

Supplementary figures

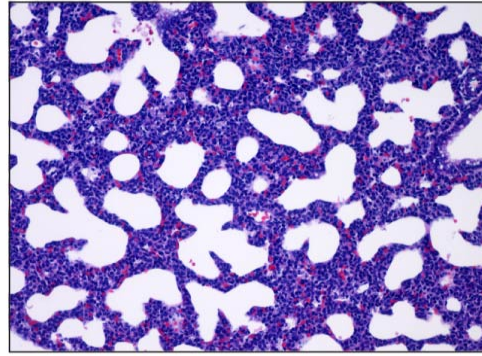
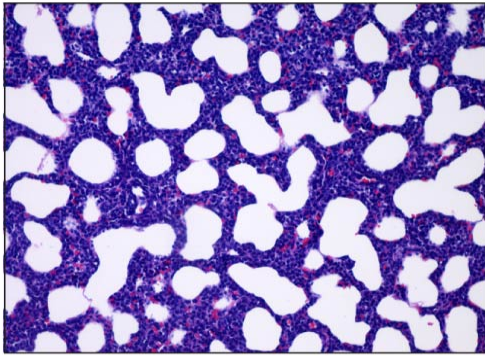
A



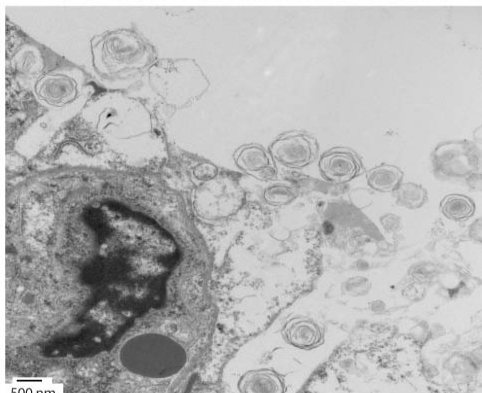
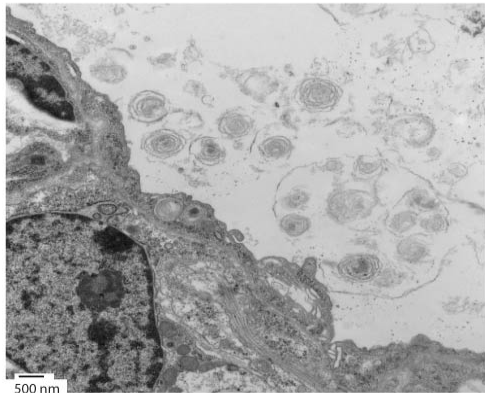
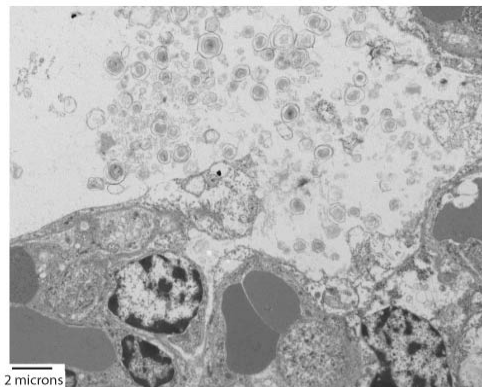
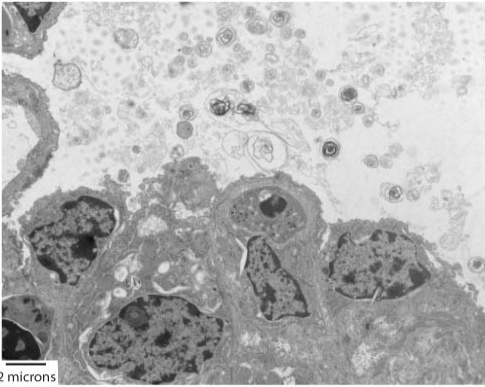
B

