CLAIMS

1. A chimeric cytokine receptor (CCR) comprising a ligand binding exodomain and a type I cytokine receptor endodomain, which CCR comprises two polypeptides:

(i) a first polypeptide which comprises:

(a) a first antigen-binding domain which binds a first epitope of the ligand

(b) a type I cytokine receptor endodomain α- or β-chain; and

(ii) a second polypeptide which comprises:

(a) a second antigen-binding domain which binds a second epitope of the ligand, which is different from the first epitope;

(b) a type I cytokine-receptor endodomain γ-chain;

such that when the first polypeptide and the second polypeptide bind the ligand, combined signalling occurs through the α-/β-chain and γ-chain.

2. A chimeric cytokine receptor according to Claim 1, in which each of the first and second antigen-binding domains are single-chain variable fragments (scFvs).

3. A chimeric cytokine receptor according to Claim 1, in which each of the first and second antigen-binding domains are single domain binders (dAbs).

4. A chimeric cytokine receptor according to any preceding claim, in which the type I cytokine receptor endodomain comprises:

(i) IL-2 receptor β-chain endodomain

(ii) IL-7 receptor α-chain endodomain; or

(iii) IL-15 receptor α-chain endodomain; and

(iv) common γ-chain receptor endodomain.

5. A chimeric cytokine receptor according to any preceding claim, wherein the ligand is a tumour secreted factor selected from: prostate-specific antigen (PSA), carcinoembryonic antigen (CEA) and vascular endothelial growth factor (VEGF) and CA125.

6. A cell which comprises a chimeric cytokine receptor according to any preceding claim.

7. A cell according to Claim 6, which also comprises a chimeric antigen receptor.

8. A cell according to Claim 7, in which the chimeric antigen receptor binds prostate stem-cell antigen (PSCA) or prostate-specific membrane antigen (PSMA).

9. A nucleic acid sequence encoding a chimeric cytokine receptor (CCR) according to any of Claims 1 to 5.

10. A nucleic acid construct encoding a chimeric cytokine receptor (CCR) according to any of Claims 1 to 5, which nucleic acid construct comprises a first nucleic acid sequence encoding the first polypeptide and a second nucleic acid sequence encoding the second polypeptide, the nucleic acid construct having the structure:

AgB1-spacer1-TM1-endo1-coexpr-AbB2-spacer2-TM2-endo2

in which

AgB1 is a nucleic acid sequence encoding the antigen-binding domain of the first polypeptide;

spacer 1 is a nucleic acid sequence encoding the spacer of the first polypeptide;

TM1 is a nucleic acid sequence encoding the transmembrane domain of the first polypeptide;

endo 1 is a nucleic acid sequence encoding the endodomain of the first polypeptide;

coexpr is a nucleic acid sequence encoding a cleavage or self-cleaving site, enabling co-expression of the first and second polypeptides;

AgB2 is a nucleic acid sequence encoding the antigen-binding domain of the second polypeptide;

spacer 2 is a nucleic acid sequence encoding the spacer of the second polypeptide;

TM2 is a nucleic acid sequence encoding the transmembrane domain of the second polypeptide;

endo 2 is a nucleic acid sequence encoding the endodomain of the second polypeptide.

11. A vector comprising a nucleic acid sequence according to Claim 9 or a nucleic acid construct according to Claim 10.

12. A kit which comprises:

(i) a vector comprising a nucleic acid sequence encoding a first polypeptide as defined in any of Claims 1 to 5; and

(ii) a vector comprising a nucleic acid sequence encoding a second polypeptide as defined in any of Claims 1 to 5.

13. A method for making a cell according to any of Claims 6 to 8, which comprises the step of introducing: a nucleic acid sequence according to Claim 9; a nucleic acid construct according to Claim 10; a vector according to Claim 11; or a kit of vectors according to Claim 12, into a cell *ex vivo*.

14. A pharmaceutical composition comprising a plurality of cells according to any of Claims 6 to 8.

15. A pharmaceutical composition according to Claim 14 for use in treating and/or preventing a disease.