



- (51) International Patent Classification: Not classified
- (21) International Application Number: PCT/US2011/065525
- (22) International Filing Date: 16 December 2011 (16.12.2011)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
61/424,191 17 December 2010 (17.12.2010) US
13/326,433 15 December 2011 (15.12.2011) 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.

[Continued on next page]

(54) Title: PEPTIDE-BASED IN VIVO SIRNA DELIVERY SYSTEM

FIG. 1. Melittin peptide sequences.

Seq ID	Melittin Sequence	Name
1	GIGAILKVLATGLPTLISWIKNRKQ	Angiogenesis
2	AGAILKVLATGLPTLISWIKNRKQ	G1A
3	GIGAILKVLATGLPTLISWIKNRKQ	G1C
4	FIGAILKVLATGLPTLISWIKNRKQ	G1F
5	FIGAILKVLATGLPTLISWIKNRKQ	G1H
6	FIGAILKVLATGLPTLISWIKNRKQ	G1J
7	FIGAILKVLATGLPTLISWIKNRKQ	G1L
8	NIGAILKVLATGLPTLISWIKNRKQ	G1Ne
9	VIGAILKVLATGLPTLISWIKNRKQ	G1V
10	WIGAILKVLATGLPTLISWIKNRKQ	G1W
11	YIGAILKVLATGLPTLISWIKNRKQ	G1Y
12	GIGAILKVLACGLPTLISWIKNRKQ	T11C dMst
13	GIGAILKVLATLPTLISWIKNRKQ	G12L
14	GIGAILKVLATWLPPTLISWIKNRKQ	G12W
15	GIGAILKVLATGLPTLISWIKNRKQ	NZ2T
16	YIGAILNVLATGLPTLISWIKNRKQ	G1Y, K7N
17	VIGAILAVLATGLPTLISWIKNRKQ	G1Y, K7A
18	LIGAILSVLATGLPTLISWIKNRKQ	G1L, K7S
19	LIGAILRVATGLPTLISWIKNRKQ	G1L, K7R
20	LIGAILHVLATGLPTLISWIKNRKQ	G1L, K7H
21	LIGAILKVLACGLPTLISWIKNRKQ	G1L, T11C
22	LIGAILKVLATLPTLISWIKNRKQ	G1L, G12L
23	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, P14L
24	LIGAILKVLATGLPTLISWIKNRKQ	G1L, T13C
25	LIGAILKVLATGLPTLISWIKNRKQ	G1L, S18C
26	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, W19A
27	GIGAILKVLACGLPTLISWIKNRKQ	T11C, I20L
28	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, K21A
29	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, K23A
30	LIGAILKVLATGLPTLISWIKNRKQ	G1L, K24A
31	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, K25A
32	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, Q26C
33	LIGAILKVLACGLPTLISWIKNRKQ	G1L, I21L, T11C
34	LIGAILKVLACGLPTLISWIKNRKQ	G1L, I21L, T11C
35	YIGAILAVLATGLPTLISWIKNRKQ	G1Y, K7A, K21A
36	YIGAILAVLATGLPTLISWIKNRKQ	G1Y, K7A, K23A
37	LIGAILKVLACGLPTLISWIKNRKQ	G1L, T11C, I17L
38	LIGAILKVLACGLPTLISWIKNRKQ	G1L, T11C, S18C
39	GIGAILKVLACGLPTLISWIKNRKQ	T11G, T13G, S18G
40	GIGAILKVLACGLPTLISWIKNRKQ	T11A, T13A, S18A
41	YIGAILAVLATGLPTLISWIKNRKQ	G1Y, K7A, K21A, K23A

FIG. 1

(57) Abstract: The present invention is directed compositions for targeted delivery of RNA interference (RNAi) polynucleotides to hepatocytes *in vivo*. Targeted RNAi polynucleotides are administered together with co-targeted melittin delivery peptides. Delivery peptides provide membrane penetration function for movement of the RNAi polynucleotides from outside the cell to inside the cell. Reversible modification provides physiological responsiveness to the delivery peptides.



(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, MD, 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).

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