(A1)

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

(19) World Intellectual Property Organization
International Bureau

*G00002*

(43) International Publication Date
10 October 2002 (10.10.2002)

PCT

(10) International Publication Number
WO 02/078731 A1

(51) International Patent Classification[7]: A61K 38/12, 39/395, C07K 14/705, 16/28

(21) International Application Number: PCT/US02/10303

(22) International Filing Date: 2 April 2002 (02.04.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/281,541 2 April 2001 (02.04.2001) US

(71) Applicant: **WYETH** [US/US]; 5 Giralda Farms, Madison, NJ 07940 (US).

(72) Inventors: **CARRENO, Beatriz, M.**; 37 Nash Road, Acton, MA 01720 (US). **LEONARD, John**; Manchester, NH (US).

(74) Agent: **MANDRAGOURAS , Amy, E.**; Lahive & Cockfield, LLP, 28 State Street, Boston, MA 02109 (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, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, 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:**
— *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.*

*162162*

WO 02/078731 A1

(54) Title: MODULE OF PD-1 INTERACTIONS WITH ITS LIGANDS

(57) Abstract: Disclosed are methods for downmodulating an immune response comprising contacting an immune cell with an agent that modulates the interaction between PD-1 and a PD-1 (e.g., soluble forms of PD-1 or PD-1 ligand or antibodies to PD-1) to thereby modulate the immune response.