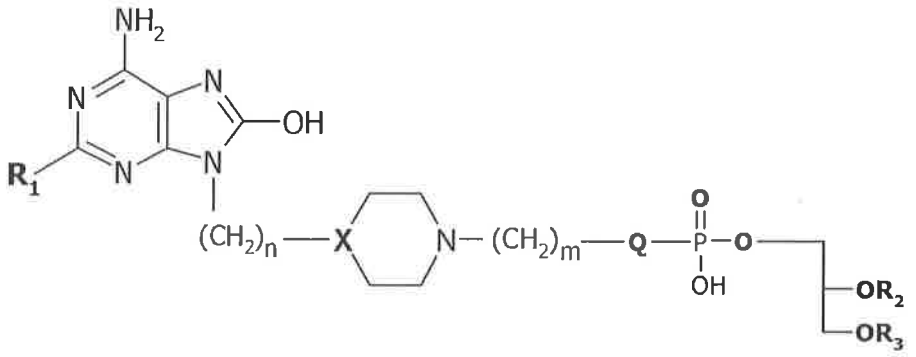
vaccine adjuvants that activate TLR7 and/or TLR8 is essential for improving the safety and efficacy of existing and new vaccines.

Summary

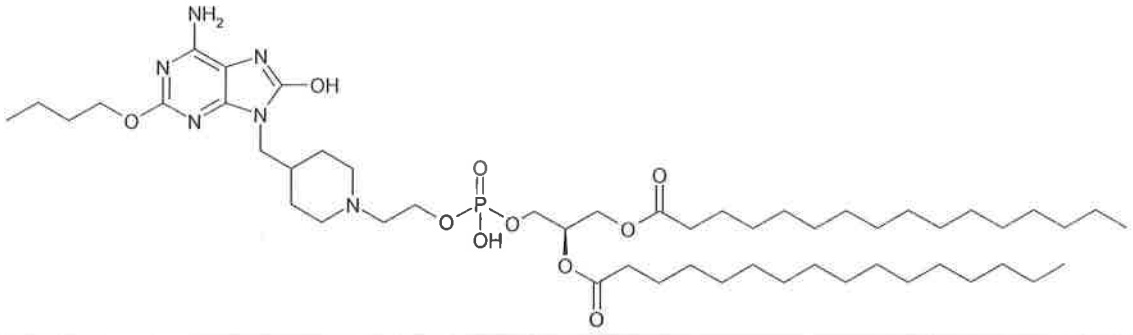
In accordance with one aspect, there is provided a compound according to the structure of Formula IX,

(IX)

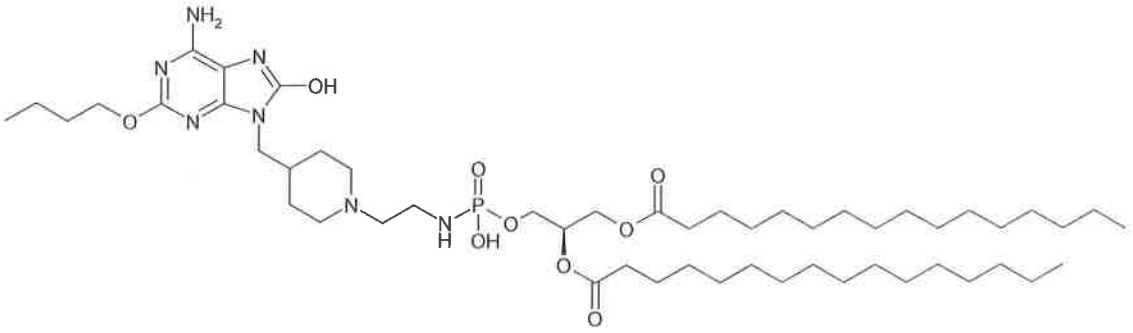


wherein R_1 is selected from the group consisting of C_{1-6}alkyl, C_{1-6}alkylamino, C_{1-6}alkoxy, C_{1-6}alkoxyC_{1-6}alkylamino, C_{1-6}alkoxyC_{1-6}alkoxy; **n** is 0 or an integer between 1-2; **X** is CH or N; **Q** is O, NH, or covalent bond; **m** is 0 or an integer from 1-2; R_2 is H or straight, branched, or unsaturated C_4-C_{24} alkyl or acyl, and R_3 is straight, branched or unsaturated C_4-C_{24} alkyl or acyl; or pharmaceutically acceptable salts thereof.

