CLAIMS

1. A polypeptide comprising SEQ ID NO: 1 or a functionally equivalent variant thereof having a degree of identity with respect to SEQ ID NO: 1 greater than 60% and

- a threonine at the position corresponding to position 61 of SEQ ID NO: 1;
- an isoleucine at the position corresponding to position 68 of SEQ ID NO: 1;
- a glutamine at the position corresponding to position 74 of SEQ ID NO: 1; and
- an asparagine at the position corresponding to position 75 of SEQ ID NO: 1,

for use as a medicine.

2. Use of a polypeptide comprising SEQ ID NO: 1 or a functionally equivalent variant thereof having a degree of identity with respect to SEQ ID NO: 1 greater than 60% and

- a threonine at the position corresponding to position 61 of SEQ ID NO: 1;
- an isoleucine at the position corresponding to position 68 of SEQ ID NO: 1;
- a glutamine at the position corresponding to position 74 of SEQ ID NO: 1; and
- an asparagine at the position corresponding to position 75 of SEQ ID NO: 1,

in the manufacture of a medicament for the treatment of cancer.

3. The polypeptide for use according to claim 1 or the use according to claim 2, wherein the functionally equivalent variant is a polypeptide which results from the insertion or addition of one or more amino acids and/or from the deletion of one or more amino acids and/or from the conservative substitution of one or more amino acids with respect to SEQ ID NO: 1.

4. The polypeptide for use according to any one of claims 1 or 3 or the use according to any one of claims 2 or 3, wherein the functionally equivalent variant does not contain a foreign functional protein transducing domain.

5. The polypeptide for use according to any one of claims 1, 3 or 4 or the use according to any one of claims 2-4, wherein the functionally equivalent variant does not contain a foreign cell penetrating peptide (CPP) or foreign nuclear-localization signal (NLS).

6. The polypeptide for use or the use according to claim 3, wherein the functionally equivalent variant is a polypeptide which results from the insertion or addition of one amino acid with respect to SEQ ID NO: 1.

7. The polypeptide for use according to any one of claims 1 and 3 to 6 or the use according to any one of claims 2 to 6, wherein the polypeptide or the functionally equivalent variant thereof is to be administered.

8. The polypeptide for use or the use according to claim 7, wherein the polypeptide or the functionally equivalent variant thereof is to be administered without using vehicles for delivery of the polypeptide to the cytoplasm of the cell.

9. The polypeptide for use or the use according to any one of claims 7 or 8, wherein the polypeptide or the functionally equivalent variant thereof is to be administered via endovenous route or intranasal route.

10. The use according to any one of claims 2 to 9, wherein the cancer is colon cancer, rectal cancer, lung cancer, breast cancer or brain cancer.

11. A conjugate comprising:

(i) the polypeptide comprising SEQ ID NO: 1 or a functionally equivalent variant thereof having a degree of identity with respect to SEQ ID NO: 1 greater than 60% and

- a threonine at the position corresponding to position 61 of SEQ ID NO: 1;
- an isoleucine at the position corresponding to position 68 of SEQ ID NO: 1;
- a glutamine at the position corresponding to position 74 of SEQ ID NO: 1; and
- an asparagine at the position corresponding to position 75 of SEQ ID NO: 1,

and

(ii) a chemical moiety that facilitates cellular uptake of the polypeptide or of the functionally equivalent variant thereof.

12. The conjugate according to claim 11 wherein the chemical moiety that facilitates cellular uptake of the polypeptide or of the functionally equivalent variant thereof is a cell penetrating peptide and wherein said cell penetrating peptide and said polypeptide or the functionally equivalent variant thereof form a fusion protein.

13. The conjugate according to claim 12 wherein the cell-penetrating peptide sequence is selected from the group consisting of RKKRRQRRR (SEQ ID NO:7), GRKKRRQRRR (SEQ ID NO: 28) and RRRRRRLR (SEQ ID NO: 29).

14. The conjugate according to any one of claims 11 to 13 further comprising a nuclear-localization signal.

15. The conjugate according to claim 14 wherein the nuclear localization signal is selected from the group consisting of PKKKRKV (SEQ ID NO: 39), PAAKRVKLD (SEQ ID NO: 50) and KRPAATKKAGQAKKKK (SEQ ID NO: 40).

16. The conjugate according to any one of claims 11 to 13, wherein the conjugate is selected from the group consisting of SEQ ID NO: 47 and SEQ ID NO: 48.

17. A pharmaceutical composition comprising a pharmaceutically active amount of a conjugate according to any one of claims 11 to 16 and a pharmaceutically acceptable excipient.

18. The pharmaceutical composition according to claim 17, wherein the conjugate forms part of a nanoparticle.

19. A conjugate according to any one of claims 11 to 16 for use as a medicine.

20. Use of a conjugate according to any one of claims 11 to 16 in the manufacture of a medicament for the treatment of cancer.

21. Use according to claim 20, wherein the cancer is colon cancer, rectal cancer, lung cancer, breast cancer or brain cancer.

22. The conjugate for use according to claim 19 or the use according to any one of claims 20 or 21, wherein the conjugate is to be administered.

23. The conjugate for use according to claim 19 or 22 or the use according to any one of claims 20 to 22, wherein the conjugate is to be administered via endovenous route or intrasanal route.

24. A combination or composition comprising:

(i) a polypeptide comprising SEQ ID NO: 1, a functionally equivalent variant thereof having a degree of identity with respect to SEQ ID NO: 1 greater than 60% and having a threonine at the position corresponding to position 61 of SEQ ID NO: 1, an isoleucine at the position corresponding to position 68 of SEQ ID NO: 1, a glutamine at the position corresponding to position 74 of SEQ ID NO: 1 and an asparagine at the position corresponding to position 75 of SEQ ID NO: 1, or a conjugate according to any one of claims 11 to 16 and

(ii) an antitumoral agent.

25. The combination or composition according to claim 24 wherein the antitumoral agent is selected from the group consisting of a cytotoxic agent, an antiangiogenic agent and an antimetastatic agent.

26. The combination or composition according to claim 25, wherein the antitumoral agent is selected from the group consisting of taxanes, platinum-based compounds, anthracycline antibiotics and DNA-alkylating drugs.

27. The combination or composition according to claim 26, wherein the antitumoral agent is selected from the group consisting of paclitaxel, cisplatin, doxorubicin and temozolomide.

28. The combination or composition according to any one of claims 24 to 27, wherein the functionally equivalent variant of SEQ ID NO: 1 is a polypeptide which results from the insertion or addition of one amino acid with respect to SEQ ID NO: 1.

29. The combination or composition according to any one of claims 24 to 27, wherein the conjugate is selected from the group consisting of SEQ ID NO: 47 and SEQ ID NO: 48.

30. A pharmaceutical composition comprising a pharmaceutically active amount of a composition according to any one of claims 24 to 29 and a pharmaceutically acceptable excipient.

31. A combination or composition according to any one of claims 24 to 29 for use as a medicine.

32. Use of a combination or composition according to any one of claims 24 to 29 in the manufacture of a medicament for the treatment of cancer.

33. Use according to claim 32, wherein the cancer is colon cancer, rectal cancer, lung cancer, breast cancer or brain cancer.

34. The combination or composition for use according to claim 31 or the use according to any one of claims 32 or 33 wherein the polypeptide comprising SEQ ID NO: 1, the functionally equivalent variant thereof or the conjugate is to be administered.