CLAIMS:

[Claim 1]. ~~A method for predicting the response of a cancer patient to treatment with an isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 or a functional derivative thereof or a pharmaceutically acceptable salt of said isolated peptide, said method comprising the steps of:~~

~~(a) determining the expression level of at least one endoplasmic reticulum (ER) stress marker in at least one biological sample of said patient to obtain an expression value, wherein at least one of said biological samples is obtained after the initiation of said treatment;~~

~~(b) determining if the expression value of said at least one ER stress marker obtained in step (a) is higher or lower with respect to a predetermined standard expression value of said at least one ER stress marker;~~

~~wherein an expression value of said at least one ER stress marker obtained in (a) higher than an expression value of said at least one ER stress marker in a predetermined standard indicates that said patient is a responder to said treatment.~~ A combination therapy comprising an anti-cancer agent and an isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 or a pharmaceutically acceptable salt of said isolated peptide for use in a method of treating cancer, wherein said anti-cancer agent is selected from Taxol and doxorubicin.

[Claim 2]. ~~The method according to claim 1, wherein an expression value of said at least one ER stress marker in said at least one biological sample higher than an expression value of said at least one ER stress marker in said predetermined standard indicates that said treatment should be continued.~~ The combination therapy for use according to claim 1, wherein said anti-cancer agent is Taxol.

[Claim 3]. ~~The method according to claim 1 or claim 2, wherein said at least one ER stress marker is binding immunoglobulin protein (BiP), phosphorylated α subunit of eukaryotic initiation factor 2 (p-eIF2a), phosphorylated Inositol Requiring 1 (p-IRE), phosphorylated PKR-like ER kinase (p-PERK) or C/EBP homologous protein (CHOP) or any combination thereof.~~ The combination therapy for use according to claim 1 or 2, wherein said anti-cancer agent is doxorubicin.

[Claim 4]. ~~The method according to any one of claims 1 to 3, wherein said ER stress marker is binding immunoglobulin protein (BiP).~~ The combination therapy for use according to any one

of claims 1 to 3, wherein said isolated peptide and said anti-cancer agent are administered concomitantly or consecutively.

[Claim 5]. ~~The method according to any one of claims 1 to 4, wherein the expression level of said at least one ER stress marker in step (a) is determined in at least two temporally separated biological samples of said patient.~~ The combination therapy for use according to any one of claims 1 to 4, wherein said cancer is pancreatic cancer, ovarian cancer, spindle cell neoplasm of neural origin, spindle cell neoplasm, metastatic colorectal cancer, colon cancer, colorectal cancer, colon adenocarcinoma, rectal cancer, rectal adenocarcinoma, lung cancer, non-small cell lung carcinoma, spinal cord neoplasm, breast cancer, skin cancer, renal cancer, multiple myeloma, thyroid cancer, prostate cancer, adenocarcinoma, head and neck cancer, gastrointestinal cancer, stomach cancer, cancer of the small intestine, hepatic carcinoma, liver cancer or malignancies of the female genital tract.

[Claim 6]. ~~The method according to claim 5, wherein one of said at least two biological samples is obtained before initiation of said treatment.~~ The combination therapy for use according to any one of claims 1 to 5, wherein said isolated peptide consists of the amino acid sequence denoted by SEQ ID NO. 1 or a pharmaceutically acceptable salt thereof.

[Claim 7]. ~~The method according to claim 5 or claim 6, wherein said at least two temporally separated biological samples are separated by a week, two, three or four weeks, by a month, two, three or four months.~~ The combination therapy for use according to any one of claims 1 to 6, wherein said isolated peptide or a pharmaceutically acceptable salt thereof is administered:

a) at a dose of 5 mg/m^2 to 100 mg/m^2, and/or

b) at a frequency of once, twice or trice per week.

[Claim 8]. ~~The method according to any one of claims 1 to 7, wherein said method further comprises administering said isolated peptide comprising the amino acid sequence denoted by SEQ ID NO.~~

~~1 or a functional derivative thereof or a pharmaceutically acceptable salt of said isolated peptide to said patient.~~ A therapeutic kit comprising:

(a) an anti-cancer agent selected from Taxol and doxorubicin; and

(b) an isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 or a pharmaceutically acceptable salt of said isolated peptide.

[Claim 9]~~. The method according to claim 8, wherein said isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 or a functional derivative thereof or a pharmaceutically acceptable salt of said isolated peptide is administered at a dose of about 5 mg/m^2 to about 100 mg/m^2.~~ The therapeutic kit of claim 8, wherein said anti-cancer agent is Taxol.

[Claim 10]~~. The method according to claim 8 or claim 9, wherein said isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 or a functional derivative thereof or a pharmaceutically acceptable salt of said isolated peptide is administered at a frequency of once, twice or trice per week.~~ The therapeutic kit of claim 8, wherein said anti-cancer agent is doxorubicin.

