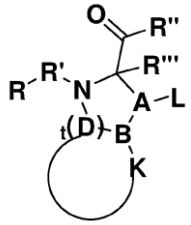
CLAIMS

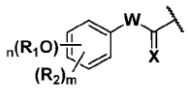
1. A tripeptide compound with the structure of formula (1)



(I)

wherein, in formula (I),

R is represented by formula (II)



(II)

wherein, in formula (II),

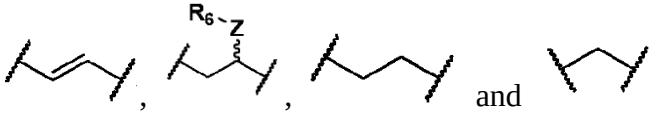
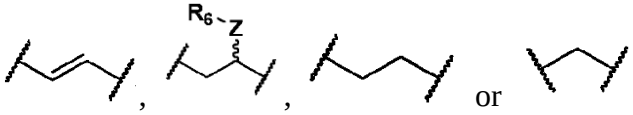
R_1 is selected from hydrogen, alkyl, cycloalkyl, heteroalkyl, heterocyclyl, alkenyl, alkynyl, acyl, aroyl, aryl, aralkyl, heteroaryl and heteroaralkyl;

R_2 is selected from hydrogen, alkyl, cycloalkyl, heteroalkyl, heterocyclyl, alkenyl, alkynyl, acyl, aroyl, aryl, aralkyl, heteroaryl, heteroaralkyl, alkylthio, aralkylthio, arylthio, F, Cl, Br, I, NO_2 and CN;

R_1 and R_2 are the same or different;

n = 0, 1, 2, 3, 4, or 5; and when $n \geq 2$, multiple R_1s are the same or different;

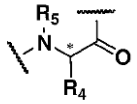
m = 0, 1, 2, 3, 4, or 5; and when $m \geq 2$, multiple R_2s are the same or different;

W is selected from , wherein  is linked to benzene ring on the left side thereof; wherein Z is selected from oxygen and nitrogen, and R_6 is selected from hydrogen, alkyl, cycloalkyl, heteroalkyl, heterocyclyl, alkenyl, alkynyl, aryl, aralkyl, heteroaryl and heteroaralkyl; and

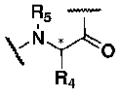
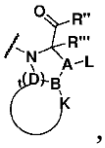
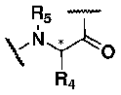
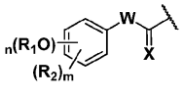
X is selected from oxygen and hydrogen;

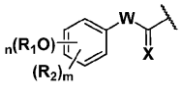
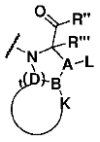
wherein, in formula (I),

R’ is a residue of an L- or D-amino acid or amino acid derivative, as shown in formula (III), or R’ is absent, and



（III）

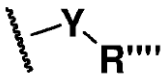
when R’ is a residue of an L- or D-amino acid or amino acid derivative, the C-terminus of  is linked to the N-terminus of , and the N-terminus of  is linked to the C-terminus of ; and

when R’ is absent,  is linked to  via an amide bond or a C-N bond; and

wherein R_4 and R_5 are each independently selected from hydrogen, alkyl, cycloalkyl, heteroalkyl, heterocyclyl, alkenyl, alkynyl, aryl, aralkyl, heteroaryl and heteroaralkyl; and R_4 and R_5 are the same or different;

wherein, in formula (I),

R’’ is represented by the formula (IV):



（IV）

wherein:

Y is oxygen, and

R’’’’ is R^9, and R’’ is $–OR^9$;

wherein, R^9 is ;

wherein, in formula (I),

R’’’ is selected from hydrogen and alkyl;

A = carbon;

L is selected from hydrogen, alkyl, substituted alkyl, aryl and substituted aryl;

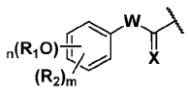
D is carbon, t = l; and

B is carbon, A is linked to B by a carbon-carbon single bond, and K is linked to B and is not linked to D;

K is hydrogen;

wherein the alkyl, cycloalkyl, heteroalkyl, heterocyclyl, alkenyl, alkynyl, aryl, aralkyl, heteroaryl and heteroaralkyl may each be unsubstituted or optionally substituted with one or more substituents selected from hydroxy, alkoxy, aryloxy, thio, thioalkyl, arylthio, amino, amido, alkylamino, arylamino, alkylsulfonyl, arylsulfonyl, sulfonamido, alkyl, aryl, heteroaryl, alkylsulfonamido, arylsulfonamido, keto, carboxy, alkoxycarbonyl, carboxamido, alkoxycarbonylamino, alkoxycarbonyloxy, alkylureido, arylureido, halo, cyano and nitro.

2. The tripeptide compound according to claim 1, wherein R group



（II）

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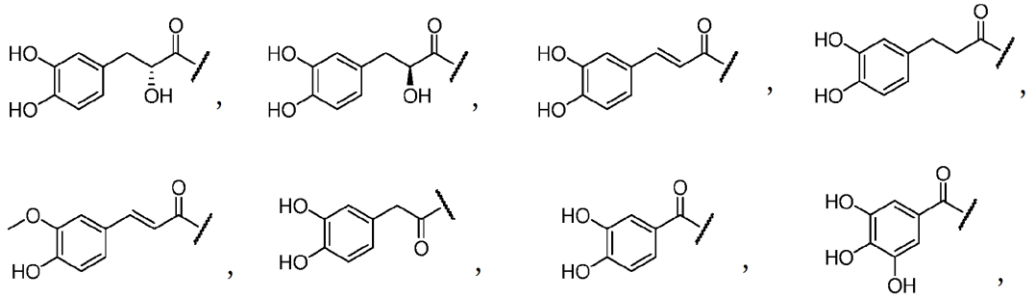
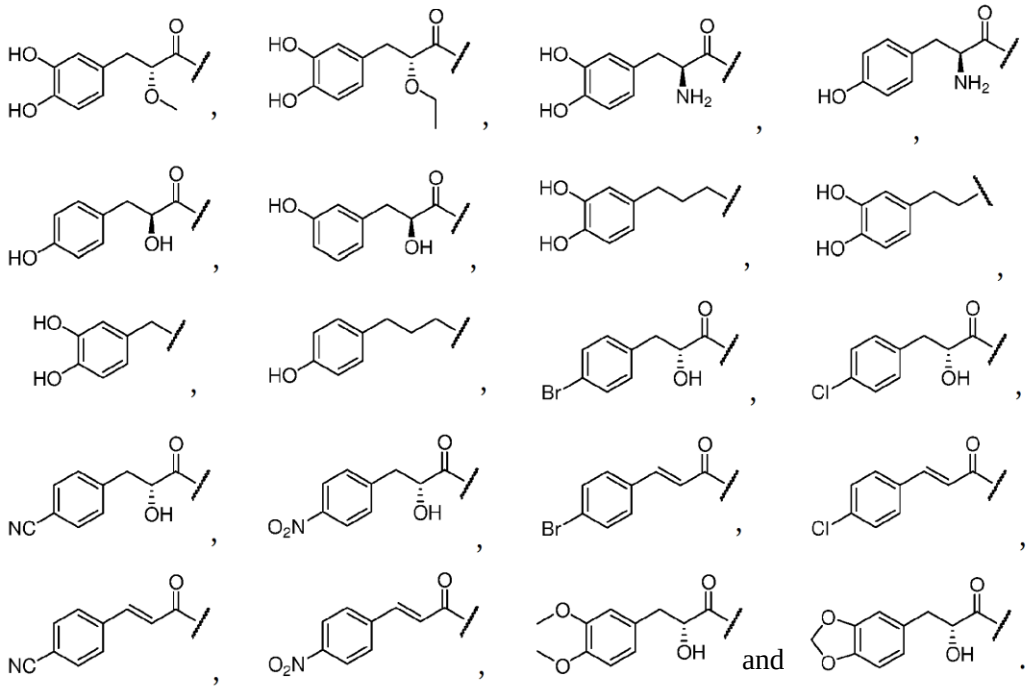
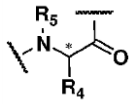




