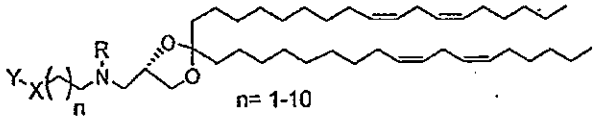
Figure 1.



n= 1-10

X= NH(CO), (CO)NH, NH(CO)O
O(CO)NH, O, NH(CO)NH, S-S

R= CH_3, -$(CH_2)_{1-10}$-,

Y= (CH_2)n- GalNAc, Mannose, Lactose, Glucose, Fucose

Y= (CH_2)n- $(GalNAc)_2$, $(Mannose)_2$,($Lactose)_2$, $(Glucose)_2$, $(Fucose)_2$

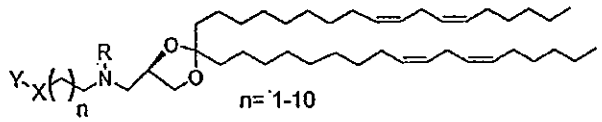
Y= (CH_2)n- $(GalNAc)_3$, $(Mannose)_3$,($Lactose)_3$, $(Glucose)_3$, $(Fucose)_3$

Y= $(CH_2$-CH_2-O)a- GalNAc, Mannose, Lactose, Glucose, Fucose

Y= $(CH_2$-CH_2-O)a- $(GalNAc)_2$, $(Mannose)_2$,($Lactose)_2$, $(Glucose)_2$, $(Fucose)_2$

Y= $(CH_2$-CH_2-O)a- $(GalNAc)_3$, $(Mannose)_3$,($Lactose)_3$, $(Glucose)_3$, $(Fucose)_3$

a = 1-100



n= 1-10

X= NH(CO), (CO)NH, NH(CO)O
O(CO)NH, O, NH(CO)NH, S-S

R= CH_3, -$(CH_2)_{1-10}$-,

Y= (CH_2)n- GalNAc, Mannose, Lactose, Glucose, Fucose

Y= (CH_2)n- $(GalNAc)_2$, $(Mannose)_2$,($Lactose)_2$, $(Glucose)_2$, $(Fucose)_2$

Y= (CH_2)n- $(GalNAc)_3$, $(Mannose)_3$,($Lactose)_3$, $(Glucose)_3$, $(Fucose)_3$

Y= $(CH_2$-CH_2-O)a- GalNAc, Mannose, Lactose, Glucose, Fucose

Y= $(CH_2$-CH_2-O)a- $(GalNAc)_2$, $(Mannose)_2$,($Lactose)_2$, $(Glucose)_2$, $(Fucose)_2$

Y= $(CH_2$-CH_2-O)a- $(GalNAc)_3$, $(Mannose)_3$,($Lactose)_3$, $(Glucose)_3$, $(Fucose)_3$

