

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
05 March 2020 (05.03.2020)



(10) International Publication Number
WO 2020/046793 A1

(51) International Patent Classification:
C07K 1/34 (2006.01) G01N 21/65 (2006.01)
C07K 16/00 (2006.01)

(21) International Application Number:
PCT/US2019/048100

(22) International Filing Date:
26 August 2019 (26.08.2019)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/723,188 27 August 2018 (27.08.2018) US

(71) Applicant: **REGENERON PHARMACEUTICALS, INC.** [US/US]; 777 Old Saw Mill River Road, Tarrytown, New York 10591-6707 (US).

(72) Inventors: **PASSNO, Christina**; c/o Regeneron Pharmaceuticals, Inc., 777 Old Saw Mill River Road, Tarrytown, New York 10591-6707 (US). **COWAN, Christopher**; c/o Regeneron Pharmaceuticals, Inc., 777 Old Saw Mill River Road, Tarrytown, New York 10591-6707 (US). **TUSTIAN, Andrew**; c/o Regeneron Pharmaceuticals, Inc., 777 Old Saw Mill River Road, Tarrytown, New York 10591-6707 (US).

(74) Agent: **VORNDRAN, Charles** et al.; Smith, Gambrell & Russell, LLP, 1230 Peachtree Street, N.E., Promenade, Suite 3100, Atlanta, Georgia 30309-3592 (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, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, 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, 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).

(54) Title: USE OF RAMAN SPECTROSCOPY IN DOWNSTREAM PURIFICATION

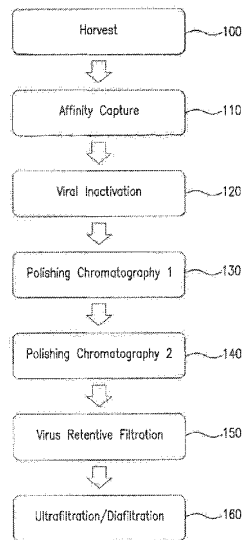


FIG. 1

(57) Abstract: *In situ* Raman spectroscopy methods and systems for characterizing or quantifying a protein purification intermediate and/or final concentrated pool during production or manufacture are provided. In one embodiment, *in situ* Raman spectroscopy is used to characterize or quantify protein purification intermediates critical quality attributes during downstream processing (i.e., after harvest of the protein purification intermediate). For example, the disclosed *in situ* Raman spectroscopy methods and systems can be used to characterize and quantify protein purification intermediates as the protein purification intermediates are purified, condensed, or otherwise formulated into the final drug product to be sold or administered

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Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:

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