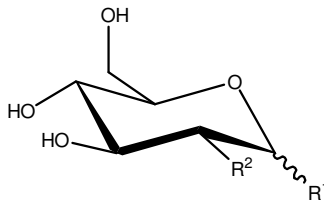
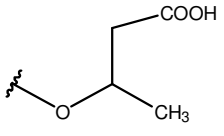
CLAIMS

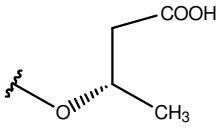
1. A compound of formula:

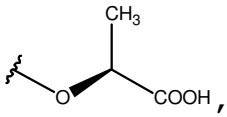
(A)

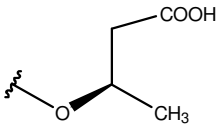


or a salt thereof,

wherein R^1 is 

, 

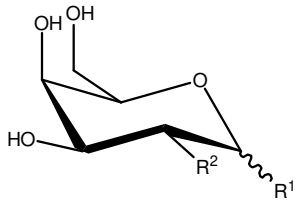
, 

, or 

; and

R^2 is –OH; or

(B)



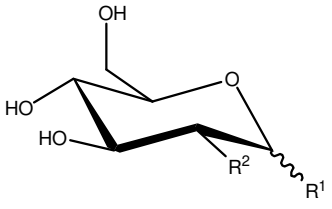
or a salt thereof,

wherein R^1 is $-OC(H)(X)(CH_2)_nC(=O)OH$;

R^2 is –OH;

X is $-CH_3$ or $CH_2C(=O)OH$; and
n is 0 or 1.

2. The compound of claim 1 or a salt thereof, wherein the compound is



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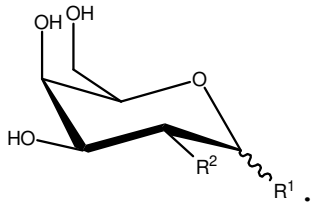

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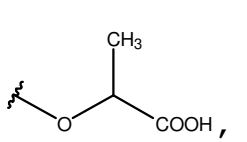
3. The compound of any one of claims 1–2 or a salt thereof, wherein the α/β anomer ratio of the compound is 1:1 to 99:1, or the α/β anomer ratio of the compound is greater than 99:1.

4. The compound of any one of claims 1–2 or a salt thereof, wherein in compound (B) R^1 is



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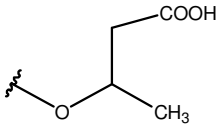

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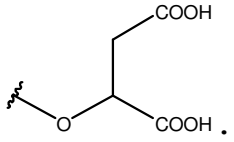

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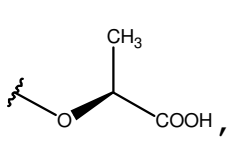
5. The compound of claim 4 or a salt thereof, wherein R^1 is



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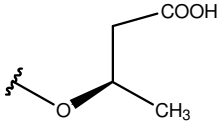

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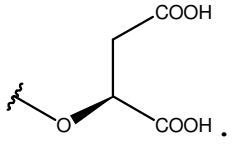