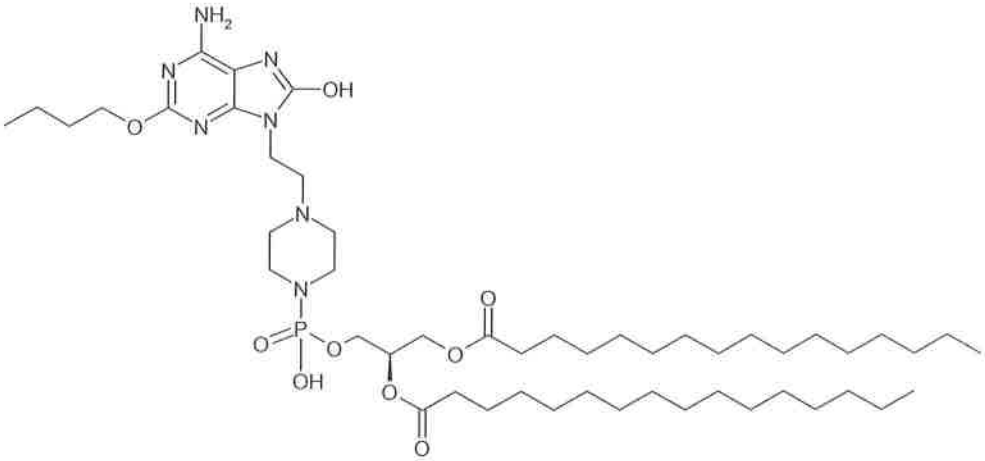
In accordance with another aspect, there is provided a compound selected from the group consisting of



(A1)

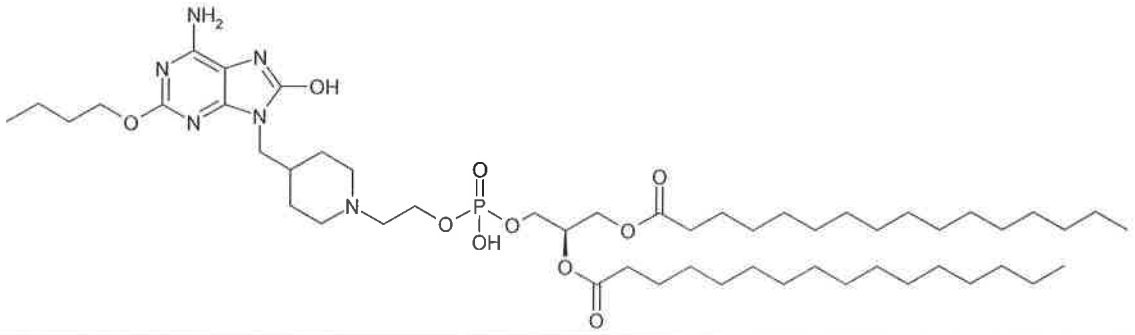


(A2),



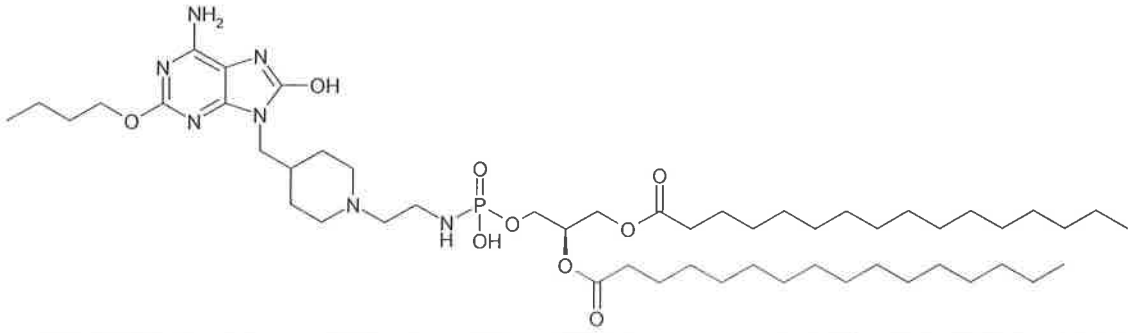
and (A3); or pharmaceutically acceptable salts thereof.

