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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
6 December 2001 (06.12.2001)

PCT

(10) International Publication Number
WO 01/92891 A2

(51) International Patent Classification[7]: G01N 33/68

(21) International Application Number: PCT/US01/16946

(22) International Filing Date: 25 May 2001 (25.05.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/578,900 26 May 2000 (26.05.2000) US

(71) Applicants: **GENOME THERAPEUTICS CORPORATION** [US/US]; 100 Beaver Street, Waltham, MA 02453 (US). **CREIGHTON UNIVERSITY SCHOOL OF MEDICINE** [US/US]; Suite 1601, 1601 North 30th Street, Omaha, NE 68178 (US).

(72) Inventors: **CARULLI, John, P.**; 9 Harris Drive, Southboro, MA 01772 (US). **LITTLE, Randall, D.**; 73 Elm Road #6, Newtonville, MA 02460 (US). **RECKER, Robert, R.**; 3309 South 116th Street, Omaha, NE 68144 (US). **JOHNSON, Mark, L.**; 16216 N. Circle, Omaha, NE 68135 (US).

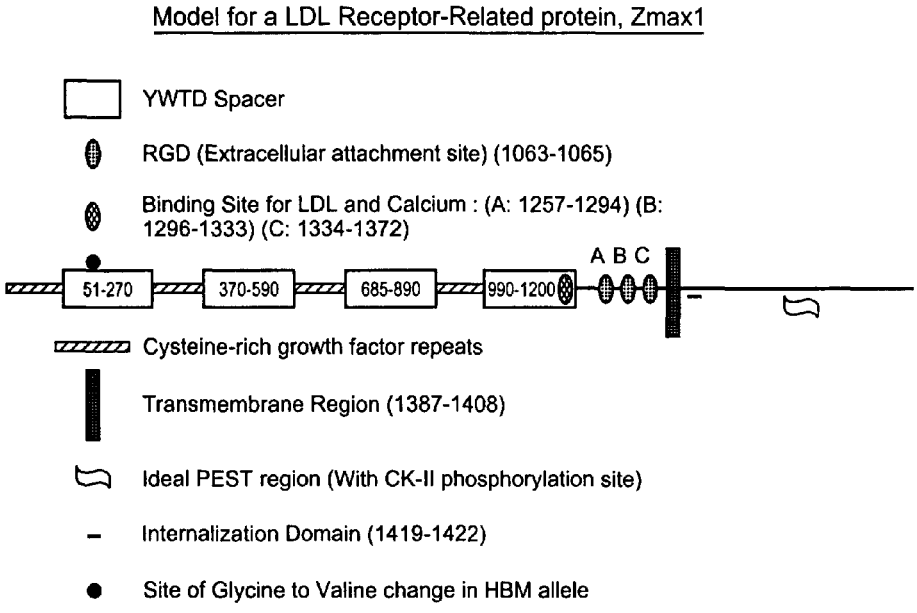
(74) Agents: **REA, Teresa, Stanek**; Burns, Doane, Swecker & Mathis, LLP, P.O. Box 1404, Alexandria, VA 22313-1404 et al. (US).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: REGULATING LIPID LEVELS VIA THE *ZMAX1* OR *HBM* GENE



(57) Abstract: The present invention relates to the high bone mass (*HBM*) gene, the corresponding wild-type gene (*Zmax1*), and mutants thereof. The genes identified in the present invention are implicated in regulation of physiological lipid levels, and thereby lipid-mediated diseases and conditions. The invention also provides nucleic acids, including coding sequences, oligonucleotide primers and probes, proteins, cloning vectors, expression vectors, transformed hosts, methods of developing pharmaceutical compositions, methods of identifying molecules involved in lipid level regulation in a subject. In preferred embodiments, the present invention is directed to methods for treating and preventing atherosclerosis, arteriosclerosis cardiovascular disease, atherosclerotic and arteriosclerotic associated conditions.

WO 01/92891 A2

Published:
— *without international search report and to be republished upon receipt of that report*

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.