[00034] Figure 19 is a plot indicating the effect of OCA on mRNA expression of PKG1 in the control and test groups on days 7 and 28.

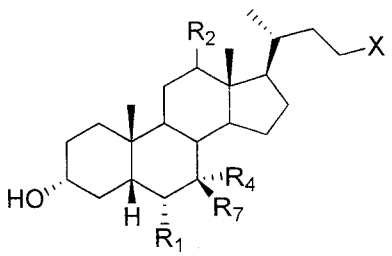
[00035] Figure 20 is a plot indicating the effect of OCA on mRNA expression of GCla3 in the control and test groups on days 7 and 28.

[00036] Figure 21 is a plot indicating the effect of OCA on mRNA expression of PDE5 in the control and test groups on days 7 and 28.

[00037] Figure 22 is a graph depicting univariate analysis of survival in untreated or treated rats over time (days).

SUMMARY

[00037a] In one aspect of the present disclosure, there is provided a use of a compound of formula A or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for treating, reducing the risk of, preventing, or alleviating a pulmonary disease or condition in a subject,



(A),

wherein:

R_1 is hydrogen or unsubstituted C_1-C_6 alkyl;

R_2 is hydrogen or α-hydroxyl;

X is $C(O)OH$, $C(O)NH(CH_2)_mSO_3H$, $C(O)NH(CH_2)_nCO_2H$, or OSO_3H;

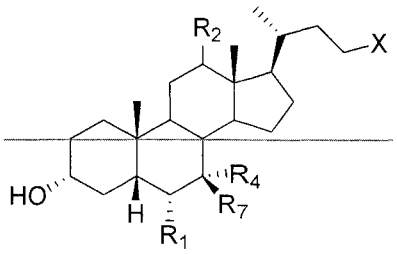
R_4 is hydroxyl or hydrogen;

R_7 is hydroxyl or hydrogen;

m is an integer 1, 2, or 3; and

n is an integer 1, 2, or 3.

~~[00037b] In another aspect of the present disclosure, there is provided a use of a compound of formula A or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for reducing or suppressing inflammation in the lung in a subject~~



(A),

or a pharmaceutically acceptable salt thereof, wherein:

R_1 is hydrogen or unsubstituted C_1-C_6 alkyl;

R_2 is hydrogen or α-hydroxyl;

X is C(O)OH, $C(O)NH(CH_2)_mSO_3H$, $C(O)NH(CH_2)_nCO_2H$, or OSO_3H;

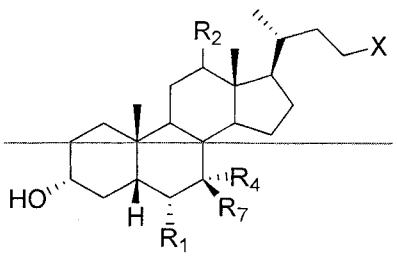
R_4 is hydroxyl or hydrogen;

R_7 is hydroxyl or hydrogen;

m is 1, 2, or 3; and

n is 1, 2, or 3.

[00037c] In a further aspect of the present disclosure, there is provided a use of a compound of formula A or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for promoting lung repair in a subject,



(A),

or a pharmaceutically acceptable salt thereof, wherein:

R_1 is hydrogen or unsubstituted C_1-C_6 alkyl;

R_2 is hydrogen or α-hydroxyl;

X is C(O)OH, $C(O)NH(CH_2)_mSO_3H$, $C(O)NH(CH_2)_nCO_2H$, or OSO_3H;

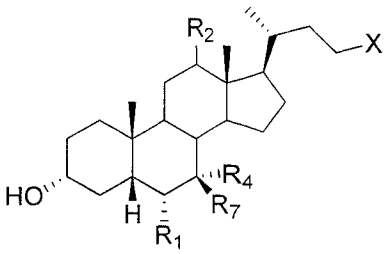
R_4 is hydroxyl or hydrogen;

R_7 is hydroxyl or hydrogen;

m is 1, 2, or 3; and

n is 1, 2, or 3.

[00038] The present disclosure relates to a method of treating, reducing the risk of, preventing, or alleviating a symptom of a pulmonary disease or condition in a subject, comprising administering to the subject a therapeutically effective amount of a compound of formula A:



(A),

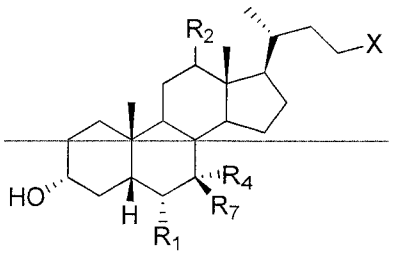
or a pharmaceutically acceptable salt thereof, wherein R_1, R_2, R_4, R_7, and X are as defined herein.

[00039] The present disclosure also relates to use of a compound of formula A or a pharmaceutically acceptable salt thereof, in the manufacture of a medicament for the treatment, reducing the risk of, prevention, or alleviation of a symptom of a pulmonary disease or condition in a subject, wherein R_1, R_2, R_4, R_7, and X are as defined herein.

[00040] The present disclosure also relates to a compound of formula A or a pharmaceutically acceptable salt thereof, for the treatment, reducing the risk of, prevention, or alleviation of a symptom of a pulmonary disease or condition in a subject, wherein R_1, R_2, R_4, R_7, and X are as defined herein.

[00041] The present disclosure further relates to a method of reducing or suppressing inflammation in the lung in a subject, comprising administering to the subject a therapeutically effective amount of a compound of formula A:

19. Use of a compound of formula A or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for reducing or suppressing inflammation in the lung in a subject



(A),

or a pharmaceutically acceptable salt thereof, wherein:

R_1 is hydrogen or unsubstituted C_1-C_6 alkyl;

R_2 is hydrogen or α-hydroxyl;

X is $C(O)OH$, $C(O)NH(CH_2)_mSO_3H$, $C(O)NH(CH_2)_nCO_2H$, or OSO_3H;

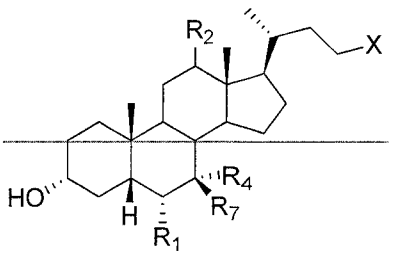
R_4 is hydroxyl or hydrogen;

R_7 is hydroxyl or hydrogen;

m is 1, 2, or 3; and

n is 1, 2, or 3.

20. Use of a compound of formula A or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for promoting lung repair in a subject,



(A),

or a pharmaceutically acceptable salt thereof, wherein:

R_1 is hydrogen or unsubstituted C_1-C_6 alkyl;

R_2 is hydrogen or α-hydroxyl;

X is $C(O)OH$, $C(O)NH(CH_2)_mSO_3H$, $C(O)NH(CH_2)_nCO_2H$, or OSO_3H;

R_4 is hydroxyl or hydrogen;

R_7 is hydroxyl or hydrogen;

m is 1, 2, or 3; and

n is 1, 2, or 3.