(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 2011/014432 A1

(51) International Patent Classification:
A61L 27/20 (2006.01) *A61L 27/52* (2006.01)
C08B 37/00 (2006.01) *C08J 3/075* (2006.01)

(21) International Application Number:
PCT/US2010/043108

(22) International Filing Date:
23 July 2010 (23.07.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
61/230,074 30 July 2009 (30.07.2009) US
61/311,953 9 March 2010 (09.03.2010) US

(71) Applicant *(for all designated States except US)*: **CARBYLAN BIOSURGERY, INC.** [US/US]; 3181 Porter Drive, Palo Alto, CA 94304 (US).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **HE, Pingren** [US/US]; 1561 Oak Point Terrace, Sunnyvale, CA 94087 (US). **GRAVETT, David, M.** [CA/US]; 1807 Walnut Drive, Mountain View, CA 94040 (US). **DANILOFF, George, Y.** [US/US]; 1431 Topar Avenue, Los Altos, CA 94024 (US).

(74) Agents: **DEHLINGER, Peter, J.** et al.; King & Spalding, P.O. Box 889, Belmont, CA 94002-0889 (US).

(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, 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))*

WO 2011/014432 A1

(54) Title: MODIFIED HYALURONIC ACID POLYMER COMPOSITIONS AND RELATED METHODS

(57) Abstract: The present application provides compositions comprising hyaluronic acid having low levels of functional group modification, mixtures formed by controlled reaction of such lightly modified hyaluronic acid with suitable difunctional or multifunctional crosslinkers, and hydrogel precursor compositions and the resulting hydrogels. The compositions are lightly crosslinked and possess low pro-inflammatory properties when injected in vivo, and can be used as, for example, medical devices, biomedical adhesives and sealants, and for localized delivery of bioactive agents, among other uses.