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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
3 December 2015 (03.12.2015)

WIPO | PCT

(10) International Publication Number
WO 2015/183054 A1

(51) International Patent Classification:
A61K 38/28 (2006.01) *A61P 3/10* (2006.01)
A61K 38/26 (2006.01) *A61P 3/00* (2006.01)

(21) International Application Number:
PCT/KR2015/005455

(22) International Filing Date:
1 June 2015 (01.06.2015)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
10-2014-0066554 30 May 2014 (30.05.2014) KR

(71) Applicant: **HANMI PHARM. CO., LTD.** [KR/KR]; 214, Muha-ro, Paltan-myeon, Hwaseong-si, Gyeonggi-do 445-958 (KR).

(72) Inventors: **JUNG, Sung Youb**; 709-104, 107, Manhyeon-ro, Suji-gu, Yongin-si, Gyeonggi-do 448-521 (KR). **HWANG, Sang Youn**; 154-601, 231, Dongtanbanseok-ro, Hwaseong-si, Gyeonggi-do 445-855 (KR). **KIM, Seung Su**; 1501, 45, Seochojungang-ro, Seocho-gu, Seoul 137-953 (KR). **CHOI, In Young**; 105-1801, 70, Yonggu-daero 2771beon-gil, Suji-gu, Yongin-si, Gyeonggi-do 448-160 (KR). **KWON, Se Chang**; 408-1804, 221, Seolleung-ro, Gangnam-gu, Seoul 135-506 (KR).

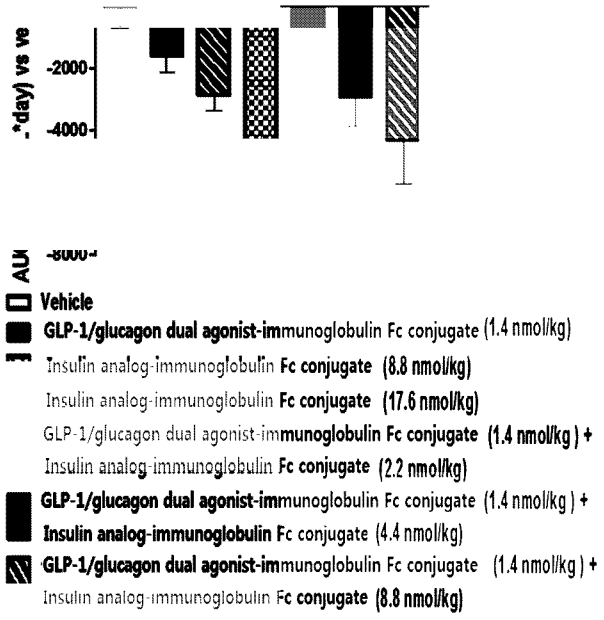
(74) Agent: **SON, Min**; Hanol Intellectual Property&Law, STX R&D Center, 6th Floor, 163, YangJaeCheon-ro, Gangnam-gu, Seoul 135-855 (KR).

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

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH,

[Continued on next page]

(54) Title: COMPOSITION FOR TREATING DIABETES MELLITUS COMPRISING INSULIN AND A GLP-1/GLUCAGON DUAL AGONIST



(57) Abstract: The present invention relates to a composition for preventing or treating diabetes mellitus comprising insulin and a GLP-1/glucagon dual agonist, and a method for preventing or treating diabetes mellitus. More specifically, the present composition can inhibit the weight gain and reduce the danger of hypoglycemia due to the administration of insulin, lower the administration dose and greatly improve the compliance of drugs through a combined administration of a long-acting insulin conjugate and a long-acting GLP-1/glucagon dual agonist conjugate. In addition, the long-acting insulin conjugate and the long-acting GLP-1/glucagon dual agonist conjugate according to the present invention can improve the *in vivo* sustainability and stability because an insulin and a GLP-1/glucagon dual agonist are linked to the immunoglobulin Fc region via a non-peptidyl linker.

WO 2015/183054 A1

GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

— *with sequence listing part of description (Rule 5.2(a))*