Claims

1. A process of conjugation of a carbohydrate comprising:

   Mixing 1-cyano-4-pyrrolidinopyridinium tetrafluorborate (CPPT) with the chemical compound to create an activated chemical compound; and

   mixing the activated compound with a second compound to create a conjugate.
2. The process of claim 1, wherein the chemical compound is a natural or synthetic carbohydrate, polysaccharide, oligosaccharide, or combination thereof.
3. The process of claim 1, wherein the second compound is a peptide, a polypeptide or a protein.
4. The process of claim 1, wherein the second compound is an antigenic molecule.
5. The process of claim 1, wherein conjugation is direct or indirect with the additional of functional groups that facilitate conjugation.
6. The process of claim 1, further comprising removing components with a lower molecular weight than the conjugate by dialysis, filtration, chromatography, or a combination thereof.
7. The process of claim 1, wherein the conjugate is a vaccine or a diagnostic agent.
8. The process of claim 1 where the steps are performed together.
9. The process of claim 1, further comprising including a linking compound between the activated compound and the second compound.
10. A vaccine or diagnostic agent produced by the process of claim 1.
11. A process of conjugation of a chemical compound comprising:

    Mixing 1-cyanoimidazole (1-CI) with the chemical compound to create an activated chemical compound; and

    mixing the activated compound with a second compound to create a conjugate.
12. The process of claim 11, wherein the chemical compound is a natural or synthetic carbohydrate, polysaccharide, oligosaccharide, or combination thereof.
13. The process of claim 11, wherein the second compound is a peptide, a polypeptide or a protein.
14. The process of claim 11, wherein the second compound is an antigenic molecule.
15. The process of claim 11, wherein conjugation is direct or indirect with the additional of functional groups that facilitate conjugation.

16. The process of claim 11, further comprising removing components with a lower molecular weight than the conjugate by dialysis, filtration, chromatography, or a combination thereof.
17. The process of claim 11, wherein the conjugate is a vaccine or a diagnostic agent.
18. The process of claim 11, wherein the steps are performed together.
19. The process of claim 11, further comprising including a linking compound between the activated compound and the second compound.
20. A vaccine or diagnostic agent produced by the process of claim 11.
21. A process of conjugation of a chemical compound comprising:

    Mixing 1-cyanobenzotriazole (1-CBT) with the chemical compound to create an activated chemical compound; and

    mixing the activated compound with a second compound to create a conjugate.
22. The process of claim 21, wherein the chemical compound is a natural or synthetic carbohydrate, polysaccharide, oligosaccharide, or combination thereof.
23. The process of claim 21, wherein the second compound is a peptide, a polypeptide or a protein.
24. The process of claim 21, wherein the second compound is an antigenic molecule.
25. The process of claim 21, wherein conjugation is direct or indirect with the additional of functional groups that facilitate conjugation.
26. The process of claim 21, further comprising removing components with a lower molecular weight than the conjugate by dialysis, filtration, chromatography, or a combination thereof.
27. The process of claim 21, wherein the conjugate is a vaccine or a diagnostic agent.
28. The process of claim 21, wherein the steps are performed together.
29. The process of claim 21, further comprising including a linking compound between the activated compound and the second compound.
30. A vaccine or diagnostic agent produced by the process of claim 21.
31. A process of conjugation of a chemical compound comprising:

    Mixing 2-cyanopyridazine-3(2H)one (2-CPO) with the chemical compound to create an activated chemical compound; and

    mixing the activated compound with a second compound to create a conjugate.
32. The process of claim 31, wherein the chemical compound is a natural or synthetic carbohydrate, polysaccharide, oligosaccharide, or combination thereof.

33. The process of claim 31, wherein the second compound is a peptide, a polypeptide or a protein.
34. The process of claim 31, wherein the second compound is an antigenic molecule.
35. The process of claim 31, wherein conjugation is direct or indirect with the additional of functional groups that facilitate conjugation.
36. The process of claim 31, further comprising removing components with a lower molecular weight than the conjugate by dialysis, filtration, chromatography, or a combination thereof.
37. The process of claim 31, wherein the conjugate is a vaccine or a diagnostic agent.
38. The process of claim 31, wherein the steps are performed together.
39. The process of claim 31, further comprising including a linking compound between the activated compound and the second compound.
40. A vaccine or diagnostic agent produced by the process of claim 31.

Claims

1. A process of conjugation of a carbohydrate comprising:

   mixing 1-cyano-4-pyrrolidinopyridinium tetrafluorborate (CPPT) with the carbohydrate to create an activated chemical compound; and

   mixing the activated compound with a second compound to create a conjugate.
2. The process of claim 1, wherein the carbohydrate is a natural or synthetic carbohydrate, polysaccharide, oligosaccharide, or combination thereof.
3. The process of claim 1, wherein the second compound is a peptide, a polypeptide or a protein.
4. The process of claim 1, wherein the second compound is an antigenic molecule.
5. The process of claim 1, wherein conjugation is direct or indirect with the additional of functional groups that facilitate conjugation.
6. The process of claim 1, further comprising removing components with a lower molecular weight than the conjugate by dialysis, filtration, chromatography, or a combination thereof.
7. The process of claim 1, wherein the conjugate is a vaccine or a diagnostic agent.
8. The process of claim 1 where the steps are performed together.
9. The process of claim 1, further comprising including a linking compound between the activated compound and the second compound.
10. A vaccine or diagnostic agent produced by the process of claim 1.