Abca12 +/+

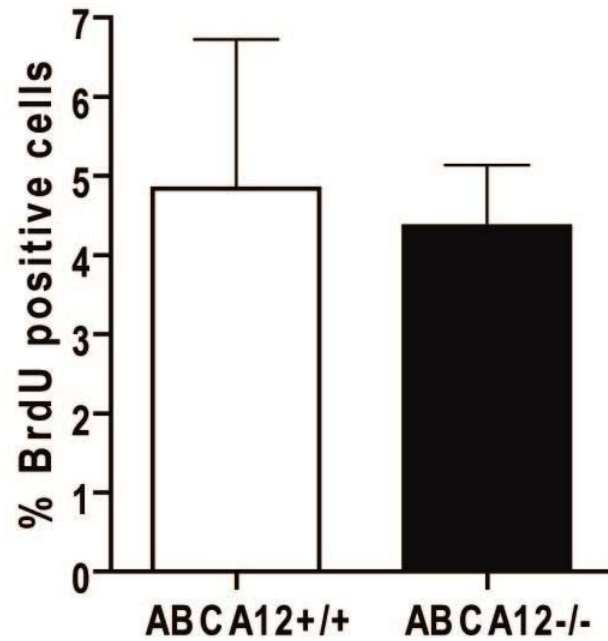
Abca12 -/-



C

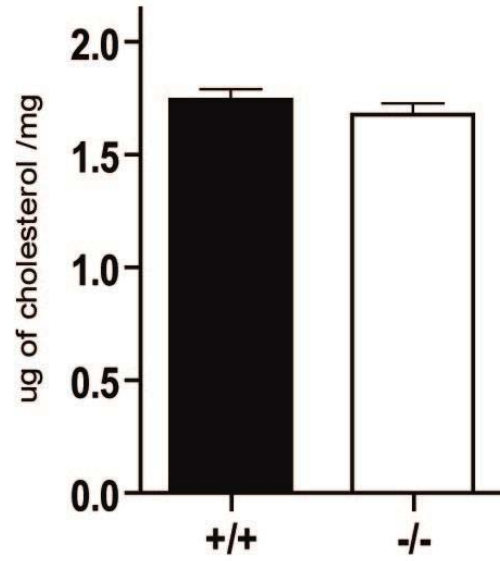


Abca12^{-/-} P0 pups are able to inflate their lungs if maintained in a hydrating environment. (A) *Abca12^{-/-}* P0 lungs float in 1 X PBS indicating an ability to inflate the lung. (B) Histological sections of *Abca12^{-/-}* lung shows inflated alveoli relative to the corresponding littermate *Abca12^{+/+}* lungs. (C) Electron micrographs of the *Abca12^{-/-}* lungs demonstrate type II alveolar cells form lamellar bodies and secrete surfactant.



