

WHAT IS CLAIMED IS:

1. A bifunctional molecule comprising:
a first moiety that specifically binds a cell surface molecule or extracellular molecule, wherein the first moiety is selected from an antibody, an antigen, a ligand, and a small molecule; and
a second moiety comprising a polymer scaffold that displays one or more mannose-6-phosphate (M6P) analogs that specifically binds a mannose-6-phosphate receptor (M6PR),
wherein the first moiety and the second moiety are covalently attached via a linker.
2. The bifunctional molecule of claim 1, wherein the first moiety specifically binds a cell surface molecule.
3. The bifunctional molecule of claim 2, wherein the cell surface molecule is a cell surface receptor.
4. The bifunctional molecule of claim 1, wherein the first moiety specifically binds an extracellular molecule.
5. The bifunctional molecule of claim 4, wherein the extracellular molecule is a ligand for a cell surface receptor.
6. The bifunctional molecule of claim 5, wherein the extracellular molecule is a growth factor, a cytokine, or a chemokine.
7. The bifunctional molecule of claim 4, wherein the extracellular molecule is an autoantibody and the first moiety is an antigen for the autoantibody.
8. The bifunctional molecule of claim 4, wherein the extracellular molecule is selected from a secreted protein that accumulates in disease, a cholesterol carrier, an infectious disease toxin, an infectious particle, a clotting factor, a chemokine or cytokine, a proteinaceous

hormone, a proteinaceous mediator of a mood disorder, a proteinaceous mediator of energy homeostasis, a proteinaceous allergen present in the bloodstream or an antibody against such an allergen, and a proteinaceous toxin.

9. The bifunctional molecule of claim 4, wherein the extracellular molecule is an antibody.

10. The bifunctional molecule of claim 1, wherein the first moiety is a small molecule.

11. The bifunctional molecule of claim 1, wherein the first moiety is a protein antigen or protein ligand.

12. The bifunctional molecule of claim 11, wherein the one or more M6P analogs comprise one or more mannose-6-phosphonates (M6Pn).

13. The bifunctional molecule of claim 11, wherein the second moiety is a glycoprotein comprising one or more amino acids functionalized with the M6P analogs.

14. The bifunctional molecule of claim 1, wherein the first moiety is an antibody.

15. The bifunctional molecule of claim 14, wherein the antibody is an IgG, single chain Fv (scFv), Fab, (Fab)₂, (scFv')₂, or nanobody.

16. The bifunctional molecule of claim 1, wherein the one or more M6P analogs comprise one or more mannose-6-phosphonates (M6Pn).

17. The bifunctional molecule of claim 16, wherein the second moiety is a glycoprotein comprising one or more amino acids functionalized with the one or more M6Pn.

18. A bifunctional protein conjugate comprising:
a first moiety comprising a protein that specifically binds a cell surface molecule or an extracellular molecule; and

a second moiety comprising a polymer scaffold that displays one or more mannose-6-phosphate (M6P) analogs that specifically bind a mannose-6-phosphate receptor (M6PR),
wherein the first moiety and the second moiety are conjugated via a linker.

19. The bifunctional protein conjugate of claim 18, wherein the first moiety specifically binds the extracellular molecule.

20. The bifunctional protein conjugate of claim 19, wherein the extracellular molecule is an antibody, and the first moiety comprises a protein antigen of the antibody.

21. The bifunctional protein conjugate of claim 20, wherein the extracellular molecule is an autoantibody.

22. The bifunctional protein conjugate of claim 18, wherein the first moiety specifically binds the cell surface molecule.

23. The bifunctional protein conjugate of claim 18, wherein the first moiety is an antibody, a protein antigen, or a protein ligand.

24. The bifunctional protein conjugate of claim 18 wherein each of the one or more M6P analogs comprise a 6-phosphonate group.

25. The bifunctional protein conjugate of claim 24, wherein the second moiety is a glycoprotein comprising one or more amino acids functionalized with one or more mannose-6-phosphonates (M6Pn).

26. The bifunctional protein conjugate of claim 25, wherein the one or more M6P analogs comprise one or more mannose-6-phosphonates (M6Pn).

27. The bifunctional protein conjugate of claim 18, wherein the first moiety is an antibody.

28. The bifunctional protein conjugate of claim 27, wherein each of the M6P analogs comprise a phosphonate group.

29. The bifunctional protein conjugate of claim 28, wherein the second moiety is a glycoprotein comprising one or more amino acids functionalized with one or more mannose-6-phosphonates (M6Pn).

30. The bifunctional protein conjugate of claim 18, wherein the first moiety is a protein ligand.

31. The bifunctional protein conjugate of claim 30, wherein each of the M6P analogs comprise a 6-phosphonate group.

32. The bifunctional protein conjugate of claim 31, wherein the second moiety is a glycoprotein comprising one or more amino acids functionalized with one or more mannose-6-phosphonates (M6Pn).

33. The bifunctional protein conjugate of claim 18, wherein the first moiety is a protein antigen.

34. The bifunctional protein conjugate of claim 33, wherein each of the M6P analogs comprise a 6-phosphonate group.

35. The bifunctional protein conjugate of claim 34, wherein the second moiety is a glycoprotein comprising one or more amino acids functionalized with one or more mannose-6-phosphonates (M6Pn).