3. The tripeptide compound according to claim 1, wherein R' group



(III)

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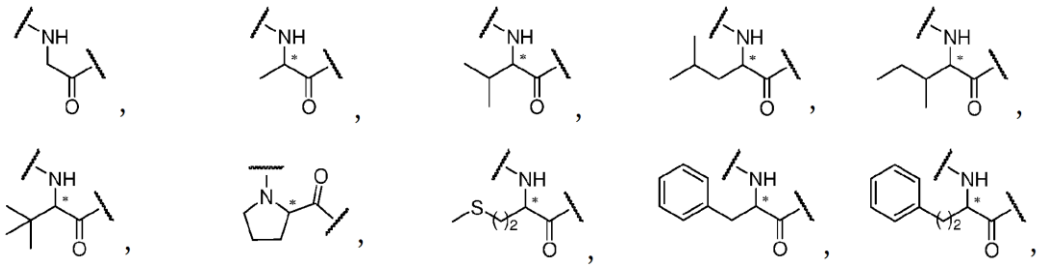

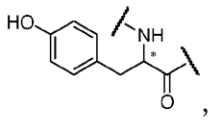
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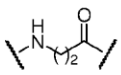
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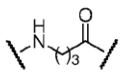
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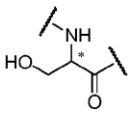
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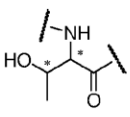
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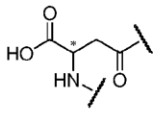
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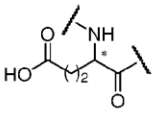
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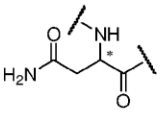
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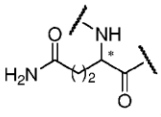
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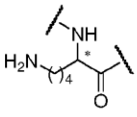
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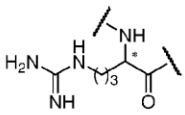
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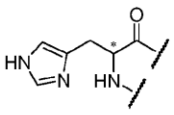
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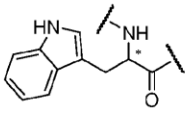
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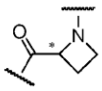
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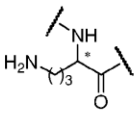
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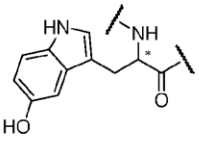
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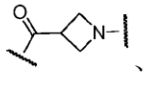
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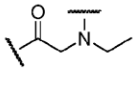
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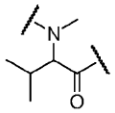
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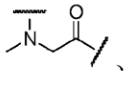
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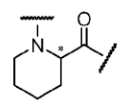
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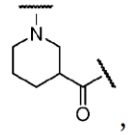
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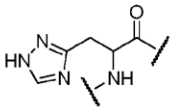
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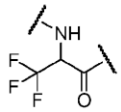
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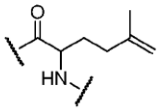
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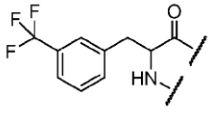
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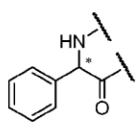
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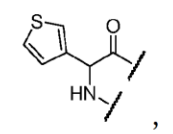
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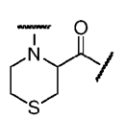
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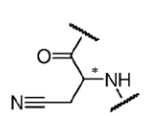
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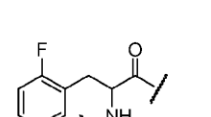
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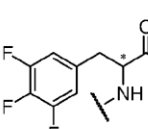
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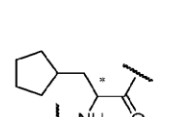
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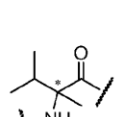
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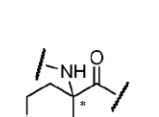
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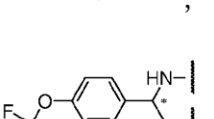
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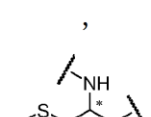
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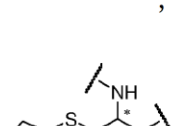
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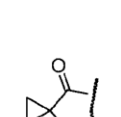
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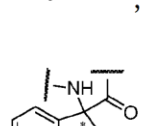
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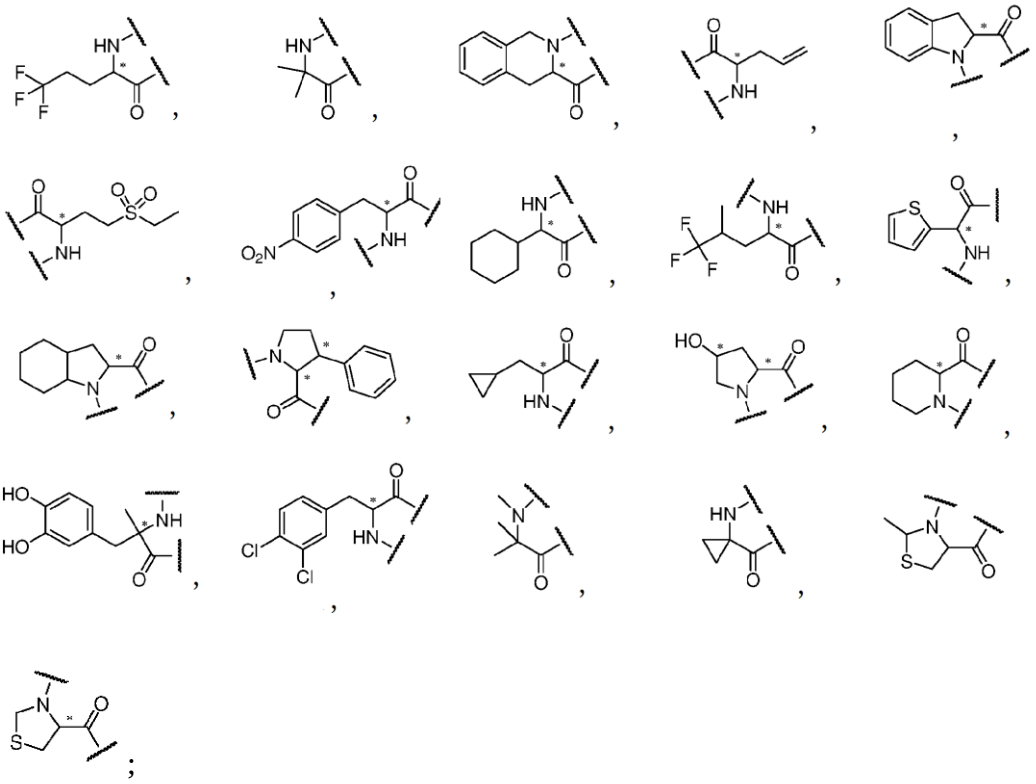
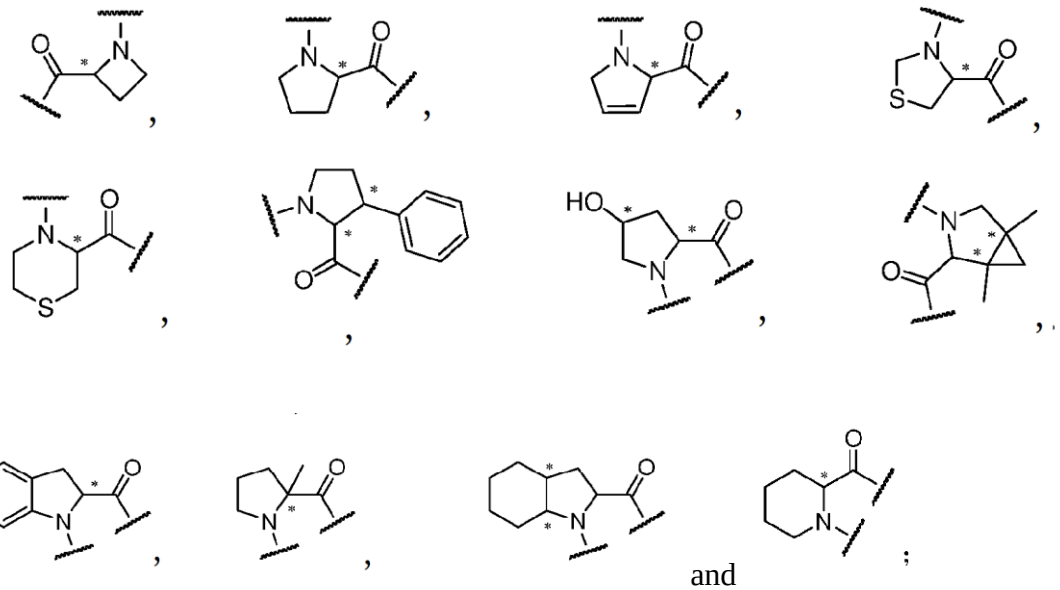


