CLAIMS

1. A composition comprising at least one or two polypeptides binding specifically a DR5 receptor, wherein the at least one or two polypeptides comprise two immunoglobulin binding domains comprising:

- a first binding domain comprising a pair of VH and VL chains wherein the VH chain contains a CDR1 of sequence SEQ ID NO: 13, a CDR2 of sequence SEQ ID NO: 14 CDR1, a CDR3 of sequence SEQ ID NO: 15; and the VL chain contains a CDR1 of sequence SEQ ID NO: 16, a CDR2 of sequence FAS, a CDR3 of sequence SEQ ID NO: 17, and

- a second binding domain comprising a pair of VH and VL chains wherein the VH chain contains a CDR1 of sequence SEQ ID NO: 18, a CDR2 of sequence SEQ ID NO: 14, a CDR3 of sequence SEQ ID NO: 19; and the VL chain contains a CDR1 of sequence SEQ ID NO: 20, a CDR2 of sequence RTS, a CDR3 of sequence SEQ ID NO: 21,

wherein

- the at least one polypeptide comprises both first and second immunoglobulin binding domains;, or
- the at least two polypeptides comprise a first polypeptide comprising the first binding domain and a second polypeptide comprising the second binding domain for a simultaneous, separate or sequential administration to a mammal, including man;,

and a pharmaceutically carrier, diluent or excipient.

2. The composition of claim 1, comprising:

- one or more of amino acid sequence pairs SEQ ID NO : 2 and 4 and SEQ ID NO: 6 and 8,
- the pair of amino acid sequences SEQ ID NO : 2 and 4,
- the pair of amino acid sequences SEQ ID NO : 6 and 8, or
- both amino acid sequence pairs SEQ ID NO : 2 and 4 and SEQ ID NO: 6 and 8; or
- one or more of amino acid sequence pairs SEQ ID NO : 35 and 37 and SEQ ID NO: 39 and 41,
- the pair of amino acid sequences SEQ ID NO : 35 and 37,
- the pair of amino acid sequences SEQ ID NO : 39 and 41, or
- both amino acid sequence pairs SEQ ID NO : 35 and 37 and SEQ ID NO: 39 and 41.

~~3. The composition of claim 1 comprising the amino acid sequence pair SEQ ID NO : 2 and 4, an antibody comprising the amino acid sequence pair SEQ ID NO : 6 and 8,.~~

~~4. The composition of claim 1 comprising the amino acid sequence pair SEQ ID NO : 35 and 37, an antibody comprising the amino acid sequence pair SEQ ID NO : 39 and 41.~~

3. The composition of claim 1, comprising a polypeptide binding specifically a DR5 receptor, said polypeptide comprising the pair of amino acid sequences SEQ ID NO : 2 and 4, and another polypeptide binding specifically a DR5 receptor, said polypeptide comprising the pair of amino acid sequences SEQ ID NO : 6 and 8.

4. The composition of claim 1, comprising a polypeptide binding specifically a DR5 receptor, said polypeptide comprising the pair of amino acid sequences SEQ ID NO : 35 and 37, and another polypeptide binding specifically a DR5 receptor, said polypeptide comprising the pair of amino acid sequences SEQ ID NO : 39 and 41.

5. The composition of claim 1, comprising a polypeptide binding specifically a DR5 receptor, said polypeptide comprising both amino acid sequences pairs SEQ ID NO : 2 and 4 and SEQ ID NO : 6 and 8.

6. The composition of claim 1, comprising a polypeptide binding specifically a DR5 receptor, said polypeptide comprising both amino acid sequences pairs SEQ ID NO : 35 and 37 and SEQ ID NO : 39 and 41.

7~~5~~. The composition of any one of claims 1 to 6~~4~~, wherein the polypeptide or polypeptides is/are Fv, Fab, F(ab')2, scFv, antibody, preferably a monoclonal antibody.

8~~6~~. The composition according to any one of claims 1 to 7~~5~~, for use as a medicament to induce apoptosis of a tumour cell and/or to treat cancer, preferably a solid cancer.

9~~7~~. The composition according to any one of claims 1 to 6~~8~~~~,~~ for use in combination with another anti-cancer drug.

10~~8~~. A polypeptide binding specifically a DR5 receptor, comprising one or two binding domains comprising a pair of VH and VL chains wherein the VH chain contains a CDR1 of sequence SEQ ID NO: 13, a CDR2 of sequence SEQ ID NO: 14, a CDR3 of sequence SEQ ID NO: 15; and the VL chain contains a CDR1 of sequence SEQ ID NO: 16, a CDR2 of sequence FAS, a CDR3 of sequence SEQ ID NO: 17.