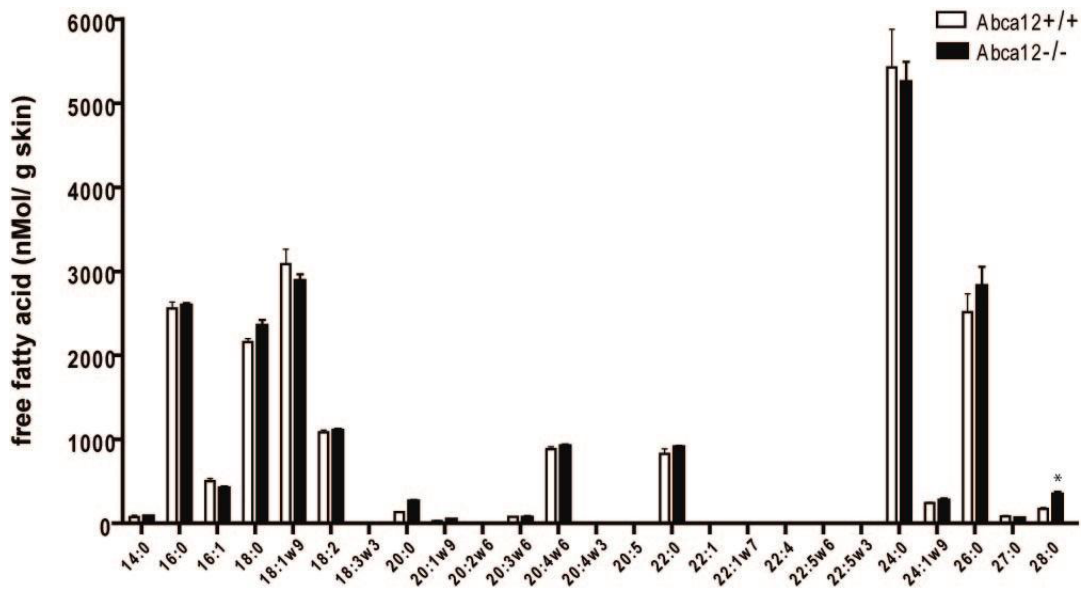
Supplemental Figure 2

Loss of ABCA12 transport function does not increase DNA synthesis in the E18.5 epidermis. Graphed is the percent of epidermal area occupied by BrdU positive cells quantified by automated image analysis of BrdU immunostained sections from littermate E18.5 embryos labeled *in utero* with BrdU for one hour (*Abca12*^{+/+}, n=3, *Abca12*^{-/-}, n=4, ± SD, P= 0.81)



