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

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
24 February 2011 (24.02.2011)

PCT

(10) International Publication Number
WO 2011/021009 A1

(51) International Patent Classification:
C07K 16/00 (2006.01)

(21) International Application Number:
PCT/GB2010/001579

(22) International Filing Date:
20 August 2010 (20.08.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0914691.1 21 August 2009 (21.08.2009) GB
61/241,717 11 September 2009 (11.09.2009) US

(71) Applicant *(for all designated States except US)*: **LONZA BIOLOGICS PLC** [GB/GB]; 228 Bath Road, Slough, Berkshire SL1 4DX (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **ARNELL, Andreas** [SE/GB]; Advanced Protein Technologies, Lonza Biologics Plc, Babraham Research Campus, Cambridge CB22 3AT (GB). **JIMENEZ, José** [ES/GB]; Advanced Protein Technologies, Lonza Biologics Plc, Babraham Research Campus, Cambridge CB22 3AT (GB). **MICHAEL, Rebecca** [GB/GB]; Advanced Protein Technologies, Lonza Biologics Plc, Babraham Research Campus, Cambridge CB22 3AT (GB). **STALLWOOD, Yvette** [GB/GB]; Advanced Protein Technologies, Lonza Biologics Plc, Babraham Research Campus, Cambridge CB22 3AT (GB). **ZURDO, Jesús** [ES/GB]; Advanced Protein Technologies, Lonza Biologics Plc, Babraham Research Campus, Cambridge CB22 3AT (GB).

(74) Agents: **MEWBURN ELLIS LLP** et al.; 33 Gutter Lane, London EC2V 8AS (GB).

(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).

Declarations under Rule 4.17:

— *of inventorship (Rule 4.17(iv))*

Published:

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

WO 2011/021009 A1

(54) **Title**: VARIANT IMMUNOGLOBULINS WITH IMPROVED MANUFACTURABILITY

(57) **Abstract**: This invention relates to the modification of the amino acid sequence of an immunoglobulin molecule at certain key positions within regions of the VH and VL FR and CDR3 domains and/or the CH1 domain which are prone to aggregation. Immunoglobulins modified as described may display improved manufacturability, for example, reduced aggregation propensity and/or increased production levels.