and

;

wherein, "*" represents a chiral center, and the compound comprising "*" includes all chiral isomers of the structural formula.

4. The tripeptide compound according to claim 1, wherein formula (I) is selected from the following formula structures:



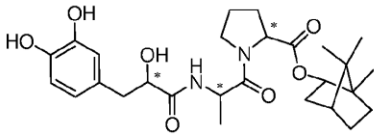
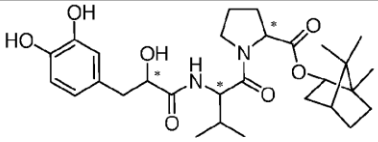
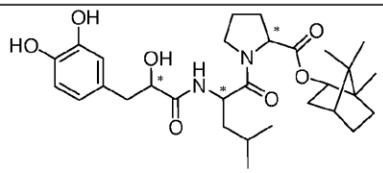
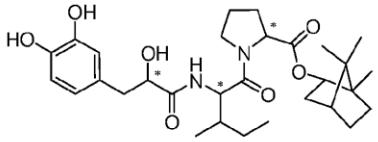
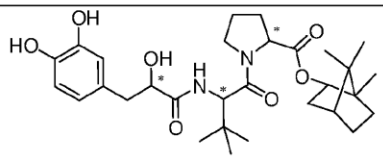
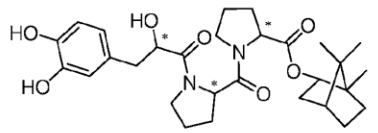
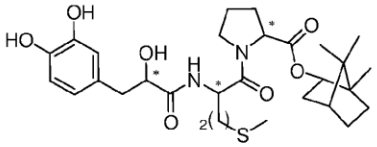
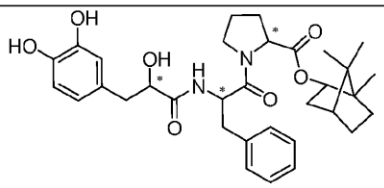
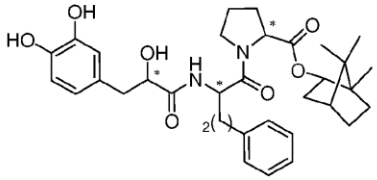
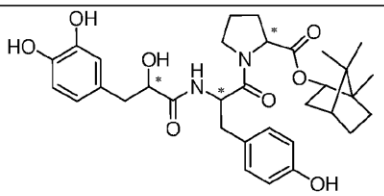
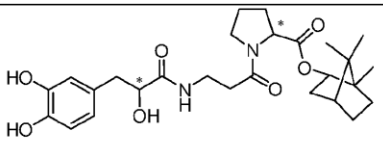
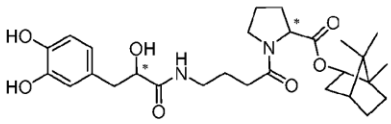
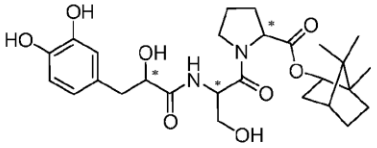
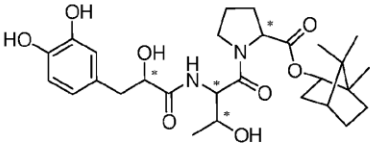
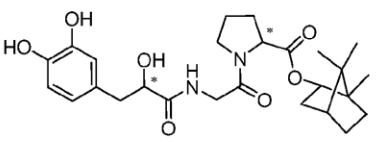
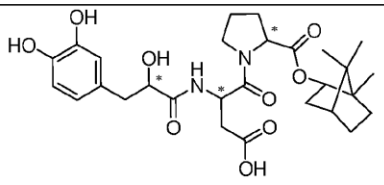
and

