



(51) International Patent Classification:
A61M 1/34 (2006.01)

(21) International Application Number:
PCT/IB2020/050236

(22) International Filing Date:
13 January 2020 (13.01.2020)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
62/791,617 11 January 2019 (11.01.2019) US

(71) Applicant: **DEPURO LTD.** [AG/AG]; 44 Church Street,
St. John's (AG).

(72) Inventor: **WENTHOLD, Randy**; 38771 189th Avenue,
Menahga, Minnesota 56464 (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, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, 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,

(54) Title: PLASMA DETOXIFICATION METHODS AND SYSTEMS

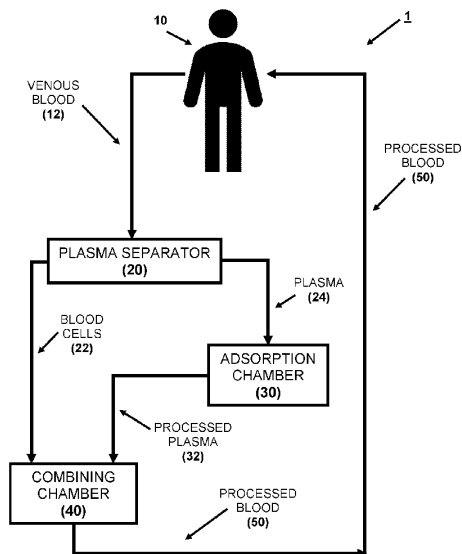


FIG. 1

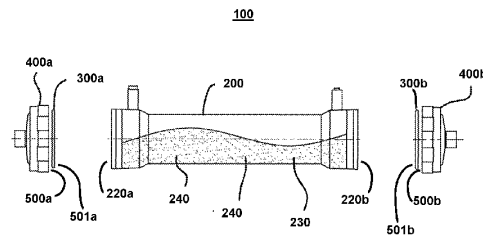


FIG. 2

(57) Abstract: Disclosed are methods, systems, and devices for removing cytokines and other substances from blood of a subject in a closed fluid circuit. The methods, systems, and devices involve: (i) passing venous blood from the subject through a plasma separator, thereby separating the blood into blood cells and plasma; (ii) passing the plasma received from the plasma separator through an adsorption chamber located in the circuit to form processed plasma, where materials in the adsorption chamber adsorb cytokines in the plasma to form the processed plasma, and where the materials include, by weight, 50-70% activated carbon and 30-50% non-ionic resin; (iii) combining the processed plasma, received directly from the adsorption chamber, with the blood cells in a combining chamber to form processed blood, without exchanging any of the plasma for another fluid; and (iv) transfusing the processed blood from the circuit directly into the subject, where no fluid besides the subject's blood is added to the circuit before the transfusing of the

[Continued on next page]

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))*
- *in black and white; the international application as filed contained color or greyscale and is available for download from PATENTSCOPE*