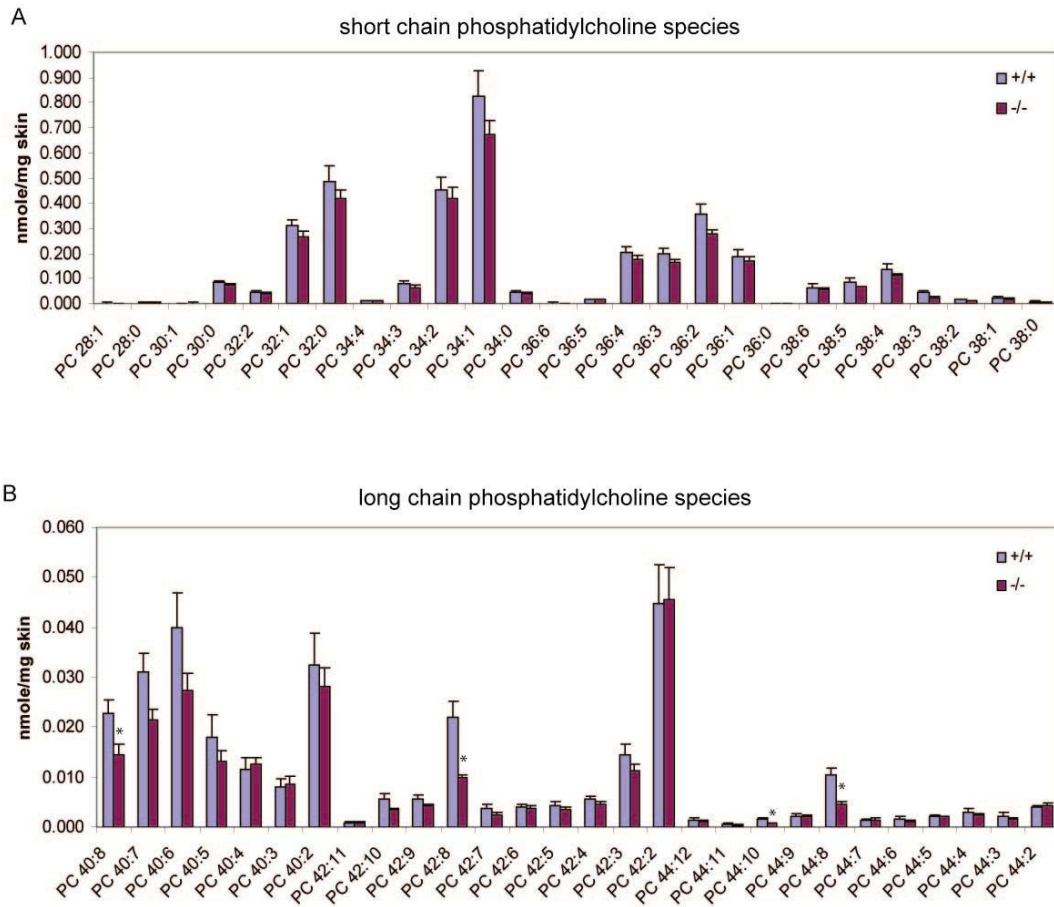
Supplemental Figure 3

Loss of ABCA12 does not affect skin total cholesterol levels. Graphed are micrograms of total cholesterol per milligram present in the skin of littermate paired E18.5 embryos (n=5, \pm SD, P=0.51)



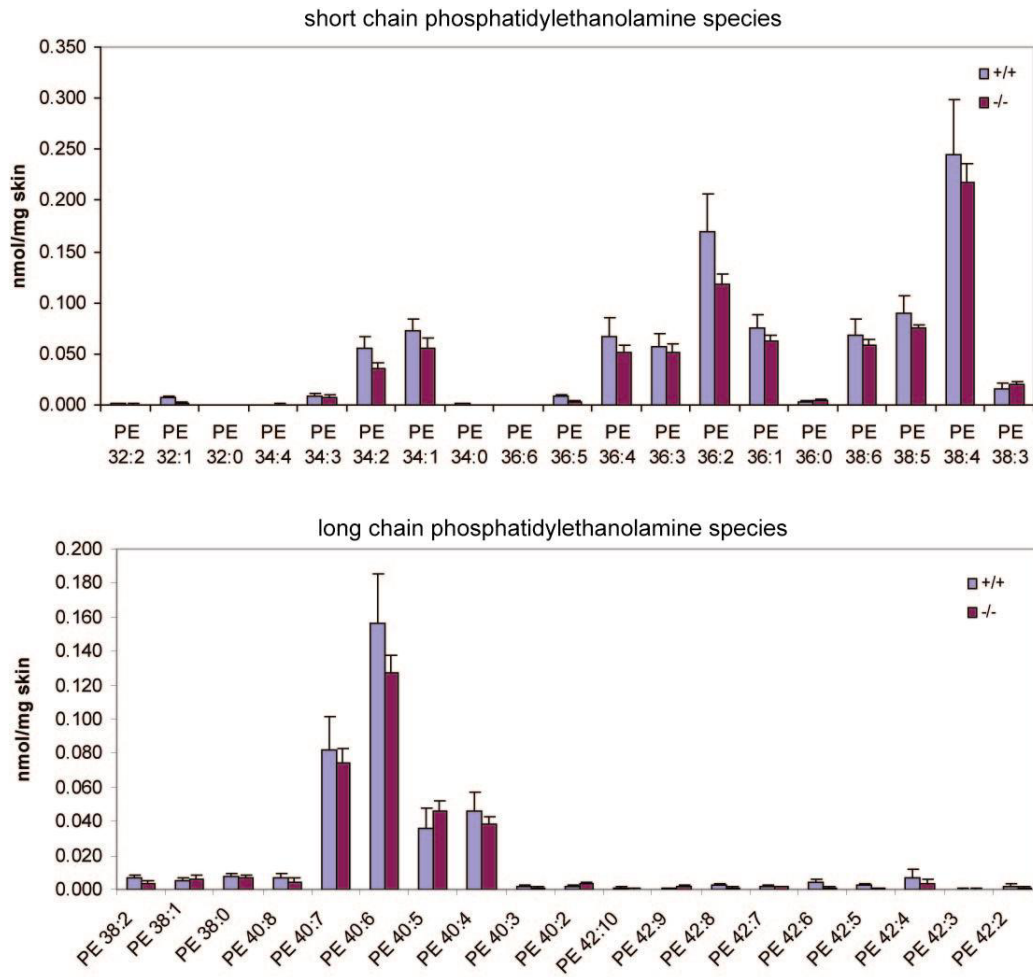
Supplemental Figure 4

Loss of ABCA12 does not significantly alter the levels of the major skin free fatty acids, including linoleic acid (18:2). Graphed are the amounts of the major free fatty acids detected by GC-MS in the skin of littermate paired E18.5 embryos (n=5, \pm SD, *p<0.05).