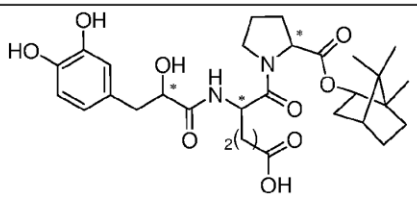
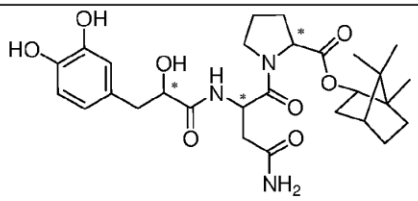
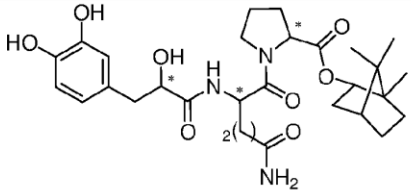
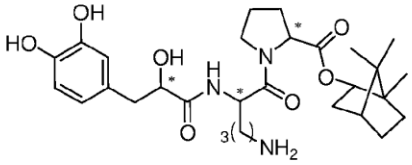
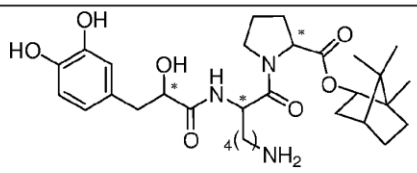
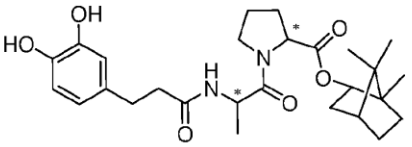
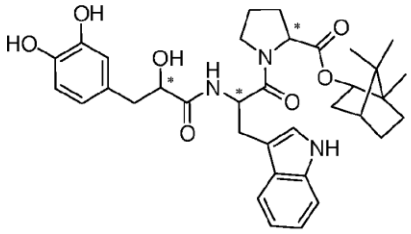
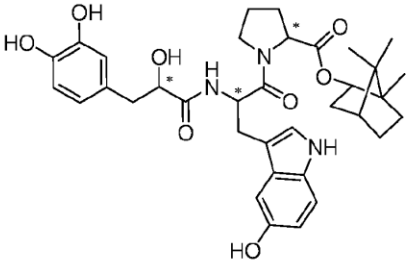
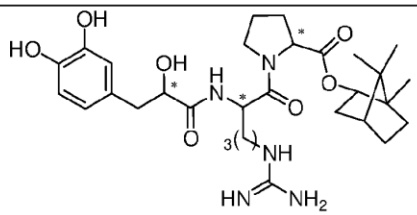
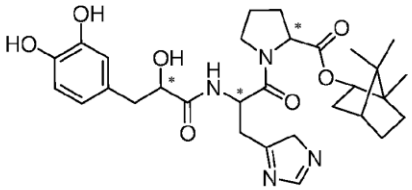
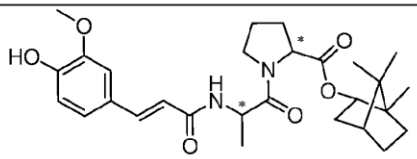
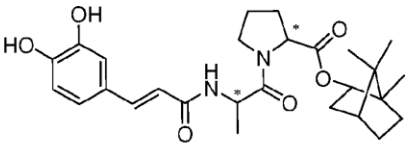
;

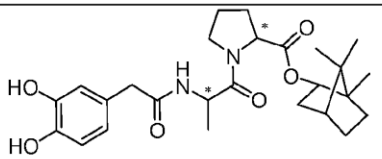
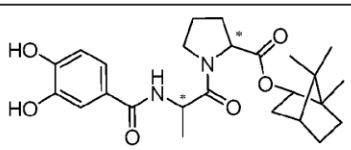
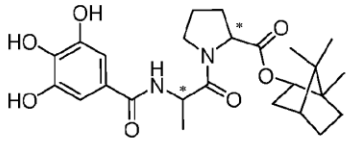
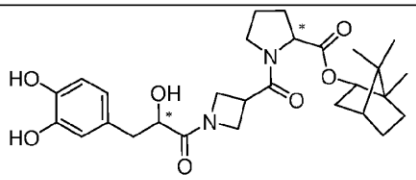
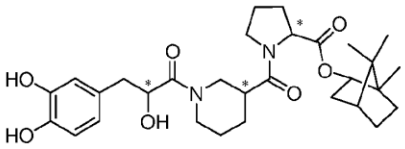
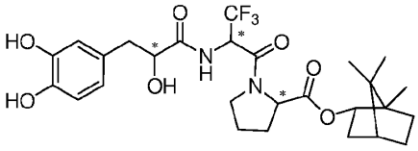
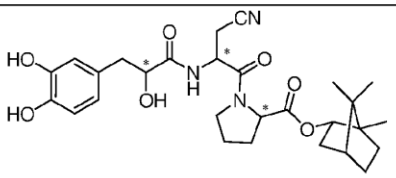
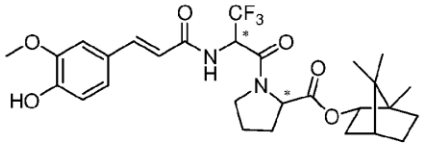
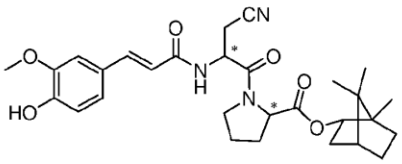
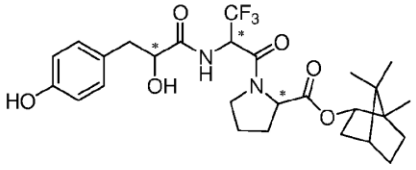
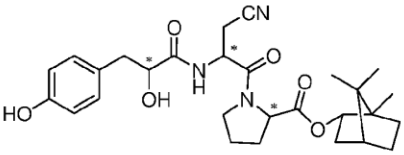
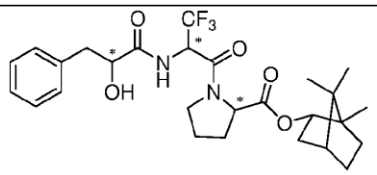
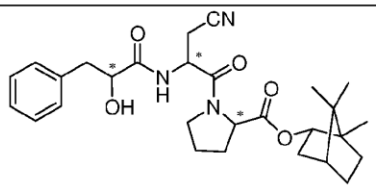
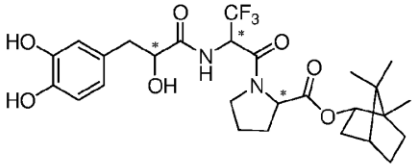
wherein, "*" represents a chiral center, and the compound comprising "*"

