[0021] In a fifth aspect, the present invention relates to a method for synthesizing the compound Ama – L – X', wherein X' is a maleimide group comprising the step of (a) reacting an amatoxin comprising a nucleophilic group with a compound Y-L-X" wherein

Y is a leaving group, and

X" is a protected maleimide group.

[0022] In a sixth aspect, the present invention relates to a pharmaceutical composition comprising the conjugate according to the present invention.

[0023] In a seventh aspect, the present invention relates to a method of treating a disease associated with cells presenting a target, comprising the step of: contacting said cells with a conjugate according to the present invention, wherein said antibody is specific for said target.

[0023a] In an eigth aspect, there is provided use of a conjugate as described herein, wherein said antibody, or functional antibody fragment, is specific for said target, in the manufacture of medicament for treating a disease associated with cells presenting a target.

BRIEF DESCRIPTION OF THE DRAWING

[0024] **Fig. 1** shows the structural formulae of different amatoxins. The numbers in bold type (1 to 8) designate the standard numbering of the eight amino acids forming the amatoxin. The standard designations of the atoms in amino acids 1, 3 and 4 are also shown (Greek letters α to γ, Greek letters α to δ, and numbers from 1' to 7', respectively).

[0025] **Fig. 2** shows a schematic view of an IgG1 molecule and the positions of the amino acid residues that have been mutated to cysteine residues and for toxin coupling.HC-A118C; HC-S131C; HC-S239C; HC-D265C; HC-E269C; HC-N297C; HC-A327C; HC-I332C; residues HC-D265 and HC-N297 are involved in Fc γ receptor binding; substitution will interfere with receptor binding and subsequent uptake in receptor-positive cells.

[0026] **Fig. 3** shows a schematic view of the expression vectors for production of Trastuzumab heavy and light chains according to Example 1.

comprising said cysteine residue, wherein said cysteine residue is selected from the list of: heavy chain 118Cys, heavy chain 239Cys, and heavy chain 265Cys, in particular: heavy chain 118Cys, and heavy chain 265Cys.

6. A method for synthesizing the compound Ama – L – X', wherein X' is a maleimide group comprising the step of (a) reacting an amatoxin comprising a nucleophilic group with a compound Y-L-X'' wherein
Y is a leaving group, and
X'' is a protected maleimide group.

7. A pharmaceutical composition comprising the conjugate according any one of claims 1 to 3.

8. Use of a conjugate according any one of claims 1 to 3, wherein said antibody, or functional antibody fragment, is specific for said target, in the manufacture of a medicament for treating a disease associated with cells presenting a target.