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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
31 January 2002 (31.01.2002)

PCT

(10) International Publication Number
WO 02/08293 A2

(51) International Patent Classification[7]: C07K 16/00

(21) International Application Number: PCT/US01/41386

(22) International Filing Date: 25 July 2001 (25.07.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/220,782 25 July 2000 (25.07.2000) US

(71) Applicant *(for all designated States except US)*: **IMMUNOMEDICS INC.** [US/US]; 300 American Road, Morris Plains, NJ 07950 (US).

(72) Inventor; and

(75) Inventor/Applicant *(for US only)*: **LEUNG, Shui-on** [—/CN]; Hong Kong Institute of Biotechnology Ltd., 2 Biotechnology Avenue, 12 Miles, Tai Po Road, Shatin, N.T. (HK).

(74) Agents: **SAXE, Bernhard, D.** et al.; Foley & Lardner, Washington Harbour, 3000 K Street, N.W., Suite 500, Washington, DC 20007-5109 (US).

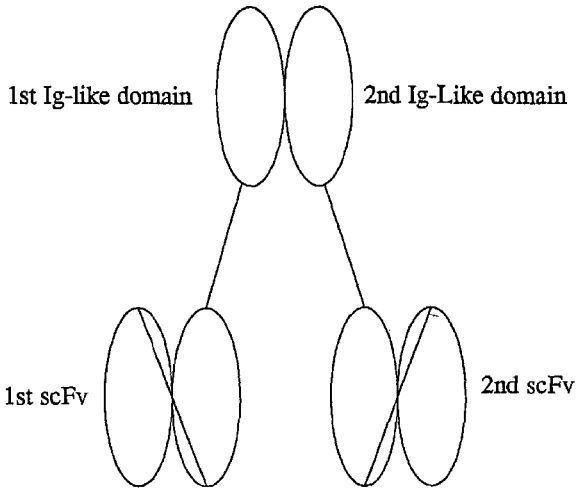
(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,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

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

[Continued on next page]

(54) Title: MULTIVALENT TARGET BINDING PROTEIN



(57) Abstract: A novel multivalent target binding protein which comprises a first and a second polypeptides and has at least three target binding sites is described. The first polypeptide of the multivalent target binding protein comprises a first scFv molecule and a first immunoglobulin-like domain which preferably comprises an immunoglobulin light chain variable region domain. The second polypeptide of the multivalent target binding protein comprises a second scFv molecule and a second immunoglobulin-like domain which preferably comprises an immunoglobulin heavy chain variable region domain. The first scFv molecule and the first immunoglobulin-like domain are preferably linked via a first extra amino acid sequence which preferably comprises an immunoglobulin light chain constant region domain. The second scFv molecule and the second immunoglobulin-like domain are preferably linked via second extra amino acid sequence which preferably comprises an immunoglobulin heavy chain constant region domain. The first and second extra amino acid sequences preferably associate with each other via at least one disulfide bond. The multivalent target binding protein of the present invention is useful for treating and detecting tumors and infectious lesions.

WO 02/08293 A2

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.