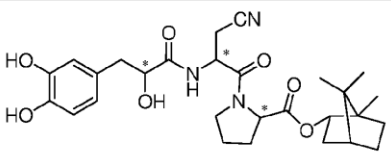
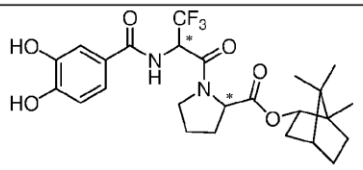
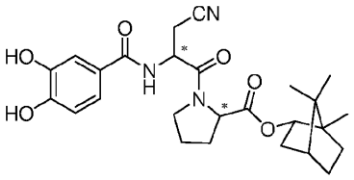
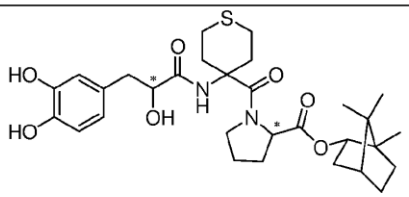
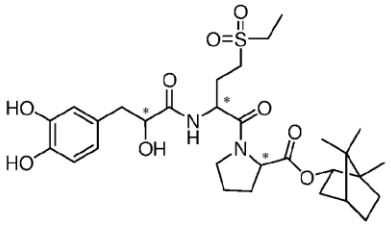
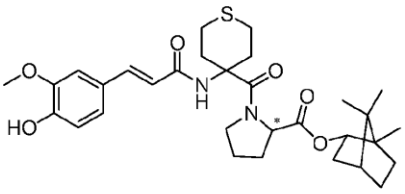
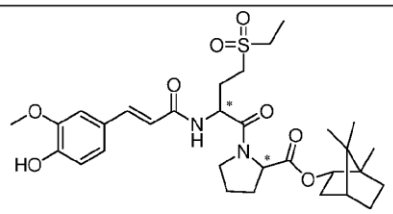
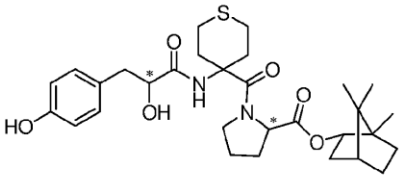
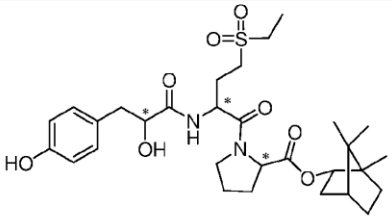
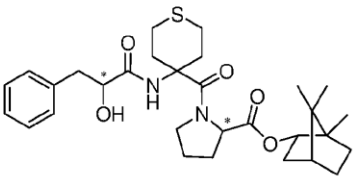
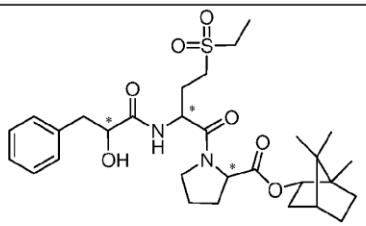
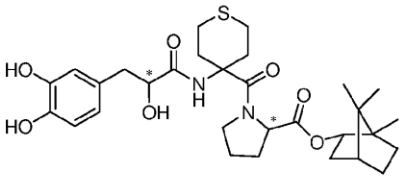
includes all chiral isomers of the structural formula.

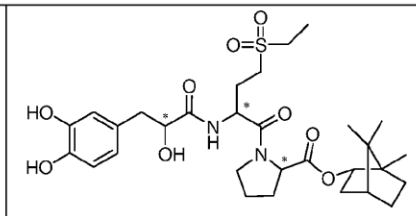
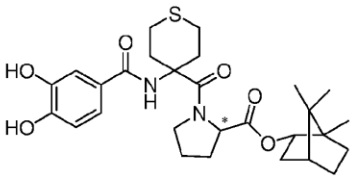
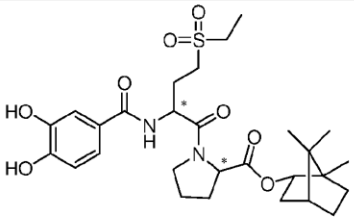
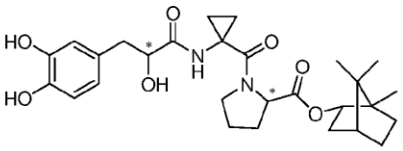
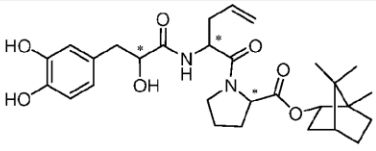
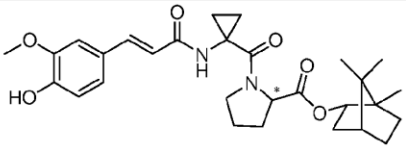
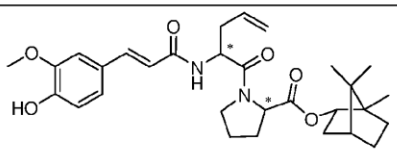
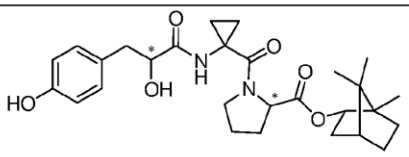
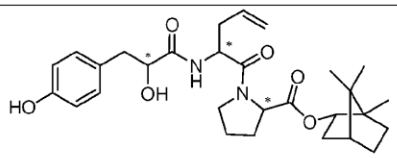
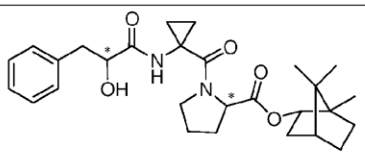
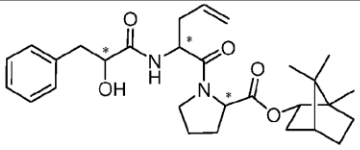
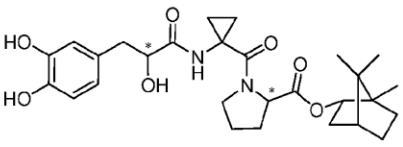
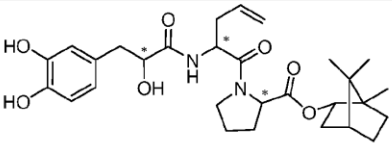
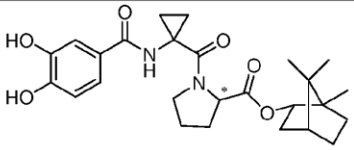
5. The tripeptide compound according to claim 1, wherein the compound is selected from a compound of the following structures:

