

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

(19) World Intellectual Property
Organization
International Bureau

(43) International Publication Date
08 June 2023 (08.06.2023)



(10) International Publication Number
WO 2023/102185 A1

(51) International Patent Classification:

A61B 5/1455 (2006.01) A61B 1/00 (2006.01)
A61B 5/00 (2006.01) G01N 21/00 (2006.01)

(21) International Application Number:

PCT/US2022/051660

(22) International Filing Date:

02 December 2022 (02.12.2022)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

63/285,810 03 December 2021 (03.12.2021) US
63/293,241 23 December 2021 (23.12.2021) US

(71) Applicant: **ABIOMED, INC.** [US/US]; 22 Cherry Hill Drive, Danvers, MA 01923 (US).

(72) Inventors: **SEGURA ORTEGA, Carlos, Alejandro**; 22 Cherry Hill Drive, Danvers, MA 01923 (US). **GENTILE, Andrew**; 22 Cherry Hill Drive, Danvers, MA 01923 (US).

(74) Agent: **PATTILLO, Alan, C.**; Meagher Emanuel Laks Goldberg & Liao, LLP., One Palmer Square, Suite 325, Princeton, NJ 08542 (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, CV, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IQ, IR, IS, IT, JM, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, 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, CV, 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, ME, 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: INTRAVASCULAR BLOOD PUMP

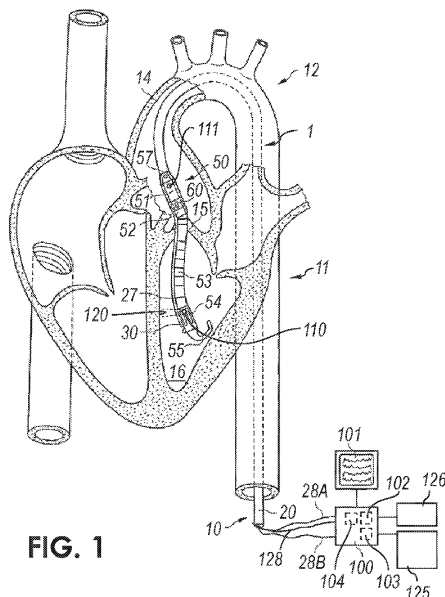


FIG. 1

(57) Abstract: Techniques and systems for using spectroscopy- and/or image-based sensing with an intravascular blood pump may be provided. The techniques generally include capturing a spectral response to light of a measured tissue and/or blood. Based on the specific needs, the method may include, e.g., determining a type of the measured tissue based on the spectral response, determining if the type of the measured tissue matches a target tissue type, determining a health of the measured tissue based on the spectral response, determining a treatment plan based on the health of the measured tissue, determining a type and/or quantity of components and/or characteristics in the blood, and/or determining a degree of heart recovery based on the type and/or quantity of the components and/or characteristics in the blood.

[Continued on next page]

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))*