WHAT IS CLAIMED IS:

1. A method for identifying a protein-protein interaction, the method comprising:

(a) providing a collection of target polypeptides that are immobilized on one or more solid surfaces;

(b) contacting the collection of step (a) with a biological vesicle (BV) comprising a heterologous membrane-associated protein and a membrane-budding agent under conditions permitting the binding of the heterologous membrane-associated protein and at least one of the target polypeptides, wherein the heterologous membrane-associated protein is expressed at or above a threshold level on the surface of the BV; and

(c) detecting an interaction between the heterologous membrane-associated protein and the at least one target polypeptide, thereby identifying a protein-protein interaction.

2. The method of claim 1, wherein one or more of the target polypeptides is immobilized to a distinct location on the one or more solid surfaces, and wherein detecting an interaction comprises detecting a signal at a location on the solid surface that is above a threshold level.

3. The method of claim 1, wherein the membrane-budding agent is selected from the group consisting of a HIV gag protein, Acyl.Hrs, ARRDC1, and ARF6.

4. The method of any one of claims 1-3, wherein the interaction is a transient interaction or a low-affinity interaction.

5. The method of any one of claims 1-4, wherein:

(i) the heterologous membrane-associated protein is a full-length protein; or

(ii) the heterologous membrane-associated protein comprises a protein fragment, a tag, and an anchor.

6. The method of claim 5, wherein the anchor is a glycosylphosphatidyl-inositol (GPI) polypeptide and/or the tag is a glycoprotein D (gD) polypeptide.

7. A BV comprising (a) a heterologous membrane-associated protein comprising a protein fragment, a tag, and an anchor, wherein the heterologous membrane-associated protein is present on the outer face of the BV and (b) a membrane-budding agent.

8. The BV of claim 7, wherein the BV is produced by a process comprising (i) providing a parent cell that has been modified to express the heterologous membrane-associated protein and the membrane-budding agent and (ii) isolating the BV from the parent cell.

9. The BV of claim 7 or 8, wherein the membrane-budding agent is selected from the group consisting of a HIV gag protein, Acyl.Hrs, ARRDC1, and ARF6.

10. The BV of any one of claims 7-9, wherein the anchor is a GPI polypeptide and/or the tag is a gD polypeptide.

11. A method of identifying a modulator of the interaction between a protein of Table 1 and a protein of Table 2, the method comprising:

(a) providing a candidate modulator;

(b) contacting a protein of Table 1 with a protein of Table 2 in the presence or absence of the candidate modulator under conditions permitting the binding of the protein of Table 1 to the protein of Table 2, wherein the protein of Table 1 and the protein of Table 2 are reported to interact in Table 3; and

(c) measuring the binding of the protein of Table 1 to the protein of Table 2, wherein an increase or decrease in binding in the presence of the candidate modulator relative to binding in the absence of the candidate modulator identifies the candidate modulator as a modulator of the interaction between the protein of Table 1 and the protein of Table 2.

12. A method for identifying a biological vesicle (BV) having an altered binding profile, the method comprising:

(a) providing a collection of target polypeptides that are immobilized on one or more solid surfaces;

(b) contacting the collection of step (a) with a BV of interest;

(c) detecting an interaction between the BV of interest and the at least one target polypeptide, thereby identifying an interaction profile; and

(d) comparing the interaction profile of the BV of interest to the interaction profile of a control BV, wherein a difference between the interaction profile of the BV of interest and the interaction profile of the control BV identifies the BV of interest as one having an altered binding profile.

13. The method of claim 12, wherein the BV of interest is derived from a sample from a subject.

14. The method of claim 13, wherein the BV of interest and the control BV are derived from different tissues or different cell types.

15. The method of claim 13, wherein the BV of interest is derived from a diseased tissue and the control BV is derived from healthy tissue.

16. A method of identifying a modulator of the interaction between a protein of Table 5 and a protein of Table 6, the method comprising:

(a) providing a candidate modulator;

(b) contacting a protein of Table 5 with a protein of Table 6 in the presence or absence of the candidate modulator under conditions permitting the binding of the protein of Table 5 to the protein of Table 6, wherein the protein of Table 5 and the protein of Table 6 are reported to interact in Table 7; and

(c) measuring the binding of the protein of Table 5 to the protein of Table 6, wherein an increase or decrease in binding in the presence of the candidate modulator relative to binding in the absence of the

candidate modulator identifies the candidate modulator as a modulator of the interaction between the protein of Table 5 and the protein of Table 6.

17. A method for characterizing an interaction profile of a cell line that has been modified to comprise a membrane-budding agent, the method comprising characterizing an interaction profile of a BV produced by the cell line.

18. A method for identifying a change in the interaction profile of a cell line that has been modified to comprise a membrane-budding agent, the method comprising:

(a) characterizing an interaction profile of a BV produced by the cell line at a first time point;

(b) characterizing an interaction profile of a BV produced by the cell line at a second time point; and

(c) comparing the interaction profile of the BV produced at the first time point to that of the BV produced at the second time point, wherein a difference between the interaction profile of the BV produced at the first time point and that of the BV produced at the second time point identifies a change in the interaction profile of the cell line.

19. The method of claim 18, wherein the method comprises exposing the cell line to a stimulus following the first time point and before the second time point.

20. A method for identifying a difference in the interaction profiles of two cell lines that have been modified to comprise a membrane-budding agent, the method comprising:

(a) characterizing an interaction profile of a BV produced by the first cell line;

(b) characterizing an interaction profile of a BV produced by the second cell line; and

(c) comparing the interaction profile of the BV produced at the first cell line to that of the BV produced by the second cell line, wherein a difference between the interaction profile of the BV produced by the first cell line and that of the BV produced by the second cell line identifies a difference in the surface protein profiles of two cell lines.

21. The method of any one of claims 1-6, wherein the BV is produced by a process comprising (i) providing a parent cell line that has been modified to express the membrane-budding agent under inducible control; (ii) inducing expression of the membrane-budding agent, and (iii) isolating the BV from the parent cell line.