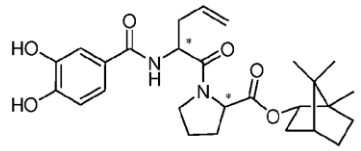
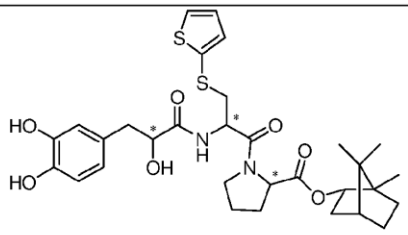
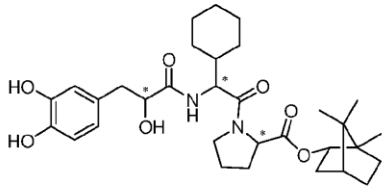
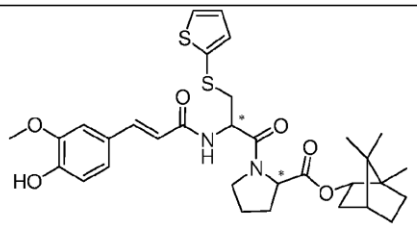
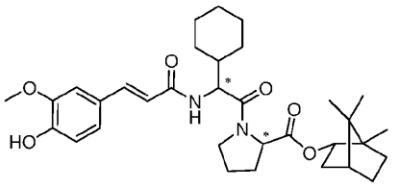
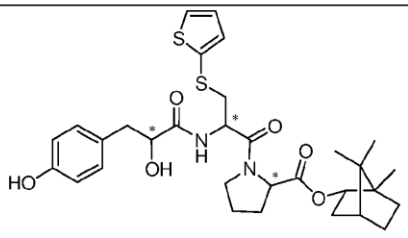
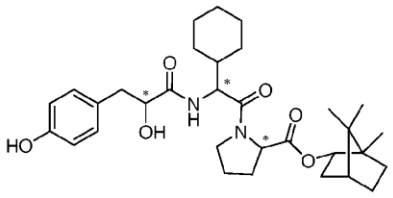
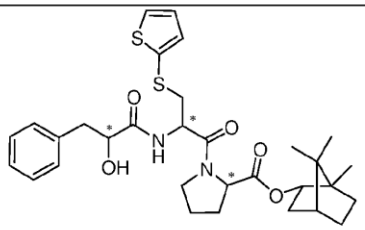
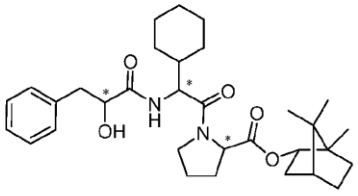
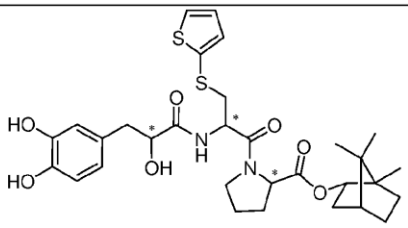
No.	formula	No.	formula
221S-1		221S-2	
221S-3		221S-4	
221S-5		221S-6	
221S-7		221S-8	
221S-9		221S-10	
221S-11		221S-12	
221S-13		221S-14	
221S-15		221S-16	

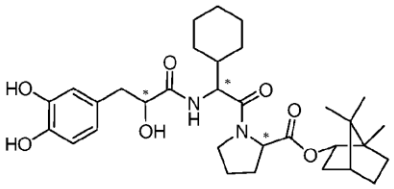
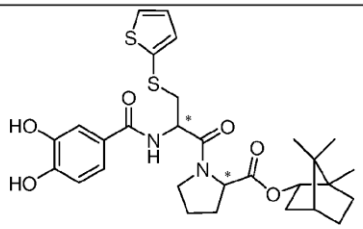
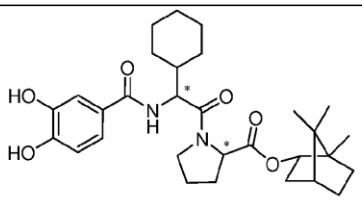
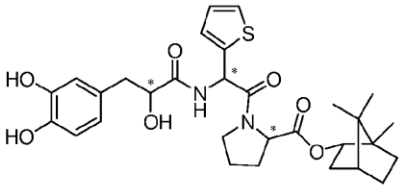
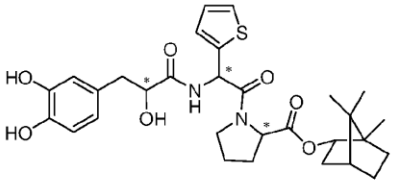
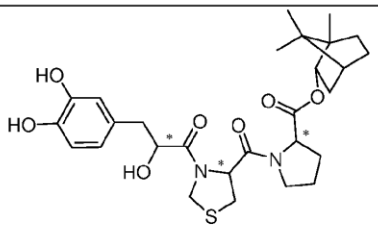
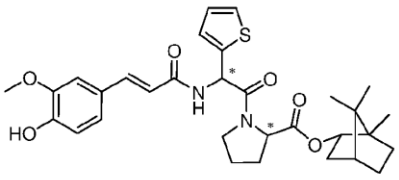
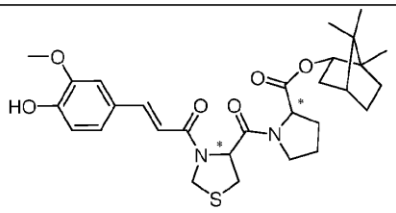
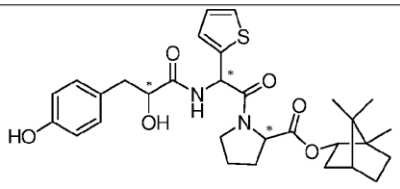
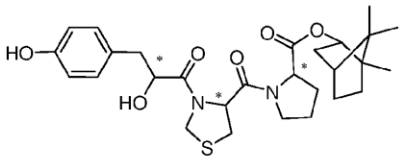
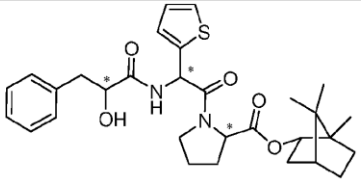
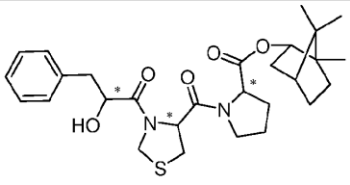
221S-17		221S-18	
221S-19		221S-20	
221S-21		221S-22	
221S-23		221S-24	
221S-25		221S-26	
221S-27		221S-28	

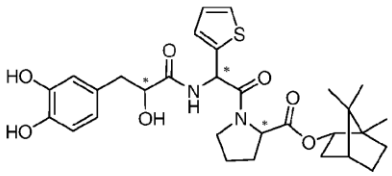
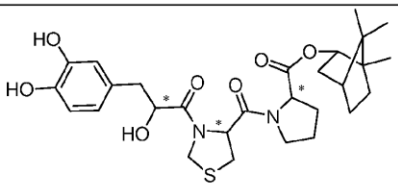
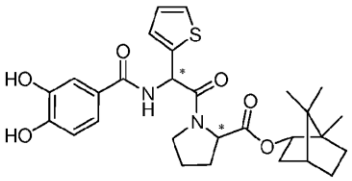
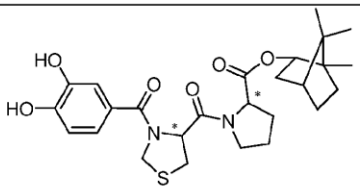
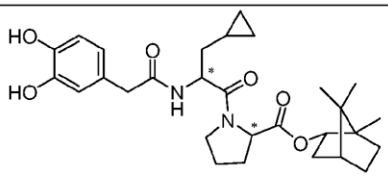
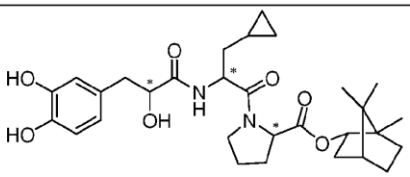
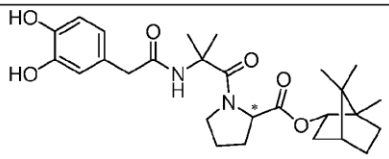
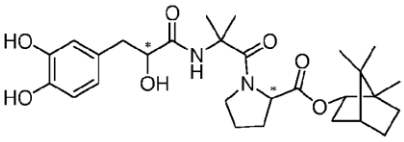
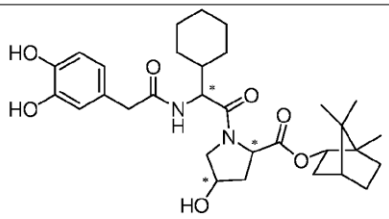
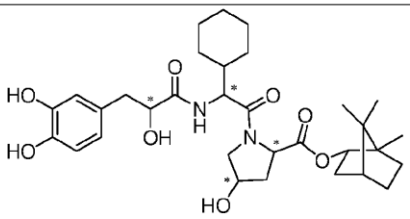
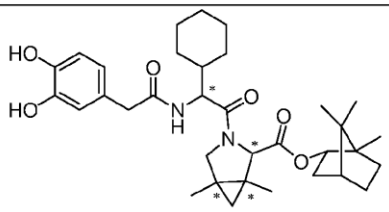
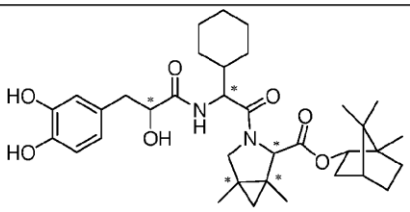
221S-29		221S-30	
221S-31		221S-32	
221S-33		221S-34	
221S-35		221S-36	
221S-37		221S-38	
221S-39		221S-40	
221S-41		221S-42	

