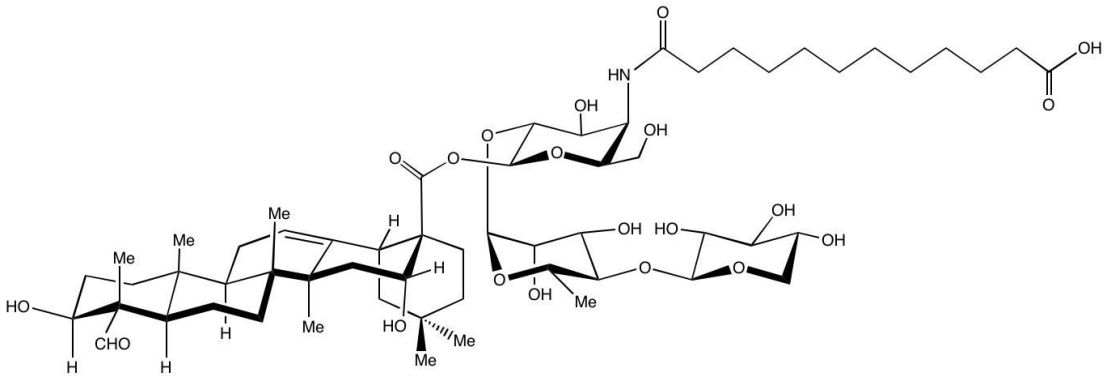
CLAIMS

1. A pharmaceutical composition comprising a compound of the formula



I)

or a pharmaceutically acceptable salt thereof.

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2. The pharmaceutical composition according to claim 1, further comprising an immunologically effective amount of an antigen associated with a bacteria or a virus.

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3. The pharmaceutical composition according to claim 2, wherein the antigen is an antigen associated with a bacteria or a virus causing a disease selected from the group consisting of Hepatitis B, pneumococcus, diphtheria, tetanus, pertussis, or Lyme disease including the closely related spirochetes of the genus Borrelia such as, B. burgdorferi, B. garinii, B. afzelli, and B. japonica.

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4. The pharmaceutical composition according to claim 2, wherein the antigen is associated with Hepatitis B virus.

5. The pharmaceutical composition according to claim 2, wherein the antigen is associated with pneumococcus bacterium.

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6. The pharmaceutical composition according to claim 2, wherein the antigen is associated with Corynebacterium diphtheria bacterium.

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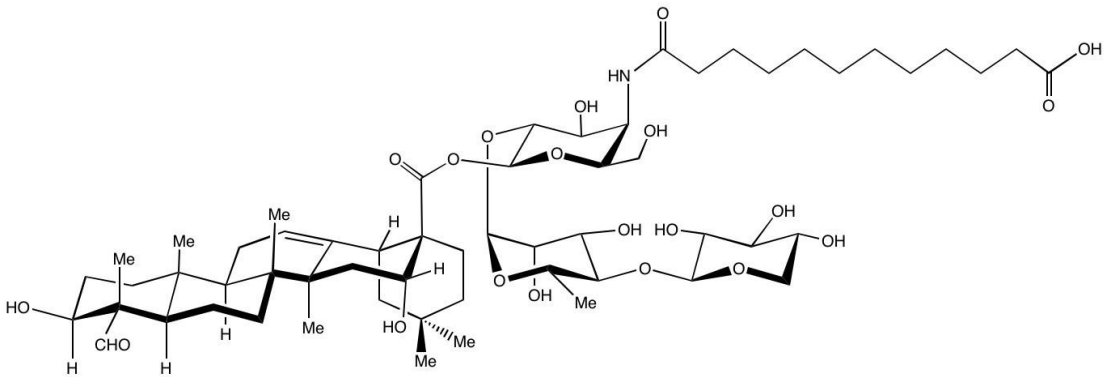
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7. The pharmaceutical composition according to claim 2, wherein the antigen is associated with Clostridium bacterium.

8. The pharmaceutical composition according to claim 2, wherein the antigen is associated with Bordetella pertussis bacterium.

9. The pharmaceutical composition according to claim 2, wherein the antigen is associated with a bacterium causing Lyme disease or a spirochete of the genus Borrelia selected from the group consisting of B. burgdorferi, B. garinii, B. afzelli, and B. japonica.

10. Use of compound of the formula



in the manufacture of a pharmaceutical composition or a pharmaceutically acceptable salt thereof for conferring resistance to an infection wherein the pharmaceutical composition or a pharmaceutically acceptable salt thereof is to be administered with an antigen associated with a bacterial or a virus.

11. The use according to claim 10, wherein the antigen is an antigen associated with a bacteria or a virus causing a disease selected from the group consisting of Hepatitis B, pneumococcus, diphtheria, tetanus, pertussis, or Lyme disease including the closely related spirochetes of the genus Borrelia such as, B. burgdorferi, B. garinii, B. afzelli, and B. japonica.

