

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
5 November 2009 (05.11.2009)

PCT

(10) International Publication Number
WO 2009/135015 A8

- (51) International Patent Classification:
G01T 1/16 (2006.01) *G01N 33/00* (2006.01)
- (21) International Application Number:
PCT/US2009/042333
- (22) International Filing Date:
30 April 2009 (30.04.2009)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
12/112,289 30 April 2008 (30.04.2008) US
12/343,655 24 December 2008 (24.12.2008) US
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- (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, 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, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (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, 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))
- with sequence listing part of description (Rule 5.2(a))
- (88) Date of publication of the international search report:
7 January 2010
- (48) Date of publication of this corrected version:
8 April 2010
- (15) Information about Correction:
see Notice of 8 April 2010

(54) Title: IMPROVED METHODS AND COMPOSITIONS FOR F-18 LABELING OF PROTEINS, PEPTIDES AND OTHER MOLECULES

(57) Abstract: The present application discloses compositions and methods of synthesis and use of ^{18}F or ^{19}F labeled molecules of use in PET or MRI imaging. The labeled molecules may be peptides or proteins, although other types of molecules may be labeled. Preferably, the ^{18}F or ^{19}F is conjugated to a targeting molecule by formation of a metal complex and binding of the ^{18}F - or ^{19}F -metal complex to a chelating moiety. Alternatively, the metal may first be conjugated to the chelating group and subsequently the ^{18}F or ^{19}F bound to the metal. In other embodiments, the ^{18}F or ^{19}F labeled moiety may comprise a targetable construct used in combination with a bispecific antibody to target a disease-associated antigen. The ^{18}F or ^{19}F labeled targetable construct peptides are stable in serum at 37°C for a sufficient time to perform PET or MRI imaging.



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