11~~9~~. A polypeptide binding specifically a DR5 receptor, comprising one or two binding domains comprising a pair of VH and VL chains wherein the VH chain contains a CDR1 of sequence SEQ ID NO: 18, a CDR2 of sequence SEQ ID NO: 14, a CDR3 of sequence SEQ ID NO: 19; and the VL chain contains a CDR1 of sequence SEQ ID NO: 20, a CDR2 of sequence RTS, a CDR3 of sequence SEQ ID NO: 21.

12~~10~~. A biparatopic, bispecific our multivalent polypeptide binding specifically a DR5 receptor, which comprises:

- a first binding domain comprising a pair of VH and VL chains wherein the VH chain contains a CDR1 of sequence SEQ ID NO: 13, a CDR2 of sequence SEQ ID NO: 14 CDR1, a CDR3 of sequence SEQ ID NO: 15; and the VL chain contains a CDR1 of sequence SEQ ID NO: 16, a CDR2 of sequence FAS, a CDR3 of sequence SEQ ID NO: 17, and

- a second binding domain comprising a pair of VH and VL chains wherein the VH chain contains a CDR1 of sequence SEQ ID NO: 18, a CDR2 of sequence SEQ ID NO: 14, a CDR3 of sequence SEQ ID NO: 19; and the VL chain contains a CDR1 of sequence SEQ ID NO: 20, a CDR2 of sequence RTS, a CDR3 of sequence SEQ ID NO: 21.

13~~11~~. An isolated nucleotide sequence comprising the nucleotide sequence SEQ ID NO: 1, 3, 5, 7, 34, 36, 38 or 40.

14~~12~~. An expression vector or a host cell comprising the nucleotide sequence according to claim 13~~11~~.

15~~13~~. A composition comprising two polypeptides, or antibodies or fragment thereof, both having the capability to bind to DR5, a first polypeptide or antibody comprising a first

antigen-binding site that binds to a first epitope of said DR5, this first epitope being the one to which specifically binds a binding domain comprising a pair of VH and VL chains wherein the VH chain contains a CDR1 of sequence SEQ ID NO: 13, a CDR2 of sequence SEQ ID NO: 14 CDR1, a CDR3 of sequence SEQ ID NO: 15; and the VL chain contains a CDR1 of sequence SEQ ID NO: 16, a CDR2 of sequence FAS, a CDR3 of sequence SEQ ID NO: 17; and a second polypeptide or antibody comprising a second different antigen-binding site that binds to a second epitope of said DR5, this epitope being the one to which specifically binds a binding domain comprising a pair of VH and VL chains wherein the VH chain contains a CDR1 of sequence SEQ ID NO: 18, a CDR2 of sequence SEQ ID NO: 14, a CDR3 of sequence SEQ ID NO: 19; and the VL chain contains a CDR1 of sequence SEQ ID NO: 20, a CDR2 of sequence RTS, a CDR3 of sequence SEQ ID NO: 21, for a simultaneous, separate or sequential administration to a mammal, including man.

16~~14~~. A bispecific antibody, or fragment thereof, having the capability to bind to DR5, said antibody comprising a first antigen-binding site that binds to a first epitope of said DR5, this first epitope being the one to which specifically binds a binding domain comprising a pair of VH and VL chains wherein the VH chain contains a CDR1 of sequence SEQ ID NO: 13, a CDR2 of sequence SEQ ID NO: 14 CDR1, a CDR3 of sequence SEQ ID NO: 15; and the VL chain contains a CDR1 of sequence SEQ ID NO: 16, a CDR2 of sequence FAS, a CDR3 of sequence SEQ ID NO: 17, and a second different antigen-binding site that binds to a second epitope of said DR5, this epitope being the one to which specifically binds a binding domain comprising a pair of VH and VL chains wherein the VH chain contains a CDR1 of sequence SEQ ID NO: 18, a CDR2 of sequence SEQ ID NO: 14, a CDR3 of sequence SEQ ID NO: 19; and the VL chain contains a CDR1 of sequence SEQ ID NO: 20, a CDR2 of sequence RTS, a CDR3 of sequence SEQ ID NO: 21.

~~15. A method for the treatment or the prevention of a cancer, an autoimmune disease, an inflammatory condition, a viral infection or a viral disease, comprising the administration to a mammal including human, of an effective amount of a composition or polypeptide according to any one of claims 1 to 10, 13 and 14.~~