# CLAIMS

[Claim 1]

A molecule comprising a moiety [a], a moiety [b], and a moiety [c] indicated below and binding to a target antigen:

a moiety [a]: a moiety that binds to the target antigen;

a moiety [b]: a first peptide recognizing a target antigen-binding site included in the moiety [a]; and

a moiety [c]: a second peptide comprising an amino acid sequence cleaved by a protease located in the cytoplasm and an amino acid sequence cleaved by an extracellular protease,

and wherein, the protease located in the cytoplasm leaks extracellularly upon cell death or damage imposed on cell membrane.

[Claim 2]

The molecule according to claim 1, wherein the molecule has higher binding affinity to the target antigen after the second peptide is cleaved by a protease located in the cytoplasm than that before the second peptide is cleaved.

[Claim 3]

The molecule according to claim 1 or 2, wherein the first peptide, the second peptide, and the moiety [a] are connected in that order.

[Claim 4]

The molecule according to any one of claims 1 to 3, wherein the moiety [a] is a polypeptide consisting of an amino acid sequence that is not comprised in the first peptide or the second peptide.

[Claim 5]

The molecule according to any one of claims 1 to 4, which consists of a polypeptide, preferably wherein the molecule comprises the i) first peptide, the second peptide, and the moiety [a] or ii) the moiety [a], the second peptide, and the first peptide, connected in that order from the amino terminus toward the carboxyl terminus.

[Claim 6]

The molecule according to any one of claims 1 to 5, wherein a moiety selected from the group consisting of the first peptide, the second peptide, and the moiety [a] is connected to either or both of the other two moieties via one or more linkers.

[Claim 7]

The molecule according to any one of claims 1 to 6, wherein the protease located in the cytoplasm is selected from among calpain, caspase, and tripeptidyl peptidase , preferably wherein calpain is calpain 1 or calpain 2, caspase is caspase 1, caspase 8, caspase 3, or caspase 7, and tripeptidyl peptidase is tripeptidyl peptidase 1 or tripeptidyl peptidase 2 and more preferably wherein the protease is calpain 1 or calpain 2.

[Claim 8]

The molecule according to any one of claims 1 to 7, wherein the protease located in the cytoplasm is a calcium-dependent or calcium-requiring protease.

[Claim 9]

The molecule according to any one of claims 1 and 3 to 8, wherein the extracellular protease is expressed at a higher level, exists in a larger amount, or has higher catalytic activity in diseased tissue than in healthy tissue, preferably wherein the diseased tissue is tumor tissue and/or stromal tissue.

[Claim 10]

The molecule according to any one of claims 1 and 3 to 9, wherein the extracellular protease is selected from the group consisting of matrix metalloproteinase, urokinase type plasminogen activator, matriptase, legumain, and cathepsin , preferably wherein the matrix metalloproteinase is at least one substance selected from among MMP1, MMP2, MMP3, MMP7, MMP9, MMP12, and MMP14 and the cathepsin is at least one substance selected from among cathepsin B, cathepsin D, cathepsin S, and cathepsin L.

[Claim 11]

The molecule according to any one of claims 1 to 10, wherein the second peptide comprises i) the amino acid sequence cleaved by the extracellular protease and the amino acid sequence cleaved by the protease located in the cytoplasm or ii) the amino acid sequence cleaved by a protease located in the cytoplasm and the amino acid sequence cleaved by the

extracellular protease located in that order from the amino terminus toward the carboxyl terminus, and preferably, the amino acid sequence cleaved by the extracellular protease and the amino acid sequence cleaved by the protease located in the cytoplasm located in that order from the amino terminus toward the carboxyl terminus.

[Claim 12]

The molecule according to any one of claims 1 to 11, wherein the amino acid sequence cleaved by the protease located in the cytoplasm comprises at least one sequence selected from among SEQ ID NOs: 12 and 44 to 53.

[Claim 13]

The molecule according to any one of claims 1 to 12, wherein the target antigen is a tumor antigen.

[Claim 14]

The molecule according to any one of claims 1 to 13, which comprises another moiety [d] that is bound to the moiety [a] and the moiety [d] does not comprise the first peptide or the second peptide, preferably wherein the moiety [d] is at least one substance selected from the group consisting of an antibody that is not a moiety binding to the target antigen or an antigen-binding fragment thereof, a peptide comprising an amino acid sequence that is not comprised in the first peptide or the second peptide, a cytokine, a toxin, a radioactive isotope, a label molecule, a photosensitive substance, an immunostimulant, an antitumor compound, a drug, a payload, and a polymer, more preferably wherein the antitumor compound is a camptothecin derivative or a pyrrolobenzodiazepine derivative, preferably, the camptothecin derivative be N-[(1S,9S)-9-ethyl-5-fluoro-9-hydroxy-4-methyl-10,13-dioxo-2,3,9,10,13,15-hexahydro-1H,12H-benzo[de]pyrano[3',4':6,7]indolizino[1,2-b]quinolin-1-yl]-2-hydroxyacetamide.

[Claim 15]

The molecule according to claim 14, which consists of a polypeptide, or the moiety [d] and a polypeptide.

[Claim 16]

A method for producing the molecule according to any one of claims 1 to 15, which comprises a step of preparing a peptide comprising an amino acid sequence comprised in the

first peptide and/or an amino acid sequence comprised in the second peptide by recombination, *in vitro* translation, chemical synthesis, or peptide synthesis.

[Claim 17]

A method for producing the molecule according to claim 5, 6, or 15, which comprises a step of introducing a polynucleotide comprising a nucleotide sequence encoding an amino acid sequence comprised in the moiety [a] and optionally an amino acid sequence comprised in the first peptide, and/or an amino acid sequence comprised in the second peptide into a cell, culturing the cell, and collecting a polypeptide binding to the target antigen from the culture product.

[Claim 18]

A pharmaceutical composition comprising the molecule according to any one of claims 1 to 15, a salt thereof, or a hydrate of the molecule or salt, preferably wherein the pharmaceutical composition is an anti-cancer agent.

[Claim 19]

A molecule or a pharmaceutical composition for use in a method of treatment of cancer, wherein the molecule is as defined in any one of claims 1 to 15 and the pharmaceutical composition is as defined in claim 18.