Supplemental Figure 5

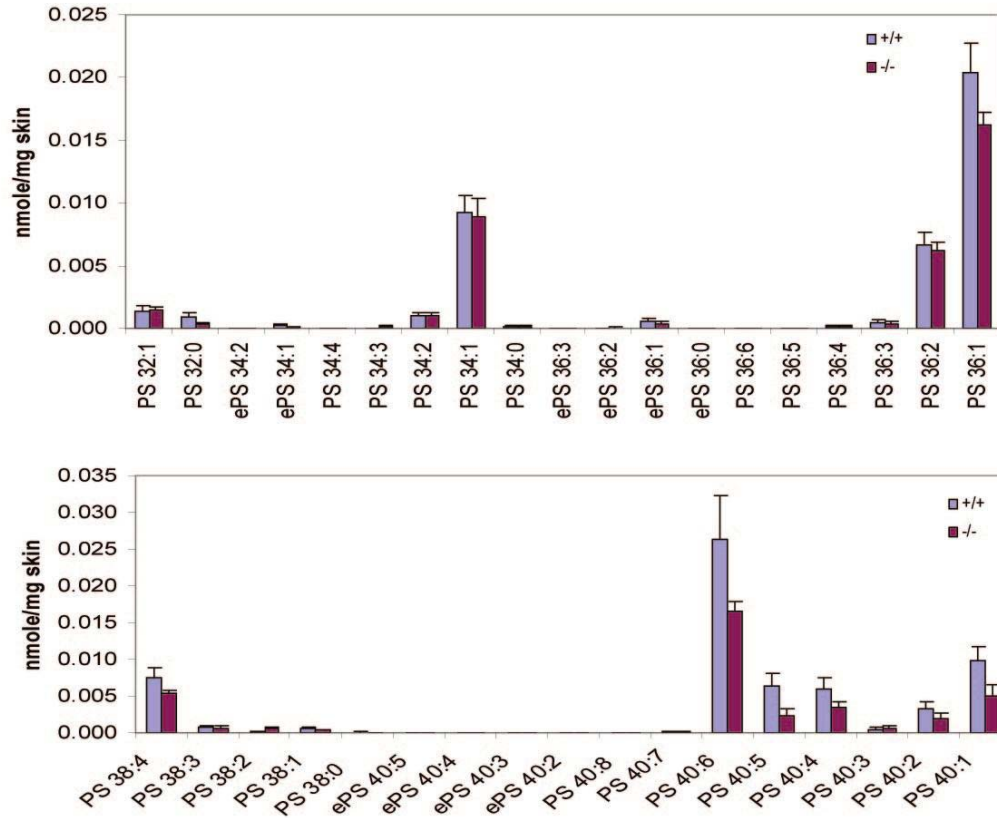
Levels of short chain phosphatidylcholine species (A) and long chain PC species (B) in the skin of E18.5 littermate paired *Abca12*^{+/+} and *Abca12*^{-/-} embryos. Graphed are the nmol of PC per mg of skin (n=5, \pm SEM, *p<0.05).