12. The use according to claim 10, wherein the antigen is associated with Hepatitis B virus.

13. The use according to claim 10, wherein the antigen is associated with pneumococcus bacterium.

14. The use according to claim 10, wherein the antigen is associated with Corynebacterium diphtheria bacterium.

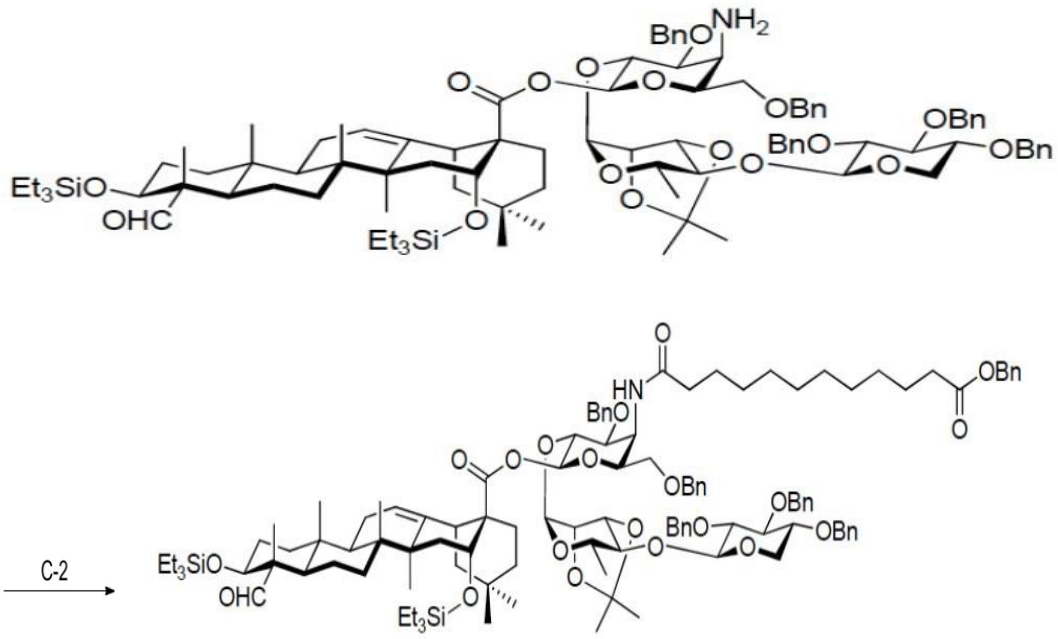
15. The use according to claim 10, wherein the antigen is associated with Clostridium bacterium.

16. The use according to claim 10, wherein the antigen is associated with Bordetella pertussis bacterium.

17. The use according to claim 10, wherein the antigen is associated with a bacterium causing Lyme disease or a spirochete of the genus Borrelia selected from the group consisting of B. burgdorferi, B. garinii, B. afzelli, and B. japonica.

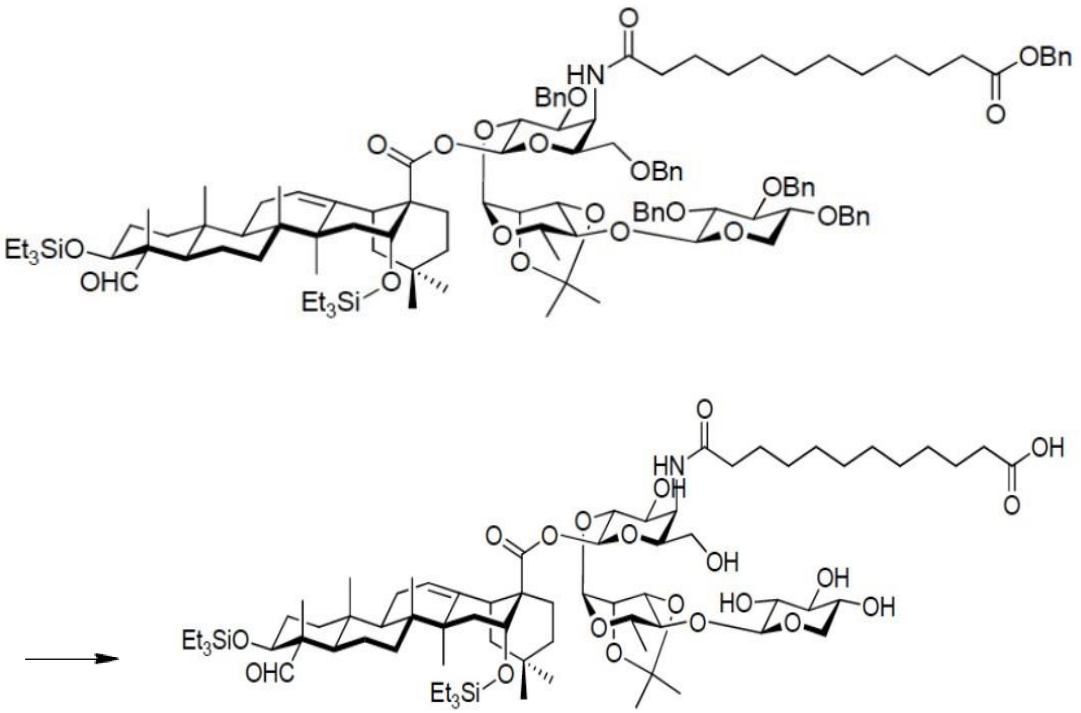
18. A method of synthesizing the pharmaceutical composition according to claim 1, or an intermediate thereof, said method comprising at least one of the following steps (a), (b), and (c):

(a)



wherein C-2 is OH-C(O)-(CH2)10-C(O)-OBn,

(b)



(c)

