CLAIMS

1. A method of identifying a cell which produces:

(i) an antibody or antibody mimetic, and

(ii) a target polypeptide to which the antibody or antibody mimetic specifically binds,

the method comprising the steps:

(a) expressing a library of antibodies or antibody mimetics in a population of mammalian cells, wherein each antibody or antibody mimetic is secreted from the cell in the population of mammalian cells in which it is produced, wherein the target polypeptide is expressed within each cell in the population of mammalian cells, wherein the target polypeptide is displayed on the outer surface of each cell in the population of mammalian cells and wherein the target polypeptide is an integrated membrane protein;

(b) isolating cells within the population of mammalian cells ~~to~~ on which the CDR sequences of the secreted antibodies or antibody mimetics are specifically bound to the target polypeptide, wherein the cells are isolated after a time point when the antibodies or antibody mimetics may only be specifically bound to target polypeptides which are displayed on cells from which the antibodies or antibody mimetics have been secreted; and

(c) sequencing all or part of the polynucleotide sequences in the isolated cells which encode the antibodies or antibody mimetics which specifically bind to the target polypeptide.

2. A method as claimed in claim 1, wherein the target polypeptide is expressed within each cell in the population of cells from an expression construct.

3. A method as claimed in any one of the preceding claims, wherein the target polypeptide is an immune checkpoint molecule.

4. A method as claimed in any one of the preceding claims, wherein the mammalian cells are selected from the group consisting of those from any organ or tissue from humans, mice, rats, hamsters, monkeys, rabbits, donkeys, horses, sheep, cows and apes, preferably human cells.

5. A method as claimed in any one of the preceding claims, wherein the antibody is an scFV antibody.

6. A method as claimed in any one of the preceding claims, wherein the antibody mimetic is an Affibody, DARPin, Anticalin, Avimer or Versabody, preferably a DARPin.

7. A method as claimed in any one of the preceding claims, wherein the antibody or antibody mimetic is detected using a labelled secondary antibody which binds to the antibody or antibody mimetic.

8. A method as claimed in any one of the preceding claims, wherein Steps (a) and (b) of the method are carried out in a liquid medium, in a semi-solid medium, in a solid medium or the cells are fully or partially immobilised.

9. A method as claimed in any one of claims 1-7, wherein Step (a) additionally comprises the feature:

wherein the method is carried out in a liquid medium which is replaced in a continuous or discontinuous manner.

10. A method as claimed in any one of claims 1-7, wherein Step (a) is carried in a liquid medium and the dynamic viscosity of the liquid medium is at least 10×10^{-4} Pa.s at 25°C.

11. A method as claimed in any one of claims 1-7, wherein ~~the medium in which~~ Step (a) is carried out in a liquid medium and the medium is a hydrogel, preferably an alginate gel.

12. A method as claimed in any one of the preceding claims, wherein Step (a) comprises:

(a1) expressing a library of antibodies or antibody mimetics in a population of mammalian cells, wherein each antibody or mimetic is secreted from the cell in which it is produced,

(a2) removing cells from the population of mammalian cells to which antibodies or antibody mimetics bind; and then

(a3) inducing expression (preferably from an inducible promoter) of the target polypeptide on the outer surface of each cell in the population of mammalian cells.

13. A method as claimed in claim 12, wherein the inducible promoter is one which comprises a plurality of Tet operator sequences to which the Tet repressor protein (TetR) is capable of binding.

~~14. A method as claimed in any one of the preceding claims, wherein the CDRs of the antibodies or antibody mimetics are specifically bound to the target polypeptide.~~

~~15~~14. A method as claimed in any one of claims 1-13, wherein the antibodies or antibody mimetics are secreted from the cells in which they are produced in a form wherein their CDR sequences are bound to the target polypeptide.

~~16~~15. A method of identifying a specific binding partner which binds to a target polypeptide, wherein the specific binding partner is an antibody or antibody mimetic,

the method comprising the steps:

(a) expressing a library of antibodies or antibody mimetics in a population of mammalian cells, wherein each antibody or antibody mimetic is secreted from the cell in the population of mammalian cells in which it is produced, wherein the target polypeptide is expressed within each cell in the population of mammalian cells, wherein the target polypeptide is displayed on an outer surface of each cell in the population of mammalian cells and wherein the target polypeptide is an integrated membrane protein;

(b) isolating cells within the population of mammalian cells to which the CDR sequences of the secreted antibodies or antibody mimetics are specifically bound to the target polypeptide, wherein the cells are isolated after a time point when the antibodies or antibody mimetics may only be specifically bound to target polypeptides which are displayed on cells from which the antibodies or antibody mimetics have been secreted; and

(c) sequencing all or part of the polynucleotide sequences in the isolated cells which encode the antibodies or antibody mimetics which specifically bind to the target polypeptide.