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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
3 February 2011 (03.02.2011)

PCT

(10) International Publication Number
WO 2011/012715 A1

(51) International Patent Classification:
A61K 47/10 (2006.01) *A61K 9/50* (2006.01)
A61K 9/16 (2006.01) *A61K 9/10* (2006.01)
A61K 9/28 (2006.01)

(21) International Application Number:
PCT/EP2010/061155

(22) International Filing Date:
30 July 2010 (30.07.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09167026.5 31 July 2009 (31.07.2009) EP
09172339.5 6 October 2009 (06.10.2009) EP

(71) Applicant *(for all designated States except US)*: **ASCENDIS PHARMA AS** [DK/DK]; Tuborg Boulevard 12, DK-2900 Hellerup (DK).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **RAU, Harald** [DE/DE]; Schwarzwaldstr. 51/2, 69124 Heidelberg (DE). **HERSEL, Ulrich** [DE/DE]; Fritz-Frey-Strasse 2, 69121 Heidelberg (DE). **KRUSCH, Mathias** [DE/DE]; Am Hungerberg 15, 69434 Hirschhorn (DE). **VETTER, Dirk** [DE/DE]; Haydnstr. 9, 69121 Heidelberg (DE). **VOIGT, Tobias** [DE/DE]; Handschuhsheimer Landstr. 9/1, 69120 Heidelberg (DE).

(74) Agent: **BÜCHEL, Edwin**; Isenbruck Bösl Hörschler LLP, Eastsite One, Seckenheimer Landstraße 4, 68163 Mannheim (DE).

(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, 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, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, 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, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,

[Continued on next page]

(54) Title: BIODEGRADABLE POLYETHYLENE GLYCOL BASED WATER-INSOLUBLE HYDROGELS

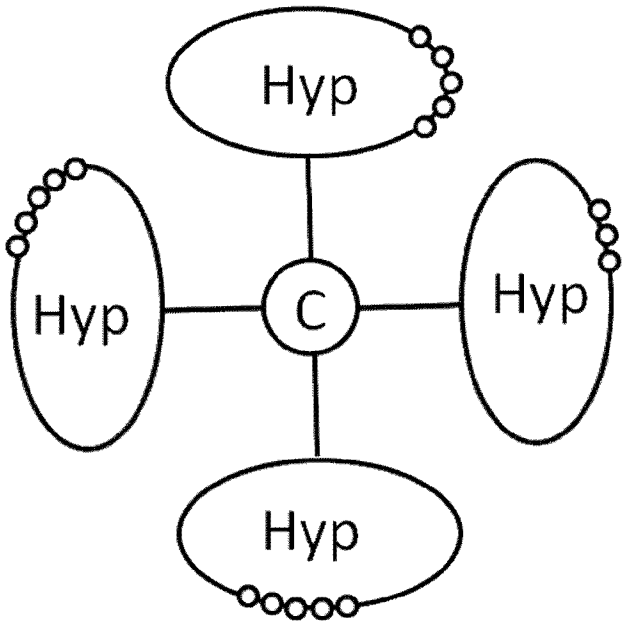


Fig. 1

(57) Abstract: The present invention relates to biodegradable polyethylene glycol based water-insoluble hydrogels comprising backbone moieties which are interconnected by hydrolytically degradable bonds, the backbone moieties further comprising reactive functional groups, wherein the water-insoluble hydrogel is further characterized in that the ratio between the time period for the complete degradation of the hydrogel by hydrolysis of the degradable bonds into water-soluble degradation products comprising one or more backbone moieties and the time period for the release of the first 10 mol-% of water-soluble degradation products comprising one or more backbone moieties based on the total amount of backbone moieties in the hydrogel is greater than 1 and equal to or less than 2. The invention further relates to conjugates of such hydrogels with ligands or ligating groups, prodrugs and pharmaceutical compositions as well as their use in a medicament.

WO 2011/012715 A1

ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, 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, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

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

— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*