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

REVISED VERSION

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
17 January 2013 (17.01.2013)

WIPO | PCT

(10) International Publication Number
WO 2013/009475 A9

(51) International Patent Classification:
A61K 41/00 (2006.01) *A41D 27/08* (2006.01)
A61K 49/00 (2006.01)

(21) International Application Number:
PCT/US2012/044421

(22) International Filing Date:
27 June 2012 (27.06.2012)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
13/180,111 11 July 2011 (11.07.2011) 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, 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, QA, RO, RS, RU, RW, 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, 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, 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))*

(88) Date of publication of the revised international search report:
7 March 2013

(15) Information about Correction:
see Notice of 7 March 2013

(54) Title: PHOTOSENSITIZING ANTIBODY-PHUOROPHORE CONJUGATES

(57) Abstract: The present disclosure relates to compositions and methods of killing cells. In particular examples, the method includes contacting a cell having a cell surface protein with a therapeutically effective amount of an antibody- IR700 molecule, wherein the antibody specifically binds to the cell surface protein, such as a tumor- specific antigen on the surface of a tumor cell. The cell is subsequently irradiated, such as at a wavelength of 660 to 740 nm at a dose of at least 1 J cm^{-2}. The cell is also contacted with one or more therapeutic agents (such as an anti-cancer agent), for example about 0 to 8 hours after irradiating the cell, thereby killing the cell. Also provided are methods of imaging cell killing in real time, using fluorescence lifetime imaging. Also provided are wearable devices that include an article of clothing, jewelry, or covering; and an NIR LED incorporated into the article, which can be used with the disclosed methods.

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