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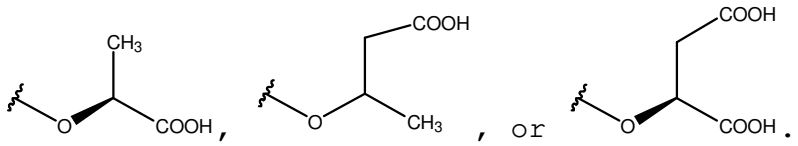
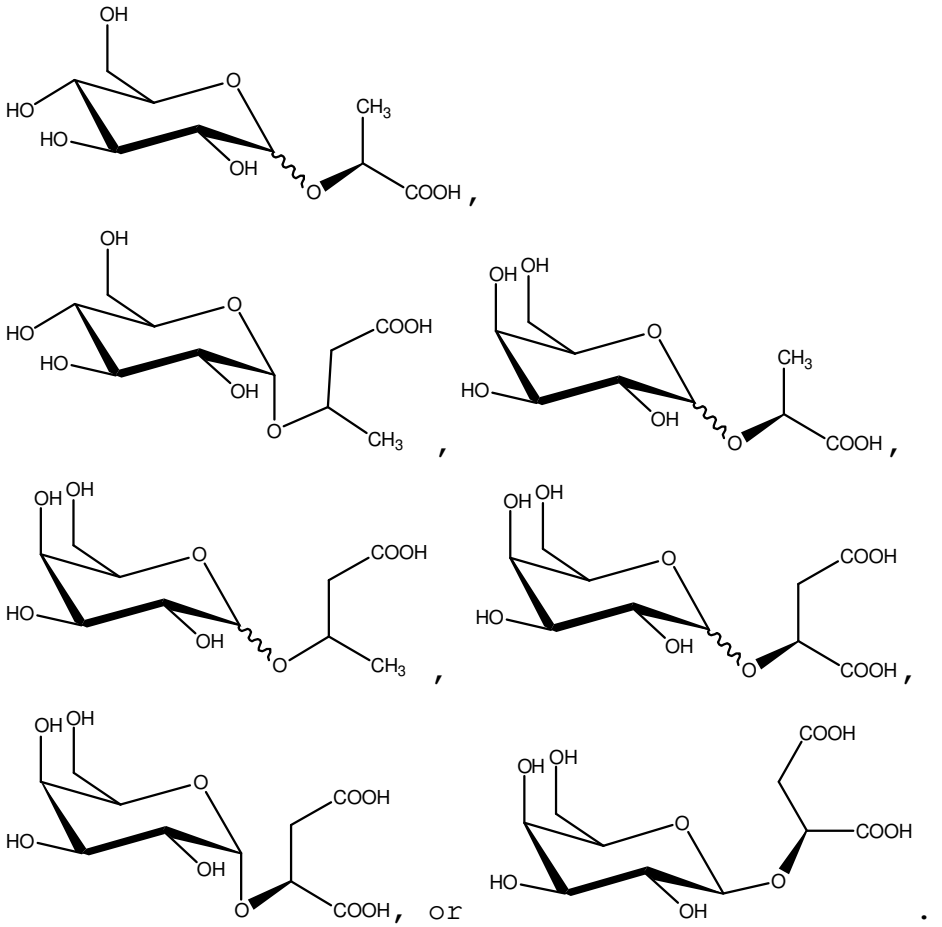
6. The compound of claim 4 or a salt thereof, wherein R^1 is



7. The compound any one of claims 1–2 or a salt thereof, wherein R^2 is –OH.

8. The compound of claim 1 or a salt thereof, wherein the compound is



9. A composition comprising at least one compound of any one of claims 1–2, or a salt thereof, and a biological material selected from the group consisting of a nucleic acid, a

polypeptide, a whole cell, a cell membrane, a cell component, a virus, a liposome, a tissue, and a mixture of any of the foregoing, the composition further comprising or not comprising a buffer.

10. The composition of claim 9, wherein the biological material is a polypeptide, an enzyme, an antibody, a plasma protein, or a hormone, insulin, malate dehydrogenase, staphylococcal nuclease, lysozyme, or a recombinant polypeptide.

11. A method of stabilizing a biological material, comprising adding at least one compound of any one of claims 1–2, or a salt thereof, to a solution containing the biological material selected from the group consisting of a nucleic acid, a polypeptide, a whole cell, a cell membrane, a cell component, a virus, a liposome, a tissue, and a mixture of any of the foregoing to form a stabilized solution, the method further comprising or not comprising a step of drying the stabilized solution.

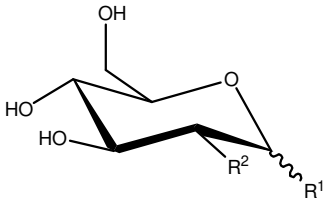
12. The method of claim 11, wherein the biological material is a polypeptide, an enzyme, an antibody, a plasma protein, or a hormone, insulin, malate dehydrogenase, staphylococcal nuclease, lysozyme, or a recombinant polypeptide.

13. The compound of any one of claims 1–2, or a salt thereof, for stabilizing a biological material selected from the group consisting of a nucleic acid, a polypeptide, a whole cell, a cell membrane, a cell component, a virus, a liposome, a tissue, and a mixture of any of the foregoing.

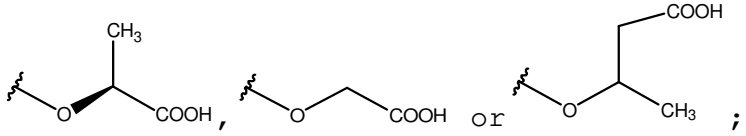
14. A diagnostic kit comprising a compound of any one of claims 1-2, or a salt thereof.

