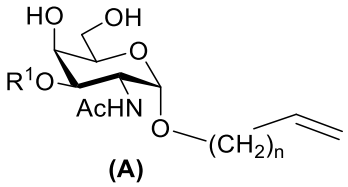
CLAIMS

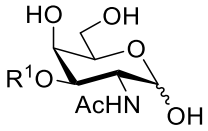
1. A process for synthesizing a reactive carbohydrate of Formula (A)



(A)

where R^1 is H and n is an integer from 1 to 5,

comprising adding a compound of Formula (A_0)



(A_0)

to a solution comprising HO-$(CH_2)_n$-CH=CH_2 and acetyl chloride at a mixing temperature from about 0 °C to about 25 °C resulting in an intermediate reaction mixture at low temperature comprising the compound of Formula (A_0), HO-$(CH_2)_n$-CH=CH_2 and HCl,

heating the intermediate reaction mixture with a heat source at a temperature of from about 60°C to about 80 °C, and

cooling the reaction mixture to obtain a cooled mixture comprising the compound of Formula (A).

2. The process of claim 1, wherein the mixing temperature is about 10 °C to about 25 °C.

3. The process of claim 1, wherein the mixing temperature is about 10 °C to about 20 °C.

4. The process of any one of claims 1 to 3, wherein the solution comprising HO-$(CH_2)_n$-CH=CH_2 and acetyl chloride is prepared at a temperature of about 0 °C under inert atmosphere.

5. The process of any one of claims 1 to 4, wherein the heating is performed at a reaction temperature from about 60 °C to about 80 °C for a reaction time of from about 30 minutes to 5 hours.

6. The process of claim 5, wherein the reaction temperature is about 70 °C.

7. The process of claim 5 or 6, wherein the reaction time is from about 30 min to about 1 hour.

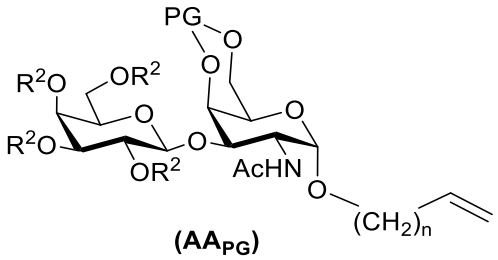
8. The process of any one of claims 5 to 7, wherein the reaction time is from about 30 min to about 45 min.

9. The process of any one of claims 5 to 8, wherein the reaction time is about 30 min.

10. The process of any one of claims 1 to 9, further comprising neutralizing the cooled mixture.

11. The process of any one of claims 1 to 10, further comprising isolating the compound of Formula (A).

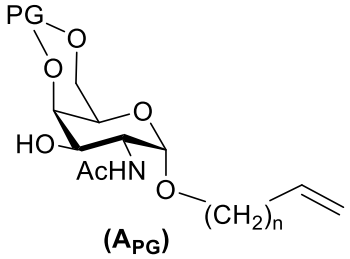
12. A process for synthesizing a reactive carbohydrate of Formula (AA_{PG})



(AA_{PG})

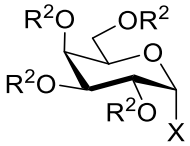
where R^2 is a monovalent protecting group, PG is a divalent protecting group and n is an integer from 1 to 5,

comprising reacting, in the presence of a metal-containing zeolite, a compound of Formula (A_{PG})



(A_{PG})

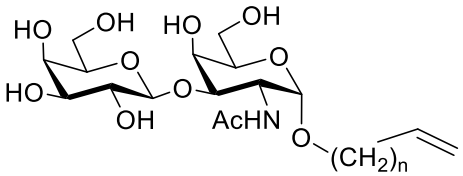
with a compound of Formula (A_1)



(A_1)

where X is -I, -Br, -Cl, -CN, -OTf (Triflate), -OMs (Mesylate), -OTs (Tosylate), methylsulfate, or trichloroacetimidate.