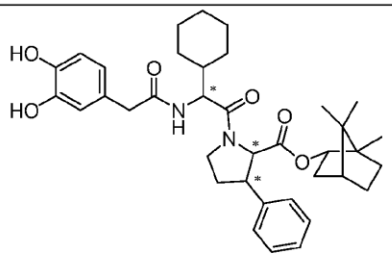
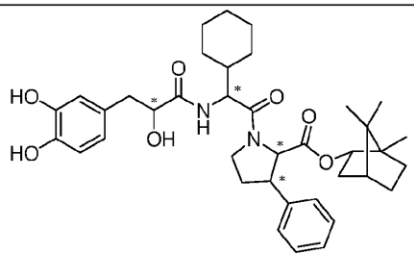
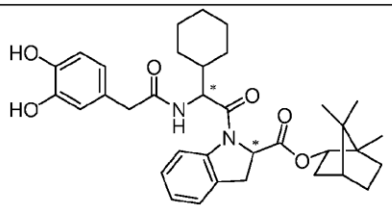
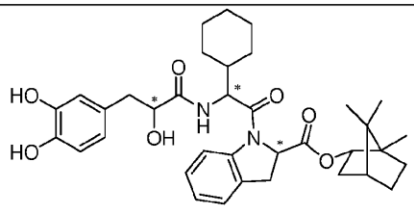
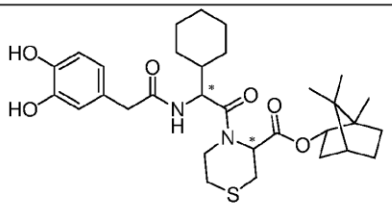
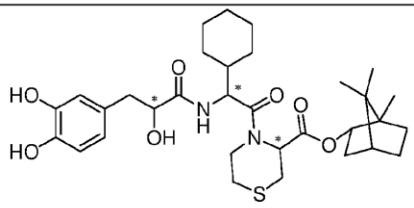
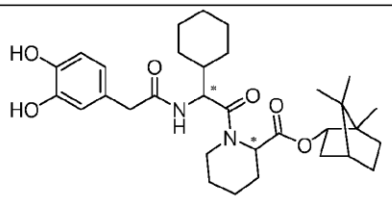
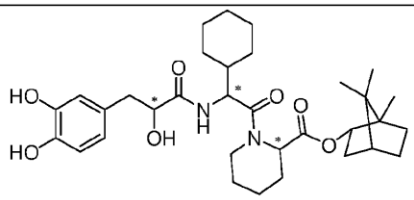
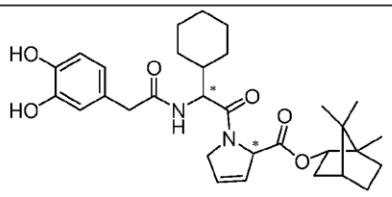
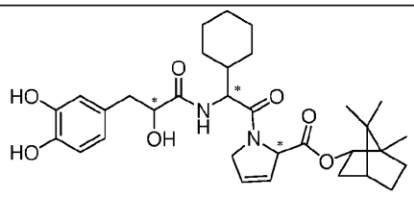
221S-43		221S-44	
221S-45		221S-46	
221S-47		221S-48	
221S-49		221S-50	
221S-51		221S-52	
221S-53		221S-54	

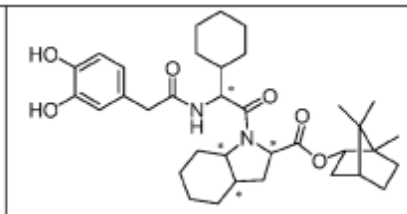
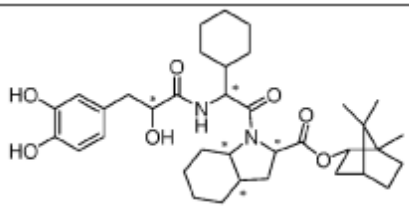
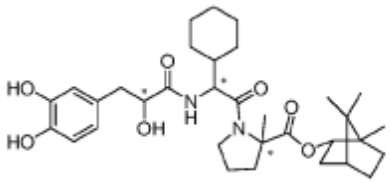
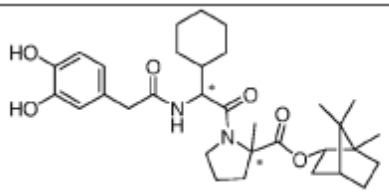
221S-55		221S-56	
221S-57		221S-58	
221S-59		221S-60	
221S-61		221S-62	
221S-63		221S-64	
221S-65		221S-66	
221S-67		221S-68	

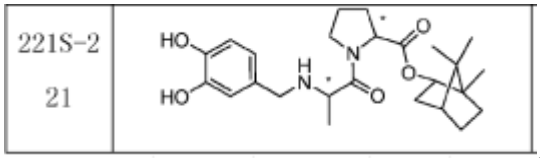
221S-69		221S-70	
221S-71		221S-72	
221S-73		221S-74	
221S-75		221S-76	
221S-77		221S-78	

221S-79		221S-80	
221S-81		221S-82	
221S-83		221S-84	
221S-85		221S-86	
221S-87		221S-88	
221S-89		221S-90	

221S-91		221S-92	
221S-93		221S-94	
221S-95		221S-96	
221S-97		221S-98	
221S-99		221S-100	
221S-101		221S-102	

221S-103		221S-104	
221S-105		221S-106	
221S-107		221S-108	
221S-109		221S-110	
221S-111		221S-112	

221S-113		221S-114	
221S-115		221S-116	

and ,

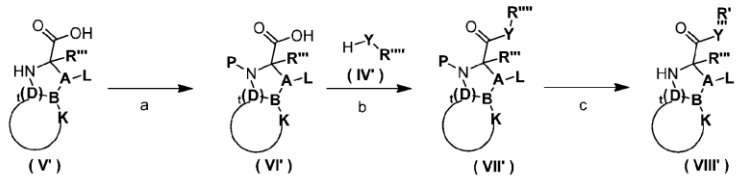
wherein, "*" represents a chiral center, and the compound comprising "*" includes all chiral isomers of the structural formula.

