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

FIG. 1. Melittin peptide sequences.

Seq ID	Melittin Sequence	Name
1	GIGAILKVLATGLPTLISWIKNRKQ	Apis Mellis
2	AIQAILKVLATGLPTLISWIKNRKQ	G1A
3	CICAILKVLATGLPTLISWIKNRKQ	G1C
4	FIQAILKVLATGLPTLISWIKNRKQ	G1F
5	HIGAILKVLATGLPTLISWIKNRKQ	G1H
6	IIGAILKVLATGLPTLISWIKNRKQ	G1I
7	LIGAILKVLATGLPTLISWIKNRKQ	G1L
8	NIGAILKVLATGLPTLISWIKNRKQ	G1N
9	VIQAILKVLATGLPTLISWIKNRKQ	G1V
10	WIGAILKVLATGLPTLISWIKNRKQ	G1W
11	YIGAILKVLATGLPTLISWIKNRKQ	G1Y
12	GIGAILKVLATGLPTLISWIKNRKQ	T11C dM61
13	GIGAILKVLATGLPTLISWIKNRKQ	G12L
14	GIGAILKVLATGLPTLISWIKNRKQ	G12W
15	GIGAILKVLATGLPTLISWIKNRKQ	N22T
16	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, K7N
17	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, K7A
18	LIGAILKVLATGLPTLISWIKNRKQ	G1L, K7S
19	LIGAILKVLATGLPTLISWIKNRKQ	G1L, K7K
20	LIGAILKVLATGLPTLISWIKNRKQ	G1L, K7H
21	LIGAILKVLATGLPTLISWIKNRKQ	G1L, T11C
22	LIGAILKVLATGLPTLISWIKNRKQ	G1L, G12L
23	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, P14L
24	LIGAILKVLATGLPTLISWIKNRKQ	G1L, T13C
25	LIGAILKVLATGLPTLISWIKNRKQ	G1L, S18C
26	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, W19A
27	GIGAILKVLATGLPTLISWIKNRKQ	T11C, I26L
28	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, K21A
29	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, K23A
30	LIGAILKVLATGLPTLISWIKNRKQ	G1L, R24A
31	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, K25A
32	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, Q26C
33	LIGAILKVLATGLPTLISWIKNRKQ	G1L, I2L, T11C
34	LIGAILKVLATGLPTLISWIKNRKQ	G1L, I2L, T11C
35	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, K7A, K21A
36	YIGAILKVLATGLPTLISWIKNRKQ	G1Y, K7A, K23A
37	LIGAILKVLATGLPTLISWIKNRKQ	G1L, T11C, I17L
38	LIGAILKVLATGLPTLISWIKNRKQ	G1L, T11C, S18C
39	GIGAILKVLATGLPTLISWIKNRKQ	T11G, T15G, S18C
40	GIGAILKVLATGLPTLISWIKNRKQ	T11A, T15A, S18A
41	YIGAILKVLATGLPTLISWIKNRKQ	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.



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