Claims

1. A method for the preparation of a HPV vaccine composition comprising the following steps:
   (i) adsorption of one or more HPV antigen(s) on a metallic salt, and
   (ii) addition of a non adsorbed glycolipid based TLR4 ligand to the mixture obtained in (i).

2. The method according to claim 1, wherein the one or more HPV antigen(s) are selected from HPV late proteins L1, L2, chimeric L1 and chimeric L1/L2 proteins, preferably HPV L1 proteins

3. The method according to claim 2, wherein the one or more HPV antigen(s) are selected from HPV L1 VLPs (virus like particles).

4. The method according to claim 3, wherein the HPV L1 VLPs are produced in *E. coli*, yeast cells or in a baculovirus expression system.

5. The method according to claim 4, wherein the HPV L1 VLPs are produced in *E. coli*.

6. The method according to any one of the preceding claims, wherein each of the one or more HPV antigen(s) are from a HPV type selected from HPV types 6, 11, 16, 18, 26, 31, 33, 35, 39, 45, 51, 52, 53, 56, 58, 59, 67, 68, 70, 73 and 82, more preferably from HPV types 6, 11, 16, 18, 31, 33, 45, 52 and 58.

7. The method according to any one of the preceding claims, wherein the one or more HPV antigen(s) comprise HPV antigen(s) from HPV types 16 and 18.

8. The method according to any one of the preceding claims, wherein the one or more HPV antigen(s) comprise HPV antigen(s) from HPV types 6, 11, 16, and 18.

9. The method according to any one of the preceding claims, wherein the one or more HPV antigen(s) comprise HPV antigen(s) from HPV types 6, 11, 16, 18, 31, 33, 45, 52 and 58.

10. The method according to claim 9, wherein the one or more HPV antigen(s) further comprise HPV antigen(s) from HPV types 35, 39 and/or 59.

11. The method according to any one of the preceding claims, wherein the one or more HPV antigen(s) comprise L1 VLPs from HPV types 16 and 18.

12. The method according to any one of the preceding claims, wherein the one or more HPV antigen(s) comprise L1 VLPs from HPV types 6, 11, 16, and 18.

13. The method according to any one of the preceding claims, wherein the one or more HPV antigen(s) comprise or consist of L1 VLPs from HPV types 6, 11, 16, 18, 31, 33, 45, 52 and 58.

14. The method according to claim 13, wherein the one or more HPV antigen(s) further comprise L1 VLPs from HPV types 35, 39 and/or 59 L1 VLPs.

15. The method according to any one of the preceding claims, wherein the metallic salt comprises aluminum.

16. The method according to claim 15, wherein the metallic salt is selected from AlOOH, $AlPO_4$, $AlHO_9PS^{-3}$ and $AlHO_5P$.

17. The method according to any one of the preceding claims, wherein the glycolipid based TLR4 agonist is selected from MPL, GLA, SLA, OM-174, CCL-34, RC-529, PET-Lipid A, ONO-4007 and dLOS, preferably MPL.

18. The method according to any one of the preceding claims further comprising the step of adding a metallic salt to the HPV vaccine composition.

19. The method of any one of the preceding claims, wherein
    - the one or more HPV antigen(s) comprise or consist of L1 VLPs from HPV types 6, 11, 16, 18, 31, 33, 45, 52, and 58,
    - the metallic salt comprises aluminum, and
    - the glycolipid based TLR4 agonist is MPL.

20. A HPV vaccine composition obtained by the method of any one of the preceding claims.

21. The HPV vaccine composition of claim 20 wherein the metallic ion which is part of the metallic salt is Al^{3+} and the amount of Al^{3+} in the HPV vaccine composition is from 100 to 500 µg/dose.

22. The HPV vaccine composition of claim 20 or 21 wherein the glycolipid based TLR4 ligand is MPL and the amount of MPL in the HPV vaccine composition is from 10 to 50 µg/dose.

23. The HPV vaccine composition of claim 20, 21 or 22, wherein the ratio of glycolipid based TLR4 ligand:metallic salt in the HPV vaccine composition is from 1:2 to 1: 20.

24. The HPV vaccine of any one of claims 20 to 23 for use in therapy.

25. The HPV vaccine of any one of claims 20 to 23 for preventing or treating a HPV infection or associated disease in a subject.

~~26. A method of preventing or treating an infection or disease caused by HPV comprising the administration of an effective amount of the HPV vaccine of any one of claims 20 to 23to a patient in need thereof.~~