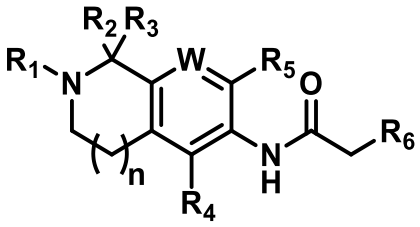
Claims

1. A compound shown in formula A or a pharmaceutically acceptable salt thereof,



formula A

wherein,

R_1 is substituted or unsubstituted phenyl, and the substituted means being substituted by one or more substituents selected from the group consisting of halogen, cyano, C_{1-6} alkyl, C_{1-6} alkoxy, halogenated C_{1-6} alkyl, -NR_8R_9 and ethynyl;

R_2 and R_3 are each independently selected from the group consisting of hydrogen, deuterium;

R_4 and R_5 are each independently selected from the group consisting of C_{1-6} alkyl;

R_6 is selected from the substituted or unsubstituted group consisting of C_{3-6} cycloalkyl, and the substituted means being substituted by one or more substituents selected from the group consisting of halogen, C_{1-6} alkyl, C_{1-6} alkoxy, and halogenated C_{1-6} alkyl;

n is selected from the group consisting of 1 and 2;

W is C-R_7;

R_7 is selected from the group consisting of hydrogen and halogen;

R_8 and R_9 are each independently selected from the group consisting of C_{1-6} alkyl.

2. The compound of claim 1 or the pharmaceutically acceptable salt thereof, wherein:

R_1 is substituted or unsubstituted phenyl, and the substituted means being substituted by one or more substituents selected from the group consisting of halogen, cyano, C_{1-6} alkyl, C_{1-6} alkoxy, halogenated C_{1-6} alkyl, -NR_8R_9 and ethynyl;

R_2 and R_3 are each independently selected from the group consisting of hydrogen and deuterium;

R_4 and R_5 are methyl;

R_6 is selected from the substituted or unsubstituted group consisting of C_{3-6} cycloalkyl, and the substituted means being substituted by one or more substituents selected from the group consisting of halogen and C_{1-6} alkyl;

n is 1;

W is C-R_7;

R_7 is selected from the group consisting of hydrogen and halogen;

R_8 and R_9 are each independently C_{1-6} alkyl.

3. The compound of claim 2 or the pharmaceutically acceptable salt thereof, wherein:

R_1 is substituted or unsubstituted phenyl, and the substituted means being substituted by one or more substituents selected from the group consisting of halogen, cyano, C_{1-6} alkyl, C_{1-6} alkoxy, halogenated C_{1-6} alkyl, -NR_8R_9 and ethynyl;

R_2 and R_3 are each independently selected from the group consisting of hydrogen and deuterium;

R_4 and R_5 are methyl;

R_6 is selected from the group consisting of  and ;

n is 1;

W is C-R_7;

R_7 is selected from the group consisting of hydrogen and halogen;

R_8 and R_9 are each independently C_{1-6} alkyl.

4. The compound of claim 3 or the pharmaceutically acceptable salt thereof, wherein:

R_1 is substituted or unsubstituted phenyl, and the substituted means being substituted by one or more substituents selected from the group consisting of halogen, cyano, C_{1-6} alkyl, C_{1-6} alkoxy, halogenated C_{1-6} alkyl, $-NR_8R_9$ and ethynyl;

R_2 and R_3 are each independently selected from the group consisting of hydrogen and deuterium;

R_4 and R_5 are methyl;

R_6 is ;

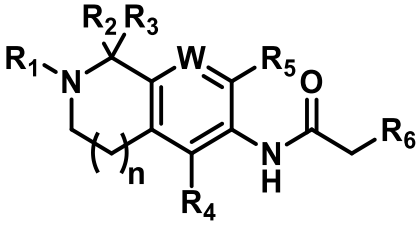
n is 1;

W is C-R_7;

R_7 is selected from the group consisting of hydrogen and halogen;

R_8 and R_9 are each independently C_{1-6} alkyl.

