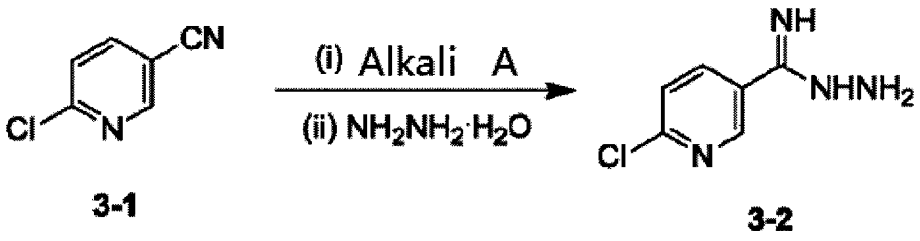
compound 3-2 is selected from methanol/water, ethanol/water, isopropanol/water or acetic acid/water;

volume ratio of the water and the methanol, the ethanol, the isopropanol or the acetic acid is 1:1~3;

weight ratio of the compound 3-2 and H_2O is 1:1~3.

In some solutions according to the present invention, the above preparation method comprises the following steps:



3-1 3-2

wherein,

reaction solvent used in preparation of the compound 3-2 from the compound 3-1 is selected from methanol/dioxane, ethanol/dioxane, isopropanol /dioxane;

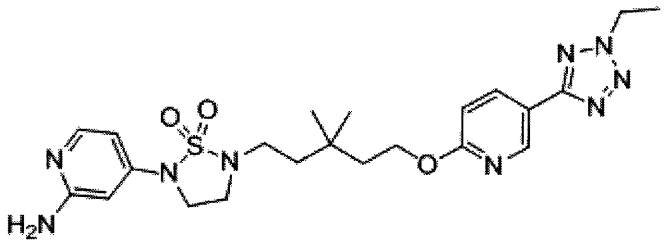
volume ratio of the dioxane and the methanol, the ethanol, or the isopropanol is 0.5~1:0.5~1;

molar ratio of the compound 3-1 and the alkali A is 1:1~2;

the alkali A is selected from sodium methoxide, sodium ethoxide, potassium tert-butoxide, lithium tert-butoxide, sodium tert-butoxide, aluminium isopropoxide, sodium hydride, potassium hydride, calcium hydride, lithium hydroxide, sodium hydroxide, potassium hydroxide, cesium hydroxide, sodium carbonate, potassium carbonate, cesium

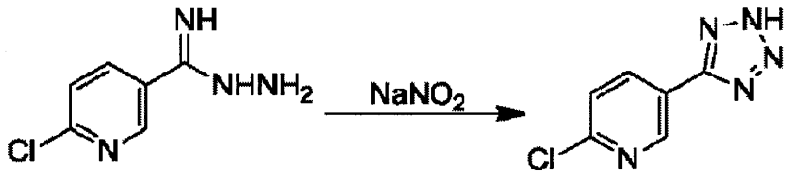
CLAIMS

1. A method for preparing compound 1,



Compound 1

comprising the following steps:



3-2 3-3

wherein,

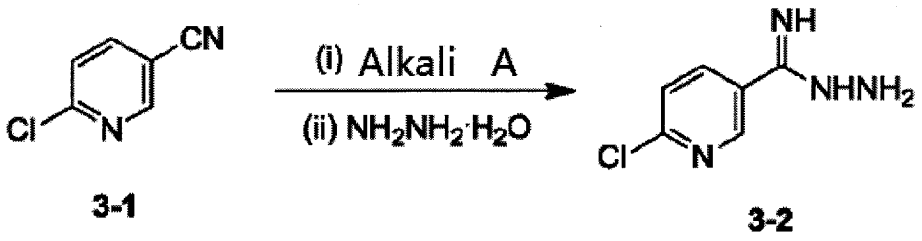
molar ratio of the compound 3-2 and the $NaNO_2$ is between 1:1 and 1:2;

reaction solvent used in preparation of the compound 3-3 from the compound 3-2 is selected from methanol/water, ethanol/water, isopropanol/water or acetic acid/water;

volume ratio of the water and the methanol, the ethanol, the isopropanol or the acetic acid is between 1:1 and 1:3;

weight ratio of the compound 3-2 and H_2O is between 1:1 and 1:3.