Supplemental Figure 6

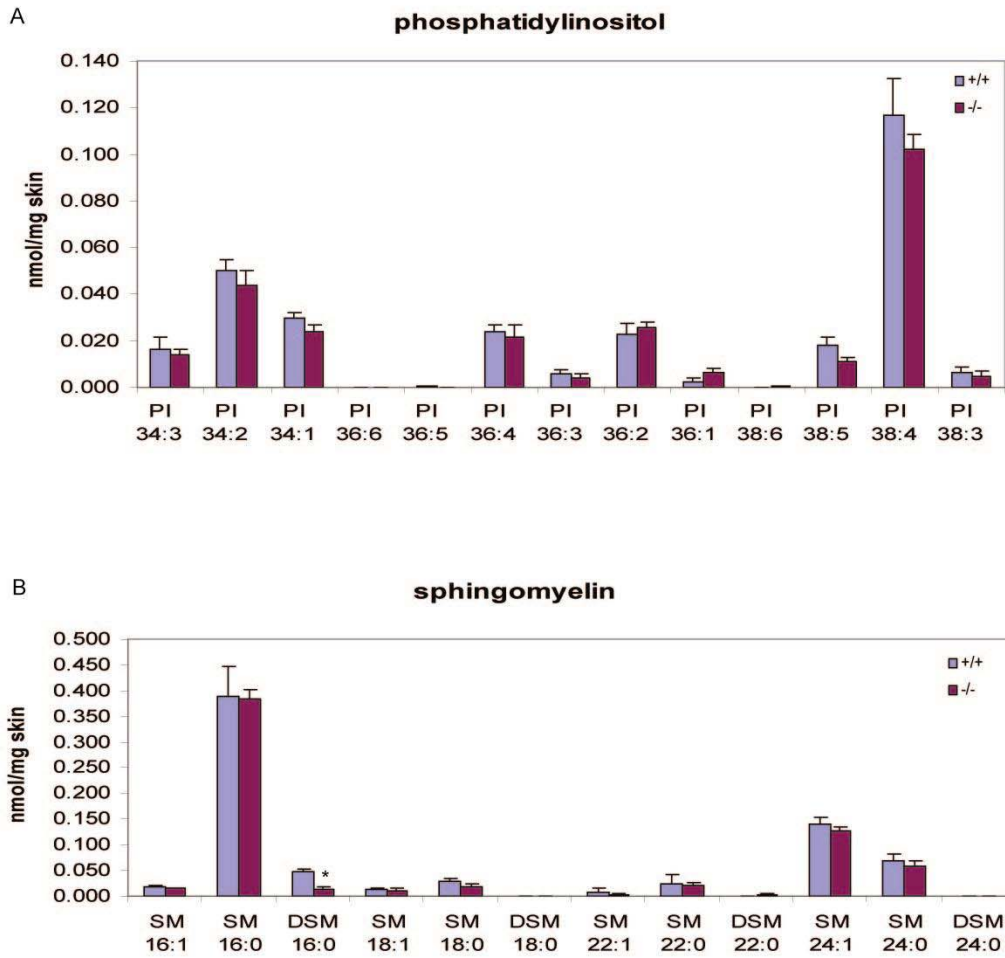
Analysis of phosphatidylethanolamine levels in the $Abca12^{-/-}$ mice. Graphed are the nmol of PE per mg of skin of littermate paired E18.5 $Abca12^{+/+}$ and $Abca12^{-/-}$ embryos (n=5, \pm SEM, no significant differences).

