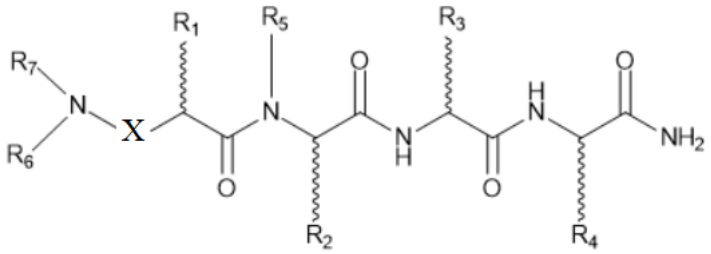
CLAIMS

1. A polypeptide having a structure shown in Formula I or its stereoisomer, prodrug, pharmaceutically acceptable solvate or salt:

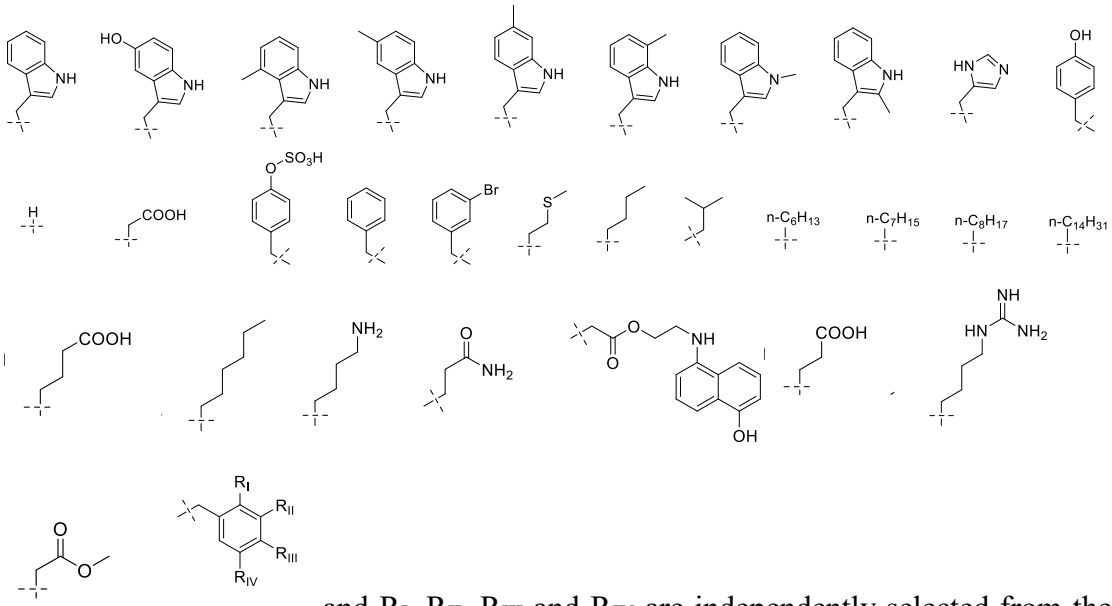


Formula I

wherein: X is an amide bond or a single bond;

 is  or , so that the amino acid at the corresponding position is a D-type or L-type amino acid;

R_1, R_2, R_3 and R_4 are independently selected from the group consisting of the following structures:

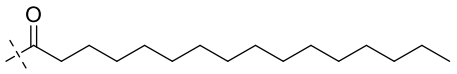
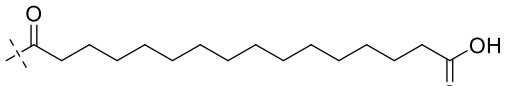
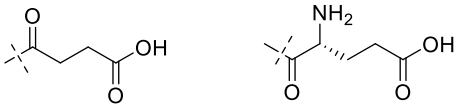
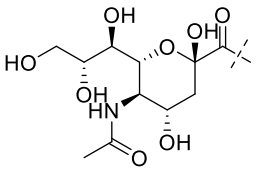


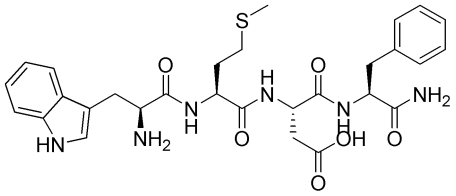
, and R_I, R_{II}, R_{III} and R_{IV} are independently selected from the group consisting of halogen, nitro, C_1-C_4 alkyl, azido and cyano;

R_5 and R_6 are independently selected from the group consisting of H, and substituted or unsubstituted C_1-C_4 alkyl;

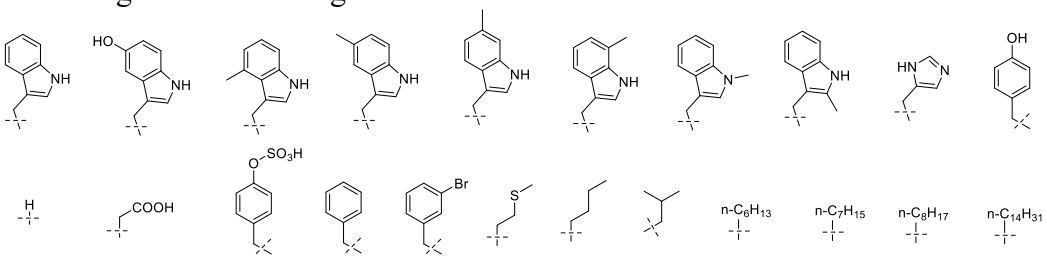
R_7 is selected from the group consisting of the following structures:

Biotin, AC, Fmoc, Cbz, PEG100, PEG200, PEG300, PEG400, PEG600, PEG800, PEG1000, PEG1500, PEG2000,

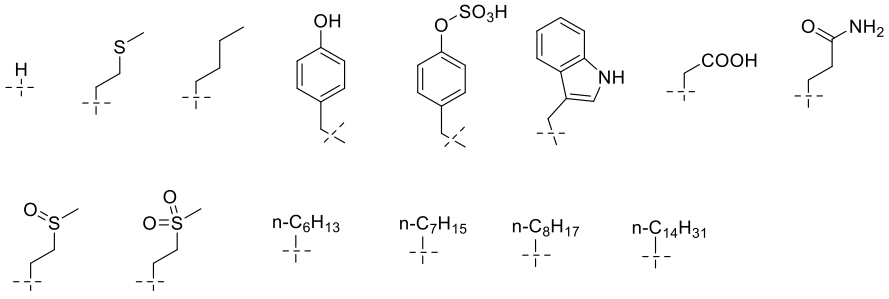




,


provided that the polypeptide is not .

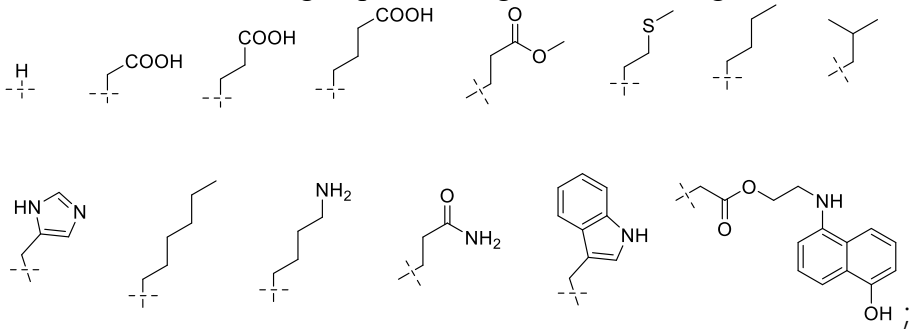
2. The polypeptide according to claim 1, wherein R_1 is selected from the group consisting of the following structures:


;

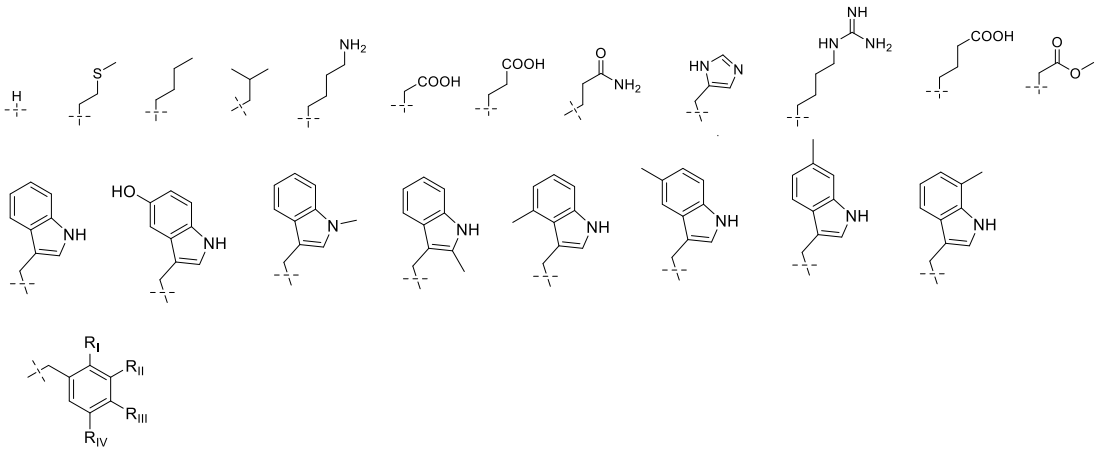
R_2 is selected from the group consisting of the following structures:


;

R_3 is selected from the group consisting of the following structures:


;

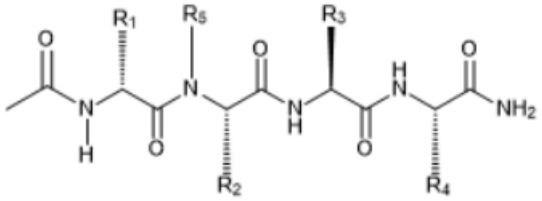
R_4 is selected from the group consisting of the following structures:



,

R_I, R_{II}, R_{III} and R_{IV} are independently selected from the group consisting of halogen, nitro, C_1-C_4 alkyl, azido and cyano.