13. A process for synthesizing a reactive carbohydrate of Formula (AA)

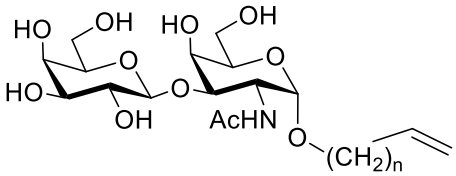


(AA)

where n is an integer from 1 to 5,

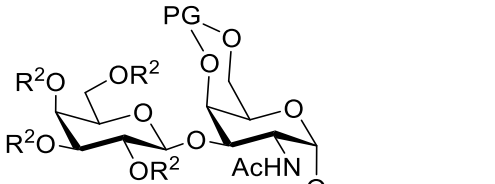
comprising deprotecting the compound of Formula (AA_{PG}) obtained by the process of claim 12.

14. A process for synthesizing a reactive carbohydrate of Formula (AA)



(AA)

comprising a deprotection a compound of Formula (AA_{PG})

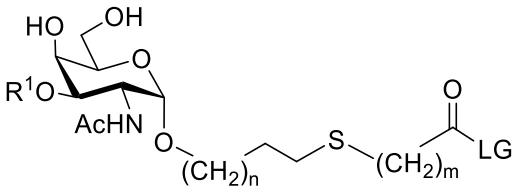


(AA_{PG})

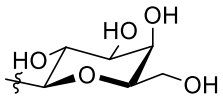
where n is an integer from 1 to 5, R^2 is a monovalent protecting group, and PG is a divalent protecting group,

the deprotection comprising reacting the compound of Formula (AA_{PG}) with a basic solution to form an intermediate crude product, and then treating the intermediate crude product with an acidic solution.

15. A process for synthesizing a reactive carbohydrate of Formula (B) or Formula (BB)

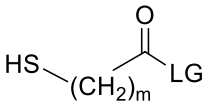


(B): R^1 is H

(BB): R^1 is 

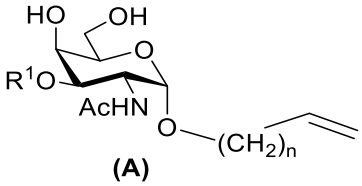
where n is an integer from 1 to 5, m is an integer from 1 to 5 and LG is a leaving group enabling an amido bond formation when the compound of Formula (B) or (BB) is reacted with an amino group,

comprising reacting a compound of Formula (C)



(C)

with a compound of Formula (A)

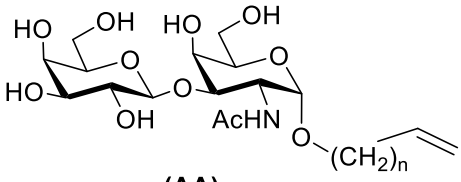


(A)

where R^1 is H, to form the compound of Formula (B)

or

with a compound of Formula (AA)

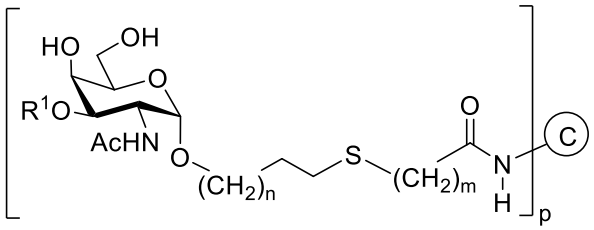


(AA)

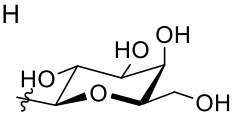
to form the compound of Formula (BB).

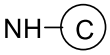
16. The process of claim 15, wherein the compound of Formula (A) is obtained by the process of any one of claims 1 to 11 and the compound of Formula (AA) is obtained by the process of claim 12.

17. A process for preparing a glycoconjugate of Formula (I) or (II)



(I): R^1 = H

(II): R^1 = 

where n is an integer from 1 to 5, m is an integer from 1 to 5, p is an integer from 1 to 50 and 

is a carrier material containing at least one amino group available for conjugation, comprising conjugating at least one free amino group of the carrier material with a compound of Formula (B) to form the glycoconjugate of Formula (I) or with a compound of Formula (BB) to form the glycoconjugate of Formula (I), wherein the compounds of Formula (B) and (BB) are obtained by the process of claim 15 or 16.

18. The process of claim 17, wherein the carrier material comprises a protein, polypeptide or peptide.

19. The process of any one of claims 1 to 18, wherein n is an integer from 1 to 3.

20. The process of any one of claims 1 to 19, wherein n is 1.