phosphatidylserine in *Abca12*^{-/-} skin



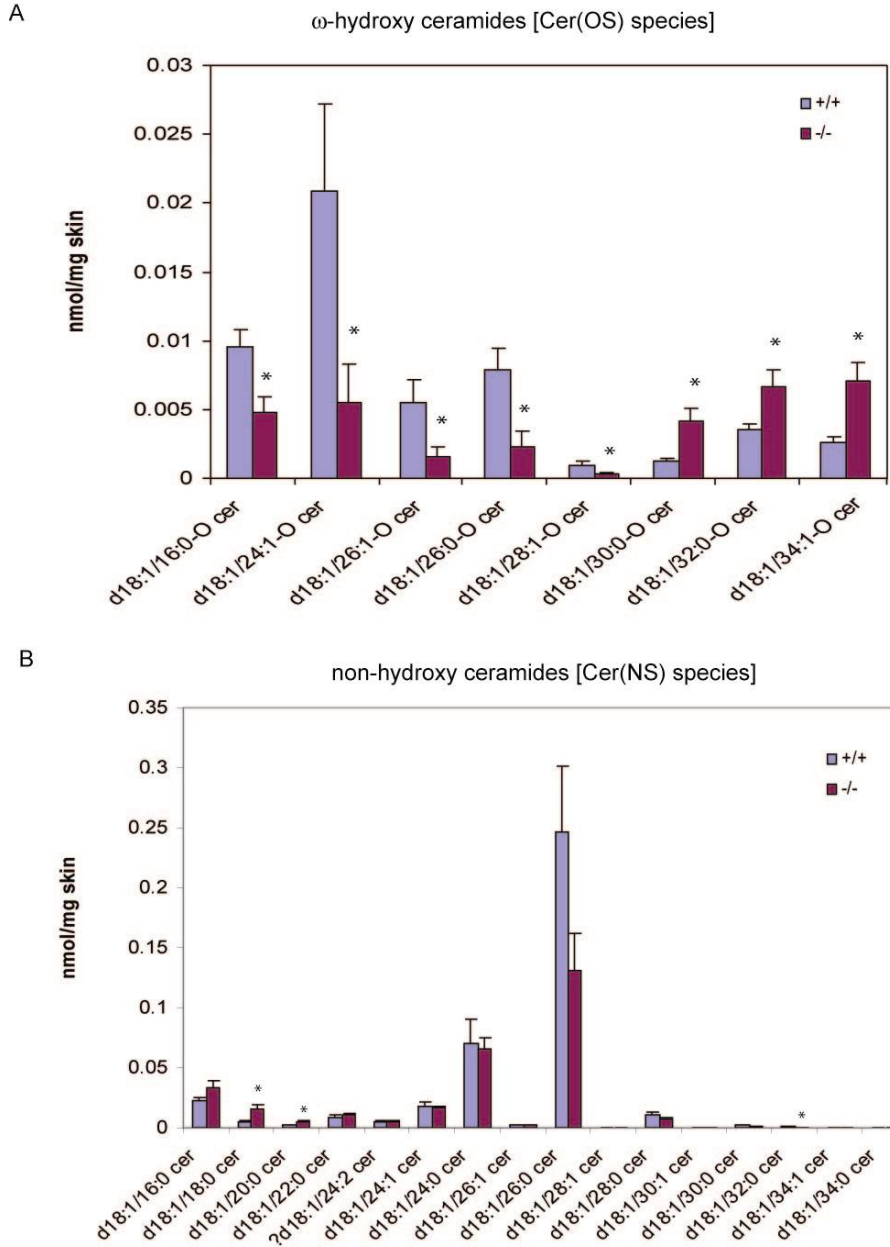
Supplemental Figure 7

Analysis of phosphatidylserine levels in the *Abca12*^{-/-} mice. Graphed are the nmol of PS per mg of skin of littermate paired E18.5 *Abca12*^{+/+} and *Abca12*^{-/-} embryos (n=5, ± SEM, no significant differences).