In accordance with another aspect, there is provided a compound according to the structure



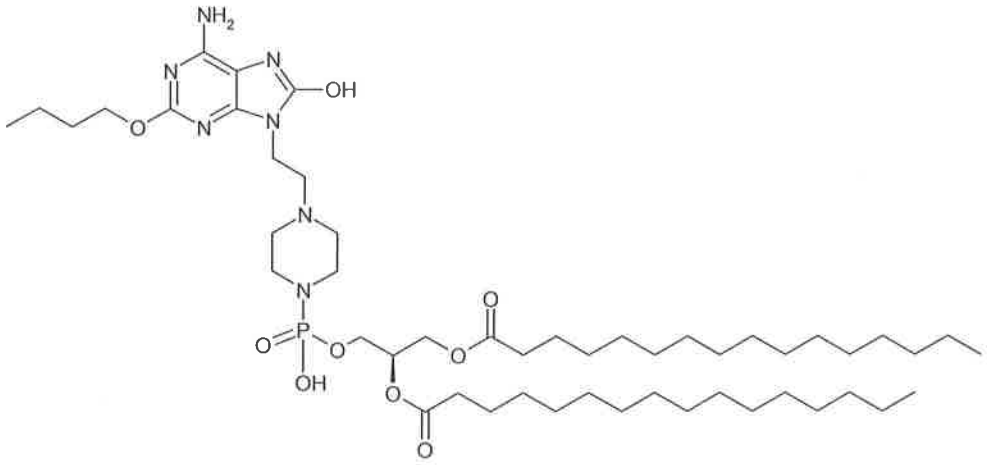
or pharmaceutically acceptable salts thereof.

In accordance with another aspect, there is provided a compound according to the structure



or pharmaceutically acceptable salts thereof.

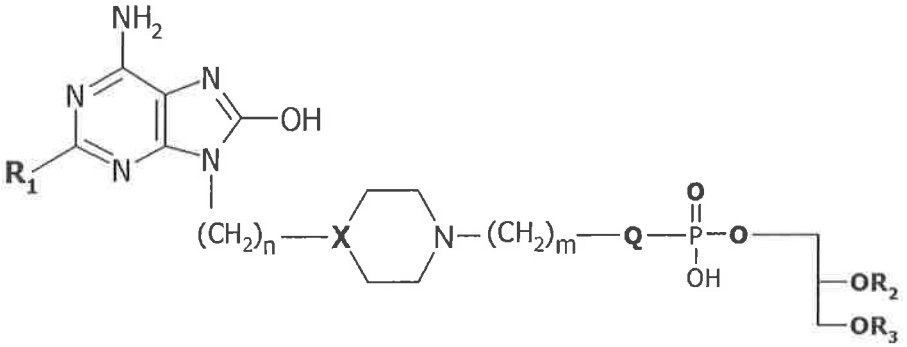
In accordance with another aspect, there is provided a compound according to the structure



or pharmaceutically acceptable salts thereof.

In accordance with another aspect, there is provided a compound according to the structure of Formula IX,

(IX)



wherein $\mathbf{R_1}$ is $C_{1\text{-}6}$alkoxy or $C_{1\text{-}6}$alkoxy$C_{1\text{-}6}$alkyl; **n** is 0 or an integer between 1-2; **X** is CH or N; **Q** is O, NH; **m** is 0 or an integer from 1-2; $\mathbf{R_2}$ is H or straight, branched, or unsaturated C_4-C_{24} alkyl or acyl, and R_3 is straight, branched or unsaturated C_4-C_{24} alkyl or acyl; or pharmaceutically acceptable salts thereof for use in manufacturing a medicament for inducing an innate immune response in a mammal.

In accordance with another aspect, there is provided a compound as

disclosed herein for use in a method of inducing an innate immune response, inducing a type 1 IFN response or enhancing pro-inflammatory cytokines.

In accordance with another aspect, there is provided a use of a compound as disclosed herein in the manufacture of a medicament for inducing an innate immune response in a mammal.

Brief Description of the Invention

Herein we describe novel lipidated oxoadenines comprising a nitrogen heterocyclyl-substituted oxoadenine molecule covalently linked to a phospho- or phosphonolipid in such a manner so as to facilitate uptake into immune cells and enhance endosomal TLR7/8 activation and antigen presentation when administered alone or in depot formulation with an antigen. Enhanced immune responses with compounds of the subject invention are possibly due to direct interaction of compounds of formula (I) with endosomal TLR7 and/or TLR8 or other molecular receptors and/or interaction of an active metabolite after enzymatic action with TLR7 and/or TLR8 or other molecular receptors.

