Claims

1. An isolated agonist polypeptide of IL-2, characterized by 95% identity with the sequence of the native IL-2 and wherein the polypeptide is selected from the group consisting of
   (i) the polypeptide comprising mutations R38K, F42I, Y45N, E62L and E68V (SEQ ID NO. 1);
   (ii) the polypeptide comprising mutations R38K, F42Q, Y45E and E68V (SEQ ID NO. 2);
   (iii) the polypeptide comprising mutations R38A, F42I, Y45N, E62L and E68V (SEQ ID NO. 3);
   (iv) the polypeptide comprising mutations R38K, F42K, Y45R, E62L and E68V (SEQ ID NO. 4);
   (v) the polypeptide comprising mutations R38K, F42I, Y45E and E68V (SEQ ID NO. 5);
   (vi) R38A, F42A, Y45A and E62A (SEQ ID NO. 6).

2. A fusion protein comprising any one of the polypeptide of claim 1 coupled to a carrier protein.

3. The fusion protein of claim 2 wherein the carrier protein is albumin.

4. The fusion protein of claim 2 wherein the carrier protein is the Fc region of human immunoglobulins.

5. A pharmaceutical composition for use in the treatment of cancer and chronic infectious diseases, characterized by comprising as active ingredient any one of the polypeptide of claim 1.

6. A pharmaceutical composition for use in the treatment of cancer and chronic infectious diseases, which comprises as active principle the fusion protein of any one of claims 2 to 4.

7. The use of any of the polypeptide of claim 1 for the manufacture of a medicament for the treatment of cancer.

8. The use of any of the polypeptide of claim 1 for the manufacture of a medicament for the treatment of chronic infectious diseases.

9. The polypeptide of claim 1 for use to enhance the cellular and/or humoral response to cancer vaccines.

10. The use of the fusion proteins of any of claims 2 to 4 for the manufacture of a medicament for the treatment of cancer.

11. The use of the fusion proteins of any of claims 2 to 4 for the manufacture of a medicament for the treatment of chronic infectious diseases.

12. The fusion proteins of any of claims 2 to 4 for use to enhance the cellular and/or humoral response to cancer vaccines.