CLAIMS

1. A polypeptide that antagonizes the activity of the TGFβ natural ligands mediated by the ALK5 receptor, characterized by more than 90% homology with the sequence of natural TGFβ ligands.

2. The polypeptide of claim 1 characterized by comprising at least one mutation in one of the amino acid residues selected from the group consisting of W30, W32, L101, I51, L51, Q67 and Y6.

3. The polypeptide of claim 2 wherein the original residue is mutated by one of amino acid residues selected from the group comprising;

   for position 30: N,R,K,D,Q,L,S,P,V,I,G,C,T,A,E;

   for position 32: A;

   for position 101: A, E;

   for position 51: Q,W,Y,A;

   for position 67: H, F, Y, W y

   for position 6: A

4. The polypeptide according to claim 3 wherein mutations at the interaction interface with TGFβRII and/or TGFβRIII receptors were added in order to increase its affinity thereof.

5. The polypeptide according to claim 3 comprising mutations to produce the mature domain lacking LAP, without affecting the secretion thereof.

6. The polypeptide according to claim 3 coupled to a fragment of human IgG1 comprising the mutations ala234 y ala235 in Cγ2 domain.

7. A pharmaceutical composition for the treatment of cancer, diseases accompanied by fibrosis and chronic infectious diseases comprising;

   at least one polypeptide of claim 3 in a range between 50ng/mL-10μg/mL and

   a pharmaceutically suitable vehicle.

8. A pharmaceutical composition according to claim 7 comprising;

   a therapeutically effective amount of a mixture of the polypeptides of claim 3

a pharmaceutically suitable vehicle.

9. The pharmaceutical composition of claim 7 wherein the polypeptide is covalently linked to a carrier protein.

10. The pharmaceutical composition of claim 9 wherein the carrier protein is characterized by being the Fc region of human immunoglobulins.

11. The pharmaceutical composition of claim 9 wherein the polypeptide is pegylated.

12. The polypeptide of any of claims 1 to 6 for the manufacture of a medicament useful in the treatment of cancer, diseases accompanied by fibrosis and chronic infectious diseases.

13. The polypeptide of any claims 1 to 6 for the manufacture of a medicament useful for enhancing the cellular and/or humoral response to vaccines.

14. The polypeptide according to claim 13 when the vaccine to enhance is a therapeutic vaccine for cancer.

CLAIMS

1. A polypeptide that antagonizes the activity of the TGFβ1, TGFβ2 and TGFβ3 ligands mediated by the ALK5 receptor, characterized by comprising at least one mutation in one of the amino acid residues selected from the group consisting of:

   W30: SEQ ID No. 4 to SEQ ID No. 48
   W32: SEQ ID No. 49 to SEQ ID No. 51
   L101: SEQ ID No. 68 to SEQ ID No. 73
   I51 o L51: SEQ ID No. 52 to SEQ ID No. 63
   Q67: SEQ ID No. 64 to SEQ ID No. 67
   Y6: SEQ ID No. 1 to SEQ ID No. 3

2. The polypeptide of claim 1 characterized by more than 90% homology with the sequence of TGFβ1, TGFβ2 and TGFβ3 ligands.

3. The polypeptide according to claims 1 to 2 coupled to a fragment of human IgG1 comprising the mutations ala234 and ala235 in Cγ2 domain.

4. A pharmaceutical composition for the treatment of cancer, diseases accompanied by fibrosis and chronic infectious diseases comprising;

   at least one polypeptide of claims 1-3 in a range between 50ng/mL-10μg/mL and

   a pharmaceutically suitable vehicle.

5. A pharmaceutical composition according to claim 4 comprising;

   a therapeutically effective amount of a mixture of the polypeptides of claims 1-3 and

   a pharmaceutically suitable vehicle.

6. The polypeptide of any of claims 1 to 3 for use in the treatment of cancer, diseases accompanied by fibrosis and chronic infectious diseases.

7. The polypeptide of any claims 1 to 3 for use to enhance the cellular and/or humoral response to vaccines.

8. The polypeptide according to claim 7 when the vaccine to enhance is a therapeutic vaccine for cancer.