15. The diagnostic kit of claim 14, comprising a microarray, a biosensor, or an enzymatic preparation.

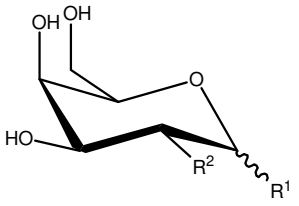
16. A method of stabilizing a biological material, comprising adding to a solution containing the biological material at least one compound of the formula (A) or (B):

(A)  or a salt thereof,

wherein R^1 is

 ;

R^2 is -OH;

(B)  or a salt thereof,

wherein R^1 is $-OC(H)(X)(CH_2)_nC(=O)OH$;

R^2 is -OH;

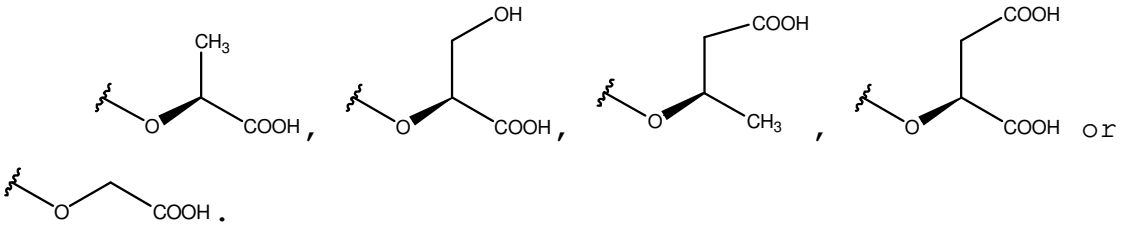
X is $-CH_3$, $-CH_2OH$, or $CH_2C(=O)OH$; and

n is 0 or 1,

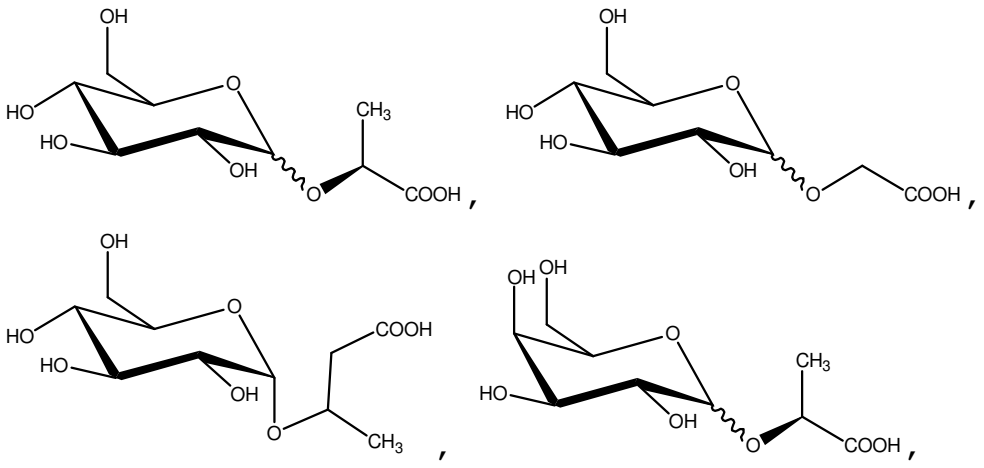
so as to thereby form a stabilized solution of the biological material.

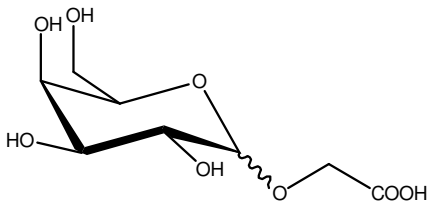
17. The method of claim 16 wherein the α/β anomer ratio of the compound is 1:1 to 99:1, or the α/β anomer ratio of the compound is greater than 99:1.

18. The method of claim 16 wherein in compound (B) R^1 is



19. The method of claim 16, wherein the compound is





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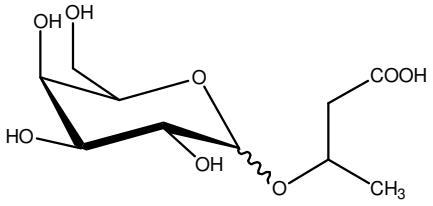

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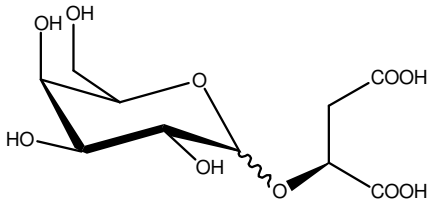