~~**11.** The method according to any one of claims 1 to 10, wherein said treatment is with an isolated peptide consisting of the amino acid sequence denoted by SEQ ID NO. 1 or with a pharmaceutically acceptable salt of said isolated peptide.~~

~~**12.** The method according to any one of claims 1 to 11, wherein said cancer is selected from the group consisting of pancreatic cancer, ovarian cancer, spindle cell neoplasm of neural origin, spindle cell neoplasm, metastatic colorectal cancer, colon cancer, colorectal cancer, colon adenocarcinoma, rectal cancer, rectal adenocarcinoma, lung cancer, non-small cell lung carcinoma, spinal cord neoplasm, breast cancer, skin cancer, renal cancer, multiple myeloma, thyroid cancer, prostate cancer, adenocarcinoma, head and neck cancer, gastrointestinal cancer, stomach cancer, cancer of the small intestine, hepatic carcinoma, liver cancer and malignancies of the female genital tract.~~

~~**13.** The method according to any one of claims 1 to 11, wherein said cancer is selected from the group consisting of spindle cell neoplasm of neural origin, metastatic colorectal cancer, colon cancer, lung cancer, rectal cancer, pancreatic cancer and spinal cord neoplasm.~~

~~**14.** The method according to any one of claims 1 to 13, wherein the cancer cells in said patient are ST2 positive cells.~~

~~**15.** The method according to any one of claims 1 to 13, wherein said method comprises contacting at least one detecting agent specific for said at least one ER stress marker with said at least one biological sample or with any nucleic acid or protein product obtained therefrom.~~

~~**16.** The method according to claim 15, wherein said at least one detecting agent specific for said at least one ER stress marker is an antibody or an antibody conjugated to a detectable moiety, wherein said antibody specifically recognizes and binds said ER stress marker.~~

17. A detecting agent specific for an ER stress marker for use in a method of predicting the response of a cancer patient to treatment with an isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 or a functional derivative thereof or a pharmaceutically acceptable salt of said isolated peptide, said method comprising the steps of:

(a) determining the expression level of said ER stress marker with said detecting agent in at least one biological sample of said patient to obtain an expression value, wherein at least one of said biological samples is obtained after the initiation of treatment;

(b) determining if the expression value of said ER stress marker obtained in step (a) is higher or lower with respect to a predetermined standard expression value of said ER stress marker;

wherein an expression value of said ER stress marker obtained in (a) higher than an expression value of said ER stress marker in a predetermined standard indicates that said patient is a responder to said treatment.

18. The detecting agent for use according to claim 17, wherein an expression value of said ER stress marker in said at least one biological sample higher than an expression value of said ER stress marker in said predetermined standard indicates that said treatment should be continued.

19. The detecting agent for use according to claim 17 or claim 18, wherein said ER stress marker is binding immunoglobulin protein (BiP), phosphorylated α subunit of eukaryotic initiation factor 2 (p-eIF2a), phosphorylated Inositol Requiring 1 (p-IRE), phosphorylated PKR-like ER kinase (p-PERK) or C/EBP homologous protein (CHOP) or any combination thereof.

20. The detecting agent for use according to any one of claims 17 to 19, wherein said ER stress marker is binding immunoglobulin protein (BiP).

21. The detecting agent for use according to any one of claims 17 to 20, wherein the expression level of said ER stress marker in step (a) is determined in at least two temporally separated biological samples of said patient.

22. The detecting agent for use according to any one of claims 17 to 21, wherein one of said at least two biological samples is obtained before initiation of said treatment.

23. The detecting agent for use according to any one of claims 17 to 22, wherein said at least two temporally separated biological samples are separated by a week, two, three or four weeks, by a month, two, three or four months.

24. The detecting agent for use according to any one of claims 17 to 23, wherein said treatment is with an isolated peptide consists of the amino acid sequence denoted by SEQ ID NO. 1 or with a pharmaceutically acceptable salt thereof.

~~**25.** The detecting agent for use according to any one of claims 17 to 24, wherein said cancer is selected from the group consisting of pancreatic cancer, ovarian cancer, spindle cell neoplasm of neural origin, spindle cell neoplasm, metastatic colorectal cancer, colon cancer, colorectal cancer, colon adenocarcinoma, rectal cancer, rectal adenocarcinoma, lung cancer, non-small cell lung carcinoma, spinal cord neoplasm, breast cancer, skin cancer, renal cancer, multiple myeloma, thyroid cancer, prostate cancer, adenocarcinoma, head and neck cancer, gastrointestinal cancer, stomach cancer, cancer of the small intestine, hepatic carcinoma, liver cancer and malignancies of the female genital tract.~~

~~**26.** The detecting agent for use according to any one of claims 17 to 25, wherein said cancer is selected from the group consisting of spindle cell neoplasm of neural origin, metastatic colorectal cancer, colon cancer, lung cancer, rectal cancer, pancreatic cancer and spinal cord neoplasm.~~

~~**27.** The detecting agent for use according to any one of claims 17 to 26, wherein said cancer cells in said patient are ST2 positive cells.~~