a = 1-100

Figure 2

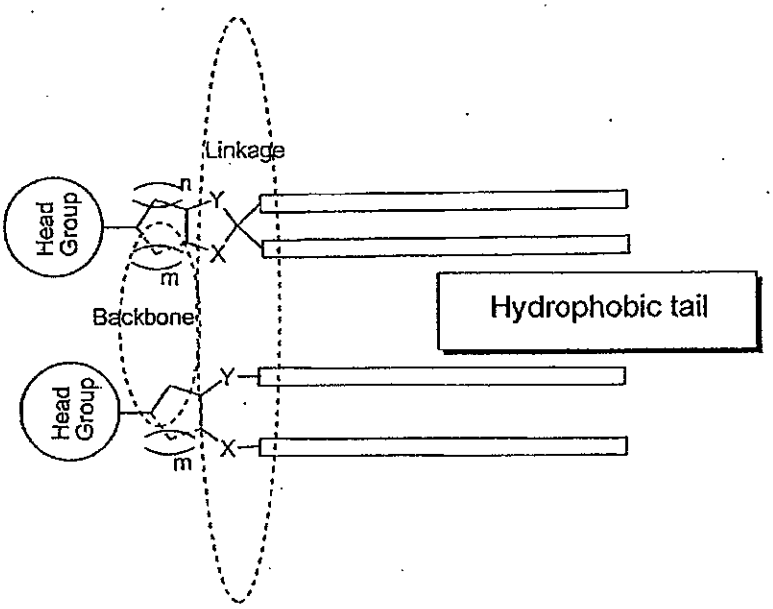
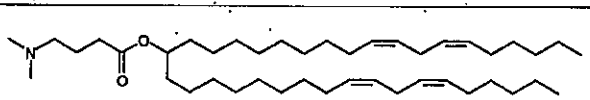
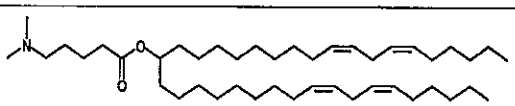
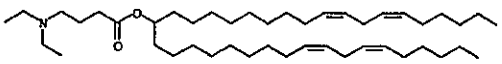
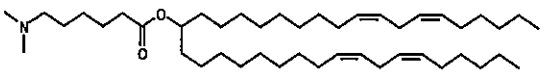
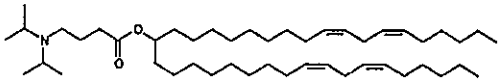
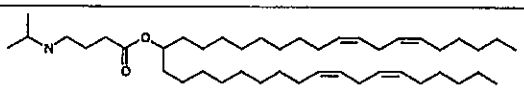
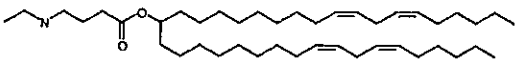
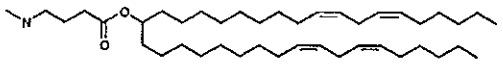
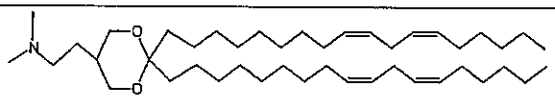
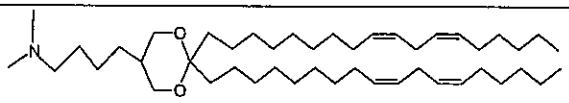
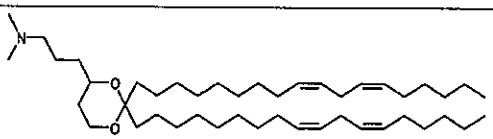
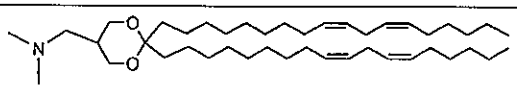
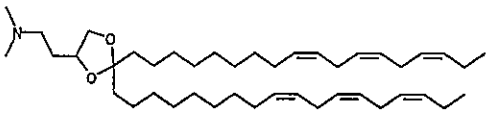

Linkage
n
Y
X
m
Head Group
Backbone
Hydrophobic tail
Head Group
Y
X
m

Figure 3 (1 of 2)

Compound	Structure	ED50	pKa
DLin-M-C3-DMA		<0.1	6.44
DLin-M-C4-DMA		0.15	6.93
DLin-M-C3-DEA		0.3	6.17
DLin-M-C5-DMA		0.65	7.16
DLin-M-C3-DIPA		4.5	5.44
DLin-M-C3-IPA		1.0	7.31
DLin-M-C3-EA		>5.0	7.62
DLin-M-C3-MA		>5.0	8.11
DLin-K6S-C2-DMA		3.0	ND
DLin-K6S-C4-DMA		4.0	ND
DLin-K6A-C3-DMA		0.7	ND
DLin-K6S-C1-DMA		0.10	5.97
DLen-K5-C2-DMA		< 0.1	ND

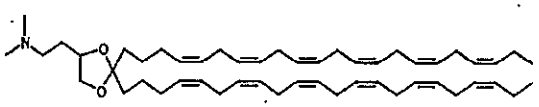
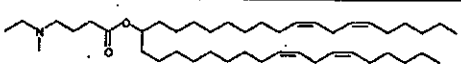
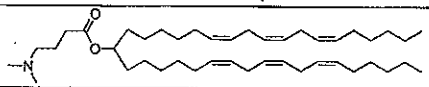
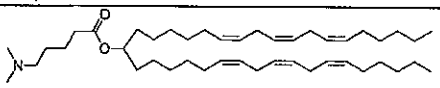
DDha-K5-C2-DMA		0.2	ND
DLin-M-C3-MEA		**<0.1**	**ND**
DLen(g)-M-C3-DMA		**0.08**	**ND**
DLen(g)-M-C4-DMA		**0.5**	**ND**

Figure 3 (2 of 2)