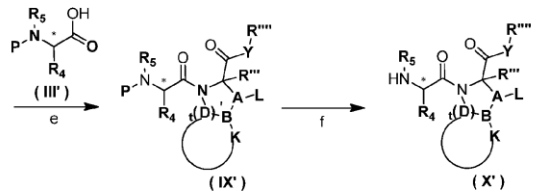
6. A pharmaceutically acceptable salt or a pharmaceutically acceptable ester of the compound according to any one of claims 1 to 5, wherein the pharmaceutically acceptable salt is selected from pharmaceutically acceptable acid salt and pharmaceutically acceptable basic salt, wherein the pharmaceutically acceptable acid salt includes a salt formed with one of the following acids: sulfuric acid, hydrogen sulfate, hydrochloric acid, hydrobromic acid, phosphoric acid, nitric acid, carbonic acid, boric acid, methanesulfonic acid, benzenesulfonic acid, p-toluenesulfonic acid, formic acid, acetic acid, propionic acid, butyric acid, pyruvic acid, maleic acid, malic acid, tartaric acid, citric acid, ascorbic acid, benzoic acid, camphoric acid, fumaric acid, oxalic acid, succinic acid, camphorsulfonic acid, maleic acid, salicylic acid and α-lactic acid; the pharmaceutically acceptable basic salt is selected from a salt formed with one of the following bases: alkali metals selected from lithium, sodium and potassium; alkaline earth metals selected from magnesium, and calcium; lithium hydroxide, sodium hydroxide, potassium hydroxide, lithium hydride, sodium hydride, butyllithium, ammonium, triethylamine, diisopropylethylamine, ornithine, arginine, lysine and histidine; and the pharmaceutically acceptable ester is selected from an ester formed through a hydroxyl group and a phenolic hydroxyl group in the compound with an acid.

7. A solvated mixture of the compound according to any one of claims 1 to 5, wherein the solvate is one selected from water, methanol, ethanol, isopropanol, butanol, ethyl acetate and DMSO, and a combination thereof.

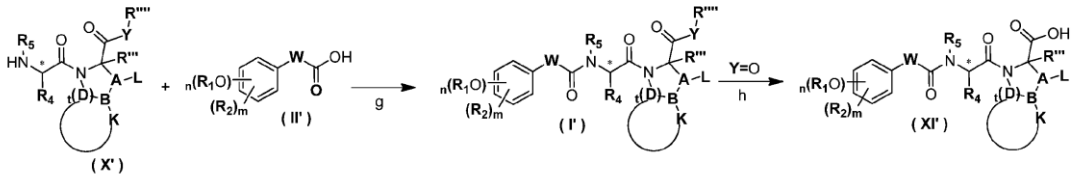
8. A method for preparing the compound according to claim 1, where the method comprises:

(1)



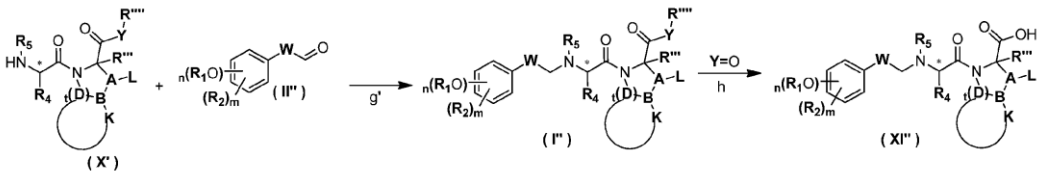


(2)



or

(2′)



wherein,

A, B, D, L, K, n, m, R_1, R_2, R_4, R_5, R''', R'''', t, W and Y are as defined in any one of claims 1 to 4;

a: protection of the amino of α-amino acid; P represents a suitable protecting group and is selected from tert-butoxycarbonyl(Boc), allyloxycarbonyl(Alloc), benzyloxycarbonyl, trityl, benzyloxymethyl, fluorenylmethoxycarbonyl(Fmoc), phthaloyl, dithiosuccinyl, methoxyformyl, ethoxyformyl, benzenesulfonyl, p-toluenesulfonyl, 2-(trimethylsilyl)ethanesulfonyl, benzyl(Bn), trityl(Tr) and allyl;

b: conditions for synthesis of peptide bond;

c: deprotection corresponding to step a;

e: the same as b;

f: the same as c;

g: the same as b;

g': reductive amination;

h: conditions for ester hydrolysis;

wherein, "*" represents a chiral center, and the compound comprising "*" includes all chiral isomers of the structural formula.

9. Use of the compound according to any one of claims 1 to 5 in the manufacture of a medicament for the prophylaxis, treatment or delay of hypertension and its complications, wherein the complications are selected from one or more of coronary heart disease, angina pectoris, acute heart failure, chronic congestive heart failure, myocardial infarction and sequelae, congestive heart disease, myocardial ischemia, myocarditis, myocardial fibrosis, myocardial hypertrophy, atherosclerosis, benign small arterial nephrosclerosis, malignant small arterial nephrosclerosis, vascular growth abnormality and remodeling, angiogenesis-related diseases, hyperaldosteronism, arrhythmia, kidney disease, diabetes, stroke, thrombosis, renal failure, hyperlipidemia, obesity, hyperglycemia, retinal arteriosclerosis, and hypertensive fundus lesions.

10. A pharmaceutical composition comprising:

1) the compound according to any one of claims 1 to 5, or a pharmaceutically acceptable salt of the compound according to any one of claims 1 to 5, and

2) a pharmaceutically acceptable carrier, excipient and diluent of the compound according to any one of claims 1 to 5.

11. Use of the pharmaceutical composition according to claim 10 in the manufacture of a medicament for the prophylaxis, treatment or delay of hypertension and its complications, wherein the complications comprise one or more of coronary heart disease, angina pectoris, heart failure, myocardial infarction and sequelae, congestive heart disease, myocardial ischemia, myocarditis, myocardial fibrosis, myocardial hypertrophy, atherosclerosis, benign small arterial nephrosclerosis, malignant small arterial nephrosclerosis, vascular growth abnormality and remodeling angiogenesis-related diseases, hyperaldosteronism, arrhythmia, kidney disease, diabetes, stroke, thrombosis, renal failure, hyperlipidemia, obesity, hyperglycemia, retinal arteriosclerosis, and hypertensive fundus lesions.

12. The use according to claim 9, wherein angiogenesis-related disease is new vascular macular degeneration.

13. The use according to claim 11, wherein remodeling angiogenesis-related disease is new vascular macular degeneration.

14. The use according to claim 11, wherein renal failure is diabetic nephropathy.