~~**28.** The detecting agent for use according to any one of claims 17 to 27, wherein said detecting agent specific for an ER stress marker is an antibody or an antibody conjugated to a detectable moiety, wherein said antibody specifically recognizes and binds said ER stress marker.~~

~~**29.** A kit comprising:~~

~~(a) at least one detecting agent specific for determining the expression value of at least one ER stress marker in a biological sample; and optionally at least one of:~~

~~(b) predetermined standard expression values of said at least one ER stress marker determined for cancer patients before initiation of treatment and upon administration of an isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 or any functional derivative thereof or a pharmaceutically acceptable salt of said isolated peptide;~~

~~(c) at least one control sample.~~

~~**30.** The kit according to claim 29, further comprising at least one reagent for determining the level of expression of at least one ER stress marker in a biological sample.~~

~~**31.** The kit according to claim 29 or claim 30, wherein said kit further comprises:~~

~~**(d)** an isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 or a functional derivative thereof, or a pharmaceutically acceptable salt of said isolated peptide.~~

~~**32.** The kit according to claim 29 to 31, wherein said kit further comprises instructions for use.~~

~~**33.** The kit according to any one of claims 29 to 32, wherein said at least one ER stress marker is BiP.~~

34. The kit according to any one of claims 29 to 33 for use in predicting the response of a cancer patient to treatment with an isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 or a functional derivative thereof or a pharmaceutically acceptable salt of said isolated peptide.

35. A combination therapy comprising an anti-cancer agent and an isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 or a functional derivative thereof or a pharmaceutically acceptable salt of said isolated peptide for use in a method of treating cancer, wherein said anti-cancer agent is administered at a dose lower than the standard of care dose of said anti-cancer agent.

36. The combination therapy for use according to claim 38, wherein the administered dose of said anti-cancer agent is lower than the standard of care dose of said anti-cancer agent by at least about 1%-50%, about 5%-45%, about 10%-40%, about 15%-35% or about 20%-30%.

37. The combination therapy for use according to claim 38 or claim 39, wherein said anti-cancer agent is a chemotherapeutic agent, a tyrosine kinase inhibitor, an immunotherapy agent, a hormone agent, a biological agent, a differentiation factor, an anti-angiogenic factor, an anti-autophagy agent or an immune-stimulatory agent.

38. The combination therapy for use according to any one of claims 38 to 40, wherein said anti-cancer agent is Taxol.

39. The combination therapy for use according to any one of claims 38 to 41, wherein said isolated peptide and said anti-cancer agent are administered concomitantly or consecutively.

40. The combination therapy for use according to any one of claims 38 to 42, wherein said cancer is pancreatic cancer, ovarian cancer, spindle cell neoplasm of neural origin, spindle cell neoplasm, metastatic colorectal cancer, colon cancer, colorectal cancer, colon adenocarcinoma, rectal cancer, rectal adenocarcinoma, lung cancer, non-small cell lung carcinoma, spinal cord neoplasm, breast cancer, skin cancer, renal cancer, multiple myeloma, thyroid cancer, prostate cancer, adenocarcinoma, head and neck cancer, gastrointestinal cancer, stomach cancer, cancer of the small intestine, hepatic carcinoma, liver cancer or malignancies of the female genital tract.

41. The combination therapy for use according to any one of claims 38 to 42, wherein said cancer is ovarian cancer or pancreatic cancer.

42. The combination therapy for use according to any one of claims 38 to 42, wherein said cancer comprises ST2 positive cancer cells.

~~**43.** The combination therapy for use according to any one of claims 38 to 45, wherein said isolated peptide consists of the amino acid sequence denoted by SEQ ID NO. 1 or a pharmaceutically acceptable salt thereof.~~

~~**44.** The combination therapy for use according to any one of claims 38 to 46, wherein said isolated peptide or a pharmaceutically acceptable salt thereof is administered at a dose of about 5 mg/m^2 to about 100 mg/m^2.~~

~~**45.** The combination therapy for use according to any one of claims 38 to 47, wherein said isolated peptide or a pharmaceutically acceptable salt thereof is administered at a frequency of once, twice or trice per week.~~

~~**46.** A therapeutic kit comprising:~~

~~**(a)** an anti-cancer agent; and~~

~~**(b)** an isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 or a functional derivative thereof or a pharmaceutically acceptable salt of said isolated peptide.~~

~~**47.** The therapeutic kit according to claim 46, wherein said kit further comprises instructions for use.~~

~~**48.** The therapeutic kit according to claim 46 or claim 47 for use in a method of treating cancer, wherein said anti-cancer agent is administered at a dose lower than the standard of care dose of said anti-cancer agent.~~

~~**49.** A method of treatment of cancer in a patient in need thereof, comprising administering to said patient a therapeutically effective amount of an isolated peptide comprising the amino acid sequence denoted by SEQ ID NO. 1 a functional derivative thereof or a pharmaceutically acceptable salt of said isolated peptide in combination with an anti-cancer agent, wherein said isolated peptide reduces the standard of care administered dose of said anti-cancer agent.~~