2. The method according to claim 1, comprising the following steps:



3-1 3-2

wherein,

reaction solvent used in preparation of the compound 3-2 from the compound 3-1 is selected from methanol/dioxane, ethanol/dioxane, isopropanol/dioxane;

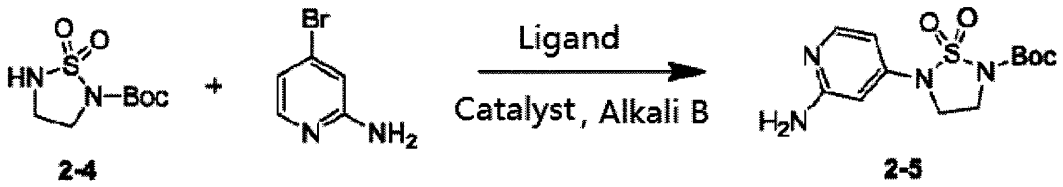
volume ratio of the dioxane and the methanol, the ethanol, or the isopropanol is 0.5 to 1:0.5 to 1;

molar ratio of the compound 3-1 and the alkali A is between 1:1 and 1:2;

the alkali A is selected from the group consisting of sodium methoxide, sodium ethoxide, potassium tert-butoxide, lithium tert-butoxide, sodium tert-butoxide, aluminium isopropoxide, sodium hydride, potassium hydride, calcium hydride, lithium hydroxide, sodium hydroxide, potassium hydroxide, cesium hydroxide, sodium carbonate, potassium carbonate, cesium carbonate, sodium hydrogen carbonate and potassium hydrogen carbonate;

molar ratio of the compound 3-1 and the hydrazine hydrate is between 1:2 and 1:15.

3. The method according to claim 1, comprising the following steps:



2-4 2-5

wherein,

molar ratio of the 2-amino-4-bromopyridine and the compound 2-4 is between 1:1 and 1:2;

molar ratio of the ligand and the compound 2-4 is between 0.1:1 and 0.5:1;

the ligand is selected from TRANS-N,N'-dimethylcyclohexyl-1,2-diamine, N,N'-dimethylethanediamine or Xphos;

the catalyst is selected from CuI, $Pd_2(dba)_3$;

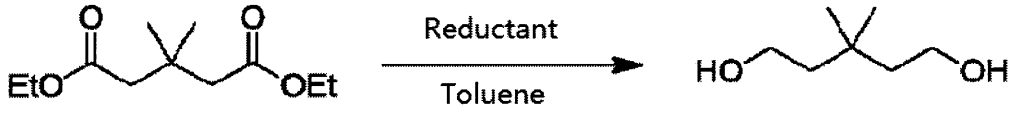
molar ratio of the alkali B and the compound 2-4 is between 2:1 and 4:1;

the alkali B is selected from the group consisting of lithium hydroxide, sodium hydroxide, potassium hydroxide, cesium hydroxide, sodium carbonate, potassium carbonate, cesium carbonate, sodium hydrogen carbonate and potassium hydrogen carbonate;

reaction solvent used in preparation of the compound 2-5 from the compound 2-4 is selected from the group consisting of DMF, dioxane and dimethyl sulfoxide;

weight ratio of the reaction solvent and the compound 2-4 is between 10:1 and 20:1.

4. The method according to claim 1, comprising the following steps:



1-2 1-3

wherein,

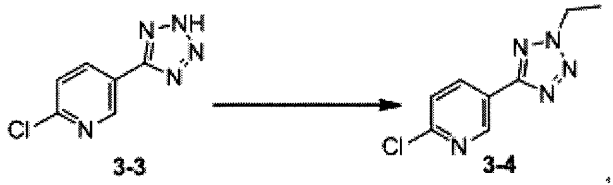
the reductant is red-Al;

molar ratio of the compound 1-2 and the red-Al is between 1:1 and 1:4.

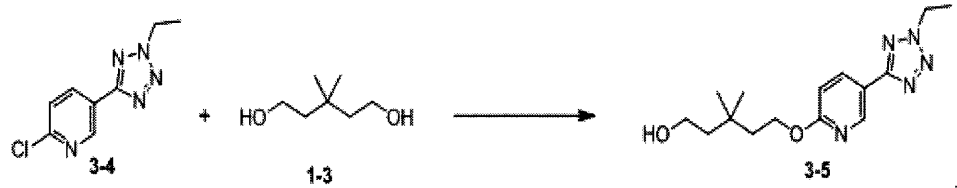
5. The method according to claim 1, comprising the following steps:



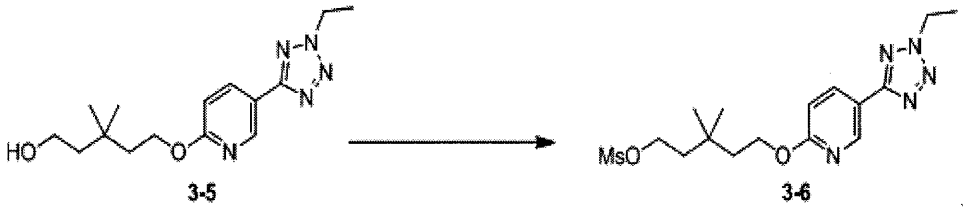
2-5 2-6 ;



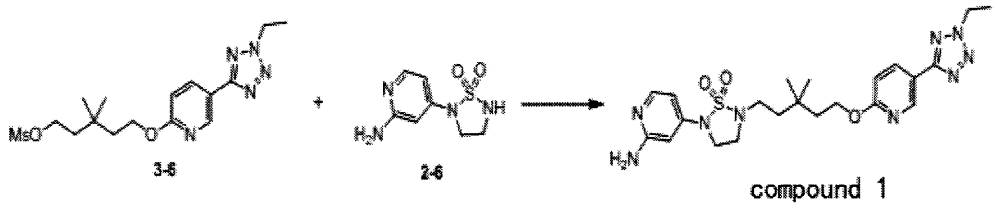
3-3 3-4 ;



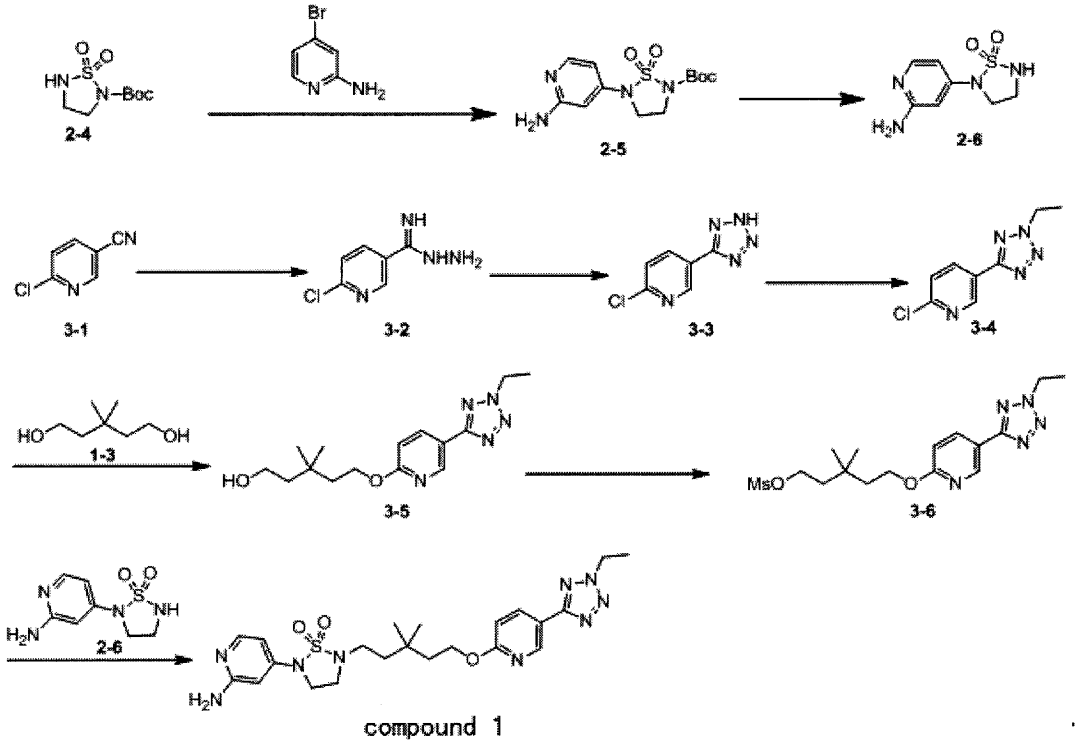
3-4 1-3 3-5 ;



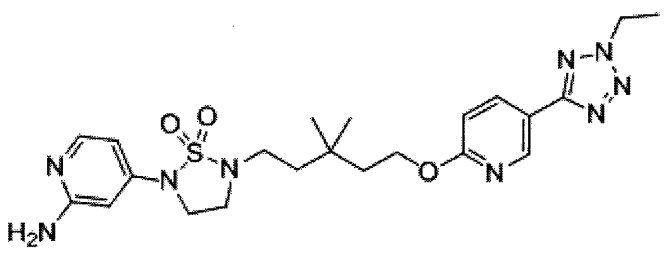
3-5 3-6 ;



; or,