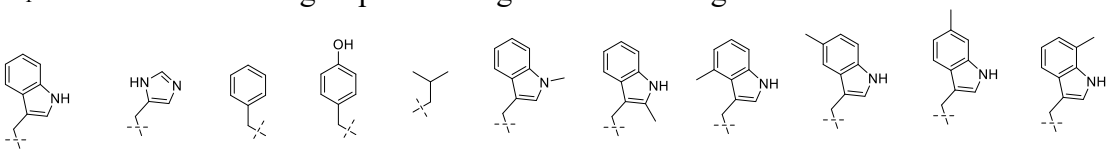
3. The polypeptide according to claim 1, wherein the polypeptide has a structure shown in Formula II:



Formula II.

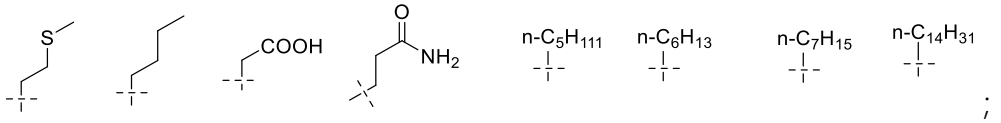
4. The polypeptide according to claim 3, wherein

R_1 is selected from the group consisting of the following structures:



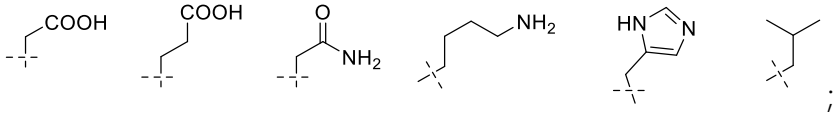
;

R_2 is selected from the group consisting of the following structures:



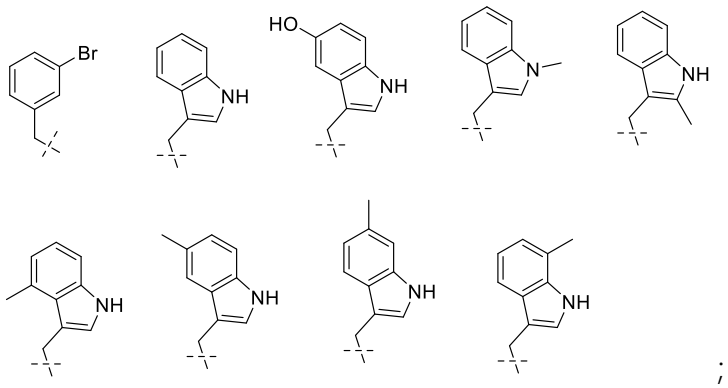
;

R_3 is selected from the group consisting of the following structures:



;

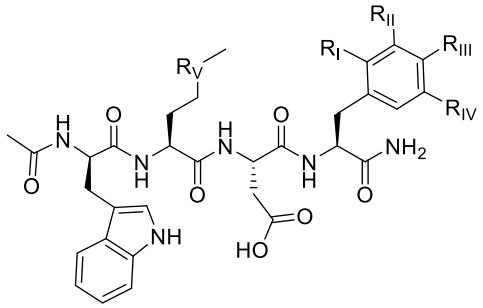
R_4 is selected from the group consisting of the following structures:



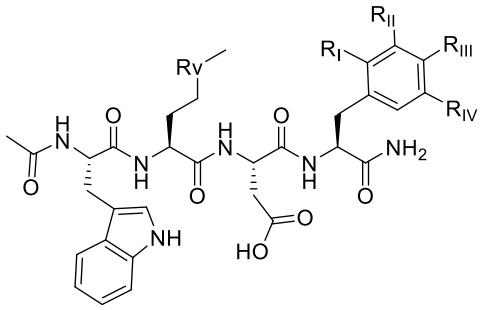
;

R_5 is selected from the group consisting of H and CH_3.

5. The polypeptide according to claim 1, wherein the polypeptide has a structure shown in Formula III or IV:



Formula III



Formula IV;

wherein R_I, R_{II}, R_{III} and R_{IV} are independently selected from the group consisting of halogen, nitro, C_1-C_4 alkyl, azido N_3 and cyano, and R_V is a carbon or sulfur atom.

6. The polypeptide according to claim 5, wherein R_I, R_{II}, R_{III} and R_{IV} are independently selected from the group consisting of H, F, Cl, Br, I, CN, N_3, Me and NO_2.

7. The polypeptide according to claim 1, wherein the polypeptide is any of compounds HT-1 to HT-292 in Table 1 except HT-9.

8. A pharmaceutical composition, wherein the composition comprises the polypeptide of any of claims 1-7, a pharmaceutically acceptable salt, stereoisomer or prodrug molecule thereof, and pharmaceutically acceptable excipients.

9. Use of the polypeptide of any of claims 1-7 or the pharmaceutical composition of claim 8 as a CCK receptor agonist or antagonist, or in the preparation of a medicament for treating or preventing a CCK receptor-related disease.

10. The use according to claim 9, wherein the CCK receptor-related disease includes at least one of amnesia, dementia, epilepsy, depression, obesity, gallbladder cancer, pancreatic cancer, and diseases of the digestive system.