Supplemental Figure 8

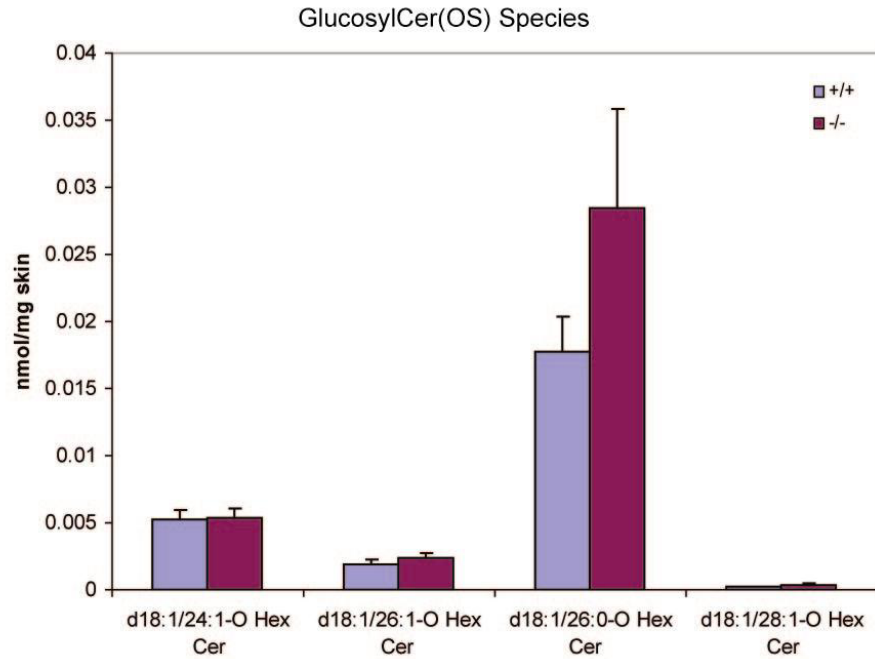
Analysis of phosphatidylinositol (A) or sphingomyelin (B) levels in Abca12^{-/-} mice. Graphed are the nmol of PI or SM per mg of skin from E18.5 Abca12^{+/+} and Abca12^{-/-} embryos (n=5, ± SEM, *p< 0.05).



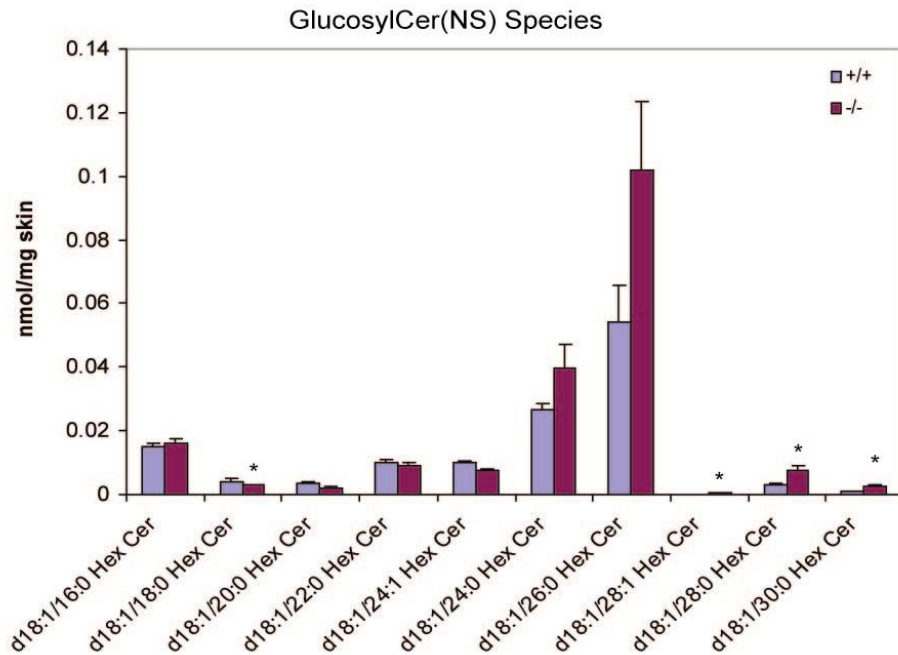
Supplemental Figure 9

Loss of ABCA12 differentially affects skin levels of ω -hydroxy ceramides (A), and skin non-hydroxy ceramides (B). Graphed are the nmol of ceramides per mg of skin from littermate paired E18.5 *Abca12*^{+/+} and *Abca12*^{-/-} embryos (n=5, \pm SEM, *p<0.05).

A



B



Supplemental Figure 10

Analysis of GlucosylCer(OS) species (A) and GlucosylCer(NS) species in the *Abca12*^{-/-} mice (B). Graphed are the nmol of ceramides per mg of skin from E18.5 *Abca12*^{+/+} and *Abca12*^{-/-} embryos (n=5, ± SEM, *p<0.05).