5. A compound shown in formula A or a pharmaceutically acceptable salt thereof,



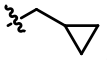
formula A

wherein:

R_1 is substituted or unsubstituted phenyl, and the substituted means being substituted by one or more substituents selected from the group consisting of halogen, cyano, C_{1-6} alkyl, C_{1-6} alkoxy, halogenated C_{1-6} alkyl, $-NR_8R_9$ and ethynyl;

R_2 and R_3 are each independently selected from the group consisting of hydrogen and deuterium;

R_4 and R_5 are methyl;

R_6 is ;

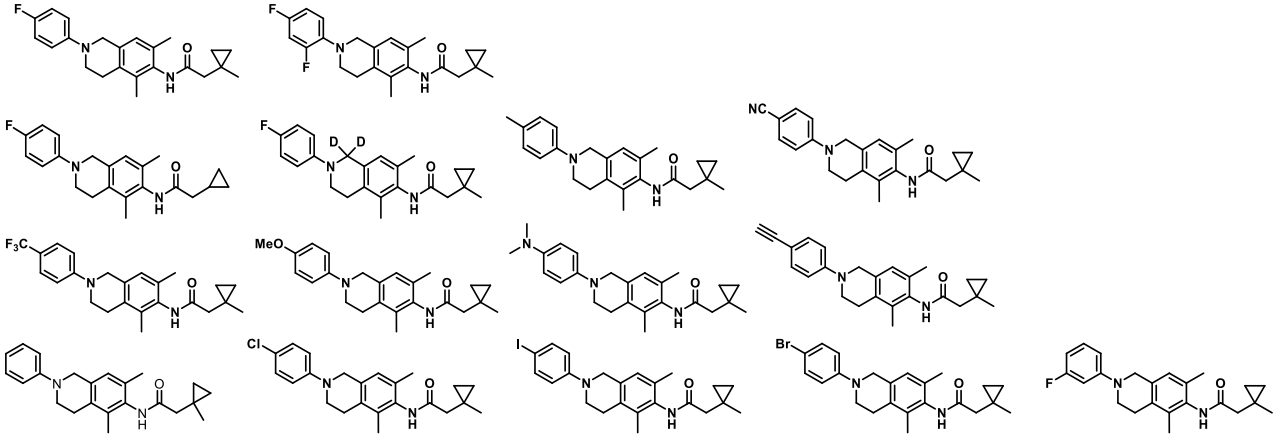
n is 1;

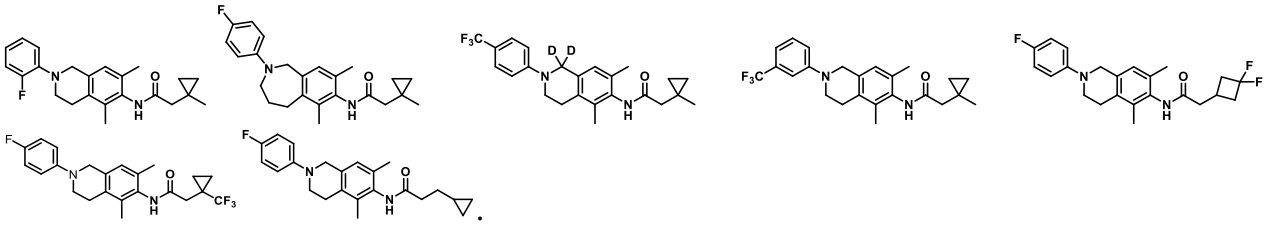
W is C-R_7;

R_7 is selected from the group consisting of hydrogen and halogen;

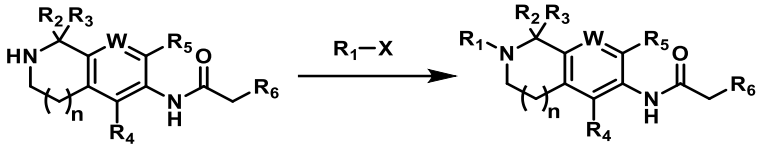
R_8 and R_9 are each independently C_{1-6} alkyl.

6. A compound or a pharmaceutically acceptable salt thereof, wherein the compound is selected from the group consisting of:





7. A method for preparing the compound of claim 1 or the pharmaceutically acceptable salt thereof comprising the following steps:



wherein:

X is selected from the group consisting of halogen, $-B(OH)_2$ and -OTf;

R_1, R_2, R_3, R_4, R_5, R_6, n and W are as defined in claim 1.

8. A pharmaceutical composition comprising one or more pharmaceutically acceptable carriers and a therapeutically effective amount of one or more of the compounds of claim 1 or the pharmaceutically acceptable salts thereof.

9. Use of the compound of claim 1 or the pharmaceutically acceptable salt thereof for the preparation of a medicament for the prevention and/or treatment of a disease sensitive to potassium ion channels;

wherein the disease sensitive to potassium ion channels is central nervous system disease.

10. The use of claim 9, wherein the central nervous system disease is selected from the group consisting of epilepsy, convulsions, inflammatory pain, neuropathic pain, migraine, depression, anxiety disorder, stroke, Alzheimer's disease, neurodegenerative disease, cocaine abuse, nicotine withdrawal, alcohol withdrawal and tinnitus.