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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
17 August 2006 (17.08.2006)

PCT

(10) International Publication Number
WO 2006/085959 A2

(51) International Patent Classification:
C12Q 1/70 (2006.01)

(21) International Application Number:
PCT/US2005/022801

(22) International Filing Date: 8 June 2005 (08.06.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/578,211 8 June 2004 (08.06.2004) US
60/578,151 8 June 2004 (08.06.2004) US

(71) Applicant *(for all designated States except US)*: **CHIRON CORPORATION** [US/US]; 4560 Horton Street, Emeryville, California 94608 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **MASIGNANI, Vega** [IT/US]; Intellectual Property - R440, P.O. Box 8097, Emeryville, California 94662 (US). **SCARSELLI, Maria** [IT/US]; Intellectual Property - R440, P.O. Box 8097, Emeryville, California 94662 (US). **CAPECCHI, Barbara** [IT/US]; Intellectual Property - R440, P.O. Box 8097, Emeryville, California 94662 (US). **SHARMA, Victoria** [US/US]; Intellectual Property - R440, P.O. Box 8097, Emeryville, California 94662 (US). **BARNETT, Susan W.** [US/US]; Intellectual Property - R440, P.O. Box 8097, Emeryville, California 94662 (US). **SRIVASTAVA, Indresh K.** [IN/US]; Intellectual Property - R440, P.O. Box 8097, Emeryville, California 94662 (US). **RAPPUOLI, Rino** [IT/US]; Intellectual Property - R440, P.O. Box 8097, Emeryville, California 94662 (US).

(74) Agent: **LEE, Helen**; Chiron Corporation, Intellectual Property - R440, P.O. Box 8097, Emeryville, California 94662 (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, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, 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), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO,

[Continued on next page]

(54) Title: FUSION PROTEINS COMPRISING CD4 MINIMAL MODULES AND METHODS OF USE THEREOF

A (SEQ ID NO:1)

KKVVLGKKGDTVELTCTASQKKSIQFHWKNSNQIKILGNQGSFLTKGPSKLNDRADSRRSLWDQ
GNFPLIIKNLKIEDSDTYICEVEDQKEEVQLLVFGLTANSDTHLLQGQSLTLTLESPPGSSPSV
QCRSPRGKNIQGGKTLSVSQLELQDSGTWTCTVLQNQKKVEFKIDIVVLAFQKASSIVYKKEGE
QVEFSFPLAFTVEKLTGSGELWWQAERASSSKSWITFDLKNKEVSVKRVTQDPKLQMGKKLPLH
LTLPQALPQYAGSGNLTLALEAKTGKLHQEVNLVVMRATQLQKNLTCEVWGPTSPKLMLSLKLE
NKEAKVSKREKAVWVLNPEAGMWQCLLSDSGQVLLESNIKVLPTWSTPVQPMALIVLGGVAGLL
LFIGLGIFFCVRCRHRRRQAERMSQIKRLLSEKKTCQCPHRFQKTCSPI

B (SEQ ID NO:4)

TCTASQKKSIQFHWKNSNQIKILGNQGSFLTKGPSKLNDRADSRRSLWDQGNFPLIIKNLKIED
SDTYICE

(57) Abstract: Fusion proteins comprising CD4 minimal modules that bind to HIV Env polypeptides in a non-CD4 backbone are described. Also described are complexes of these fusion proteins with Env as well as methods of diagnosis, treatment and prevention using the polynucleotides and polypeptides are also provided.

WO 2006/085959 A2

SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

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.