The compounds of the invention have been shown to be inducers of interferon-α and other immunostimulatory cytokines and may possess an improved activity-toxicity profile in comparison to known cytokine inducers when used as adjuvants for vaccine antigens in the therapeutic or prophylactic treatment of infectious diseases and cancer. These compounds are also novel per se.

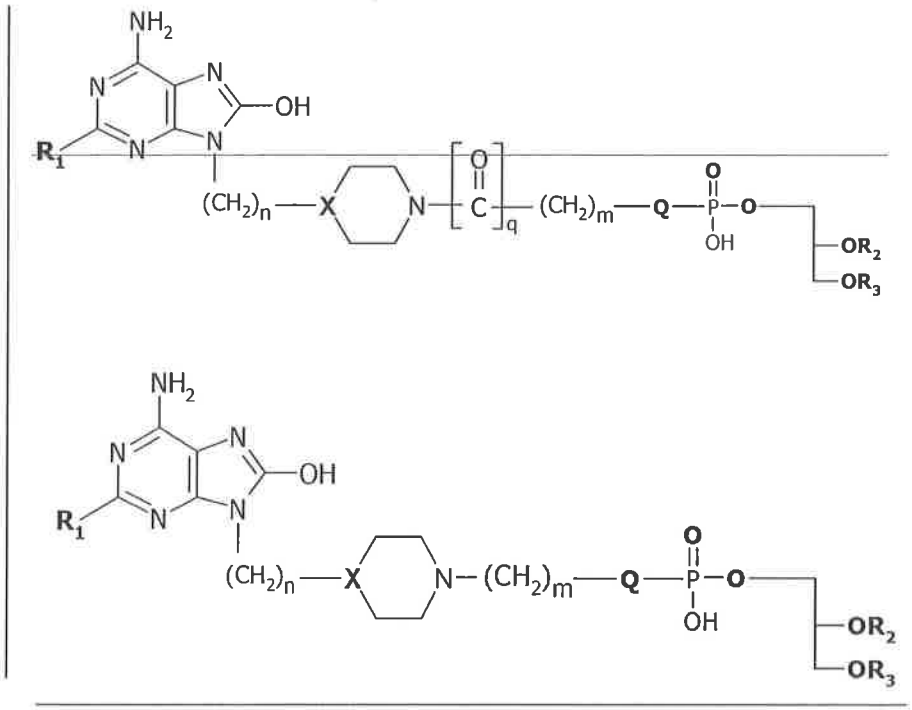
Detailed Description of Representative Embodiments

Throughout this application, references are made to various embodiments relating to compounds, compositions, and methods. The various embodiments described are meant to provide a variety of illustrative examples and should not

be construed as descriptions of alternative species. Rather it should be noted that the descriptions of various embodiments provided herein may be of overlapping scope. The embodiments discussed herein are merely illustrative and are not meant to limit the scope of the present invention.

1. A compound according to the structure of Formula IX,

(IX)



wherein

R_1 is selected from the group consisting of $C_{1\text{-}6}$alkyl, $C_{1\text{-}6}$alkylamino, $C_{1\text{-}6}$alkoxy, $C_{1\text{-}6}$alkoxy$C_{1\text{-}6}$alkylamino, $C_{1\text{-}6}$alkoxy$C_{1\text{-}6}$alkoxy;

n is 0 or an integer between 1-2;

X is CH or N ;

Q is O, NH, or covalent bond

m is 0 or an integer from 1-2;

~~q is 0~~

R_2 is H or straight, branched, or unsaturated C_4-C_{24} alkyl or acyl, and

R_3 is straight, branched or unsaturated C_4-C_{24} alkyl or acyl;

or pharmaceutically acceptable salts thereof.

2. The compound of claim 1 wherein

R_1 is C_{1-6}alkoxy or C_{1-6}alkoxyC_{1-6}alkyl

Q is O, NH

m is 0 or an integer from 1-2;

~~**q is 0;**~~

R_2 is H or straight, branched, or unsaturated C_4-C_{24} alkyl or acyl, and

R_3 is straight, branched or unsaturated C_4-C_{24} alkyl or acyl;

or pharmaceutically acceptable salts thereof.