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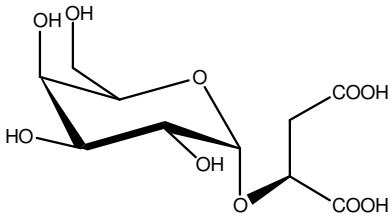

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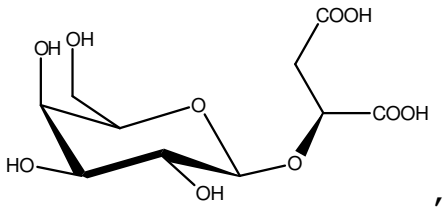


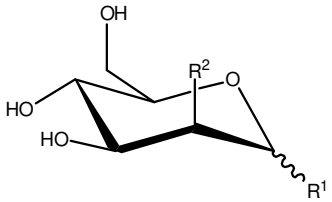
,

or a salt thereof.

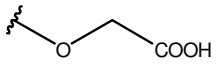
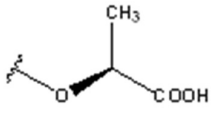
20. The method of claim 16, further comprising a step of drying the stabilized solution.

21. The method of claim 16, wherein the biological material is a polypeptide, an enzyme, an antibody, a plasma protein, a hormone, insulin, malate dehydrogenase, staphylococcal nuclease or lysozyme.

22. A method of stabilizing a biological material, comprising adding to a solution containing the biological material at least one compound of the following formula or a salt thereof,



wherein

R^1 is  or ; and

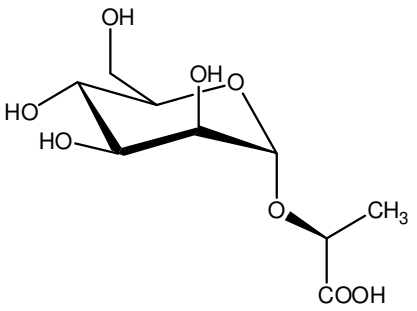
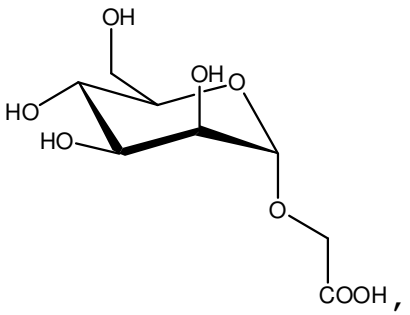
R_2 is OH,

so as to thereby form a stabilized solution of the biological material,

wherein the biological material is an antibody, a plasma protein, a hormone or insulin.

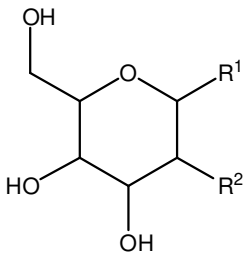
23. The method of claim 22, wherein the biological material is insulin.

24. The method of claim 22, wherein the compound is

 or ,

or a salt thereof.

25. A method of stabilizing a biological material, comprising adding to a solution containing the biological material at least one compound of the formula I:

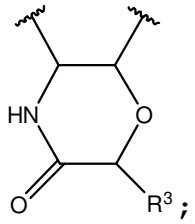


Formula I

or a salt thereof,

wherein:

R^1 and R^2 together with the carbon atoms to which they are attached form

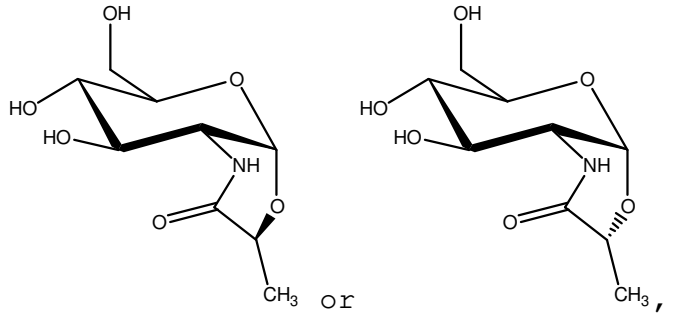


R^3 is –H, $-CH_3$, $-CH_2C(=O)OH$, or $-CH_2OH$;

X is –H, $-CH_3$, $-CH_2OH$, or $CH_2C(=O)OH$; and

n is 0 or 1.

26. The method of claim 25, wherein the compound is



or a salt thereof.

27. The method of claim 25 or 26, wherein the biological material is a polypeptide, an enzyme, an antibody, a plasma protein, a hormone, insulin, malate dehydrogenase, staphylococcal nuclease or lysozyme.