (2006.01) *C07K 16/24* (2006.01)
A61K 38/17 (2006.01) *A61K 39/395* (2006.01)

(21) International Application Number:
PCT/US2006/013829

(22) International Filing Date: 13 April 2006 (13.04.2006)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/671,374 14 April 2005 (14.04.2005) US

(71) Applicants *(for all designated States except US)*: **WYETH** [US/US]; Five Giralda Farms, Madison, New Jersey 07940 (US). **THE GOVERNMENT OF THE UNITED STATES AS REPRESENTED BY THE SECRETARY OF THE DEPARTMENT OF HEALTH AND HUMAN SERVICES** [US/US]; National Institutes of Health, Office of Technology Transfer, 6011 Executive Boulevard, Suite 325, Rockville, Maryland 20852-3804 (US). **THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE** [US/US]; Holyoke Center, Suite 727, 1350 Massachusetts Ave., Cambridge, Massachusetts 02138 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **YOUNG, Deborah, A.** [US/US]; 39 Nelson Road, Melrose, Massachusetts 02176 (US). **WYNN, Thomas, A.** [US/US]; 1822 Tilton Drive, Silver Spring, Maryland 20902 (US). **COLLINS, Mary** [US/US]; 54 Rathbun Road, Natick, Massachusetts 01760 (US). **GRUSBY, Michael** [US/US]; 5 Nightingale Path, Newton, Massachusetts 02459 (US).

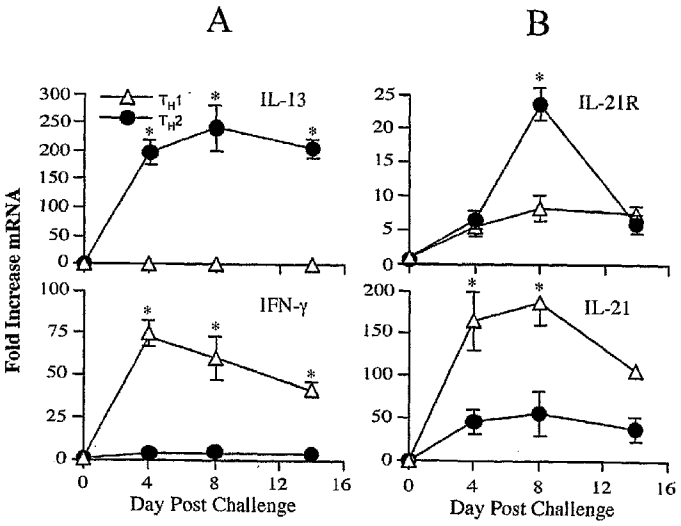
(74) Agents: **MANDRA, Raymond, R.** et al.; Fitzpatrick, Cella, Harper & Scinto, 30 Rockefeller Plaza, New York, New York 10112-3801 (US).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: METHODS FOR TREATING AND PREVENTING FIBROSIS BY IL-21 / IL-21R ANTAGONISTS



(57) Abstract: The present invention provides methods of screening for compositions useful for treating, ameliorating, or preventing fibrosis and/or fibrosis-associated conditions by measuring changes in the level(s) of IL-21 and/or IL-21 receptor (IL-21R) (e.g., the level of expression of IL-21 and/or IL-21 R protein and/or mRNA, the level of activity of IL-21 and/or IL-21R, the level of interaction of IL-21 with IL-21R). The invention further provides antagonists of IL-21 or IL-21R for the treatment of fibrosis and/or fibrosis-associated conditions. Further provided herein are methods of diagnosing, prognosing, and monitoring the progress (e.g., the course of treatment) of fibrosis and/or fibrosis-associated conditions by measuring the level of IL-21 and/or IL-21R (i.e., the level of activity of IL-21 and/or IL-21R, the level of expression of IL-21 and/or IL-21R (e.g., the level of IL-21 and/or IL-21 R gene products), and/or the level of interaction of IL-21 with IL-21R).

WO 2006/113331 A1

European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.