

What is claimed is:1. A method comprising the following substeps:

~~for~~ recovering two or more genes, or gene products, or cDNAs, encoding for an immunoreceptor having two or more subunits, which two or more genes, or gene products, are comprised in a given source cell, which method comprises the following steps:

- a) encapsulation of source cells together with an mRNA capturing moiety in microreactors
- b) lysis of the cells in the microreactors, release of the cellular mRNA in the lumen of the microreactors, and subsequent attachment thereof to the mRNA capturing moiety
- c) reverse transcription of the mRNA attached to the mRNA capturing moieties to obtain the corresponding cDNA gene products
- d) creating a construct that encompasses the two or more gene products encoding for the subunits of the immunoreceptor, and
- e) cloning of the PCR product into a plasmid vector to obtain a bi- or multicistronic expression construct

f) thus creating a Plasmid library which contains the cDNA encoding for the immunoreceptors of a given source cell population, and

creating a library of expressor cells, in which library each cell is capable of expressing two or more genes, or gene products, encoding for the subunits of the recovered immunoreceptor, which library creation comprises the following steps:

g) transfecting expressor cells with one or more bi- or multicistronic expression constructs, and

- h) encapsulating the expressor cells into microreactors.
2. The method according to claim 1, wherein, prior to the encapsulation in step h), the transfected cells are incubated under conditions that allow protein expression.
3. A method of screening a library of expressor cells as created according to the method of claim 1 or 2, for one cell that expresses an immunoreceptor that has specificity for a given target molecule, which method comprises at least one of the following steps:
- i) use of a labeled target that is capable of entering into the microreactors and bind to an immunoreceptor expressed by the expressor cell comprised therein, and/or
 - j) detecting immunoreceptor expressed by the expressor cell that has escaped from the microreactors and is now in the supernatant in combination with serial fractionation of the microreactor culture.
42. The method according to ~~any of the aforementioned claims~~ ~~claim 1~~, which method further comprises, after step c), the step of amplifying the construct encompassing the two or more gene products encoding for the subunits of the immunoreceptor.
53. The method according to any of the aforementioned claims, which method further comprises, after step c), the steps of
- (i) monitoring cDNA synthesis by reverse transcription on the mRNA capturing moieties, and
 - (ii) exclusion of aggregated mRNA capturing moieties.
- 6-4. The method according to any of the aforementioned claims, in which method the creation of a construct that encompasses the two or more gene products encoding for the subunits of the immunoreceptor, as set forth in step d), is accomplished by amplifying the cDNA by overlap extension PCR.

~~75.~~ The method according to claim ~~42~~, wherein the step of amplifying the construct encompasses the use of a nested PCR.

~~86.~~ The method according to any of the aforementioned claims, which method further comprises the step of inserting regulatory elements into the PCR product.

~~97.~~ The method according to any of the aforementioned claims, in which method

- the microreactors are lysed, or disrupted, after step b), step c) or step d), and/or
- the mRNA capturing moieties are emulsified with suitable primers and at least one polymerase after step b), and/or
- the immunoreceptor is an antibody having at least two subunits, or a T-cell receptor having at least two subunits, and/or
- the immunoreceptor is a therapeutic protein, a protein for diagnostic or scientific purposes, or a protein for commercial purposes, and/or
- the bi- or multicistronic expression vector is a 2A peptide-linked multicistronic vector with or without combination with an IRES (internal ribosome entry site) sequence.

~~the microreactors are lysed, or disrupted, after step b), step c) or step d).~~

~~8. The method according to any of the aforementioned claims, in which method the mRNA capturing moieties are emulsified with suitable primers and at least one polymerase after step b).~~

~~9. The method according to any of the aforementioned claims, in which method the immunoreceptor is an antibody having at least two subunits, or a T-cell receptor having at least two subunits.~~

- ~~10. The method according to any of the aforementioned claims, in which method the immunoreceptor is a therapeutic protein, a protein for diagnostic or scientific purposes, or a protein for commercial purposes.~~
- ~~11. A method of creating a library of expressor cells, in which library each cell is capable of expressing two or more genes, or gene products, encoding for the subunits of the immunoreceptor recovered according to the method of any of claims 1—10, which method comprises the following steps:~~
- ~~g) Transfecting expressor cells with the bi- or multicistronic expression construct, and~~
 - ~~h) encapsulating the expressor cells into microreactors.~~
- ~~12. The method according to claim, wherein, prior to the encapsulation in step h), the transfected cells are incubated under conditions that allow protein expression.~~
- ~~13. A method of screening a library of expressor cells as created according to the method of claim 12, for one cell that expresses an immunoreceptor that has specificity for a given target molecule, which method comprises at least one of the following steps:~~
- ~~i) use of a labeled target that is capable of entering into the microreactors and bind to an immunoreceptor expressed by the expressor cell comprised therein, and/or~~
 - ~~j) detecting immunoreceptor expressed by the expressor cell that has escaped from the microreactors and is now in the supernatant in combination with serial fractionation of the microreactor culture.~~
- ~~14. A method comprising the steps of any of claims 1—10, 11 and/or 12—13.~~
- ~~15. The method according to any of the aforementioned claims, wherein the mRNA capturing moieties are beads or particles, preferably magnetic beads or particles.~~
- ~~16. The method according to any of the aforementioned claims, wherein the mRNA capturing moieties comprise oligo-dT DNA sequences bound to their surface.~~

~~17. The method according to any of the aforementioned claims, wherein the bi- or multicistronic expression vector is a 2A peptide-linked multicistronic vector with or without combination with an IRES (internal ribosome entry site) sequence.~~

1048. The method according to any of the aforementioned claims, wherein each microreactor comprises one source cell.

1149. The method according to any of the aforementioned claims, wherein the microreactors comprise a material selected from the group consisting of:

- hydrogel-forming polymers, preferably poly(diallyldimethylammonium chloride), poly(ethyleneimine), polylysine, polyacrylamides and/or acrylic acids
- cellulose derivatives, preferably carboxymethylcellulose and cellulose esters, and/or
- polysaccharides, preferably agaroses, alginates, carrageenans, pectinates, and/or chitosans

~~20. The method according to any of the aforementioned claims, wherein the microreactors are formed as aqueous droplets in a water/oil emulsion.~~

~~21. The method according to any of the aforementioned claims, wherein the microreactors have a diameter of between $\geq 10\text{ }\mu\text{m}$ and $\leq 1000\text{ }\mu\text{m}$.~~

~~22. The method according to any of the aforementioned claims, wherein the microreactors have a volume of between $\geq 0.52\text{ pl}$ and $\leq 523\text{ nl}$.~~

~~23. The method according to any of the aforementioned claims, wherein the microreactors have a spheroidal shape.~~

~~24. The method according to any of the aforementioned claims, wherein the source cell is from a collection of cells, members of which comprise gene products for different immunoreceptors.~~

~~1225.~~ The method according to any of the aforementioned claims, wherein the source cell is a mammalian cell selected from the group consisting of immature or mature B-cells or T-cells.

~~26. The method according to any of the aforementioned claims, wherein the source cells are taken from one or more donors.~~

~~1327.~~ The method according to any of the aforementioned claims, wherein the two or more genes, or gene products, encoding for the subunits of the immunoreceptor are

- the Ig heavy chain gene (VDJ rearranged) and the Ig light chain gene (VJ rearranged), or
- the TCR alpha chain gene (rearranged) and the TCR beta chain gene (rearranged).

~~1428.~~ The method according to any of the aforementioned claims, which method further comprises the step of inserting cDNA encoding for

- Ig constant H and/or Ig constant L subdomains, or
- TCR alpha chain and TCR beta chain

into the PCR product.

~~1529.~~ The method according to any of the aforementioned claims, wherein the immunoreceptor is used for the treatment or diagnosis of a disease selected from the group consisting of

- neoplastic disease
- neurodegenerative disease
- infectious disease,
- immune-mediated disease, and/or
- cardiovascular disease.

~~30. The method according to claim 29, wherein the disease is a human or animal disease.~~

~~31. The method according to claim 29 or 30, wherein the disease is at least one selected from the group consisting of~~

- ~~• neoplastic disease~~
- ~~• neurodegenerative disease~~
- ~~• infectious disease,~~
- ~~• immune-mediated disease, and/or~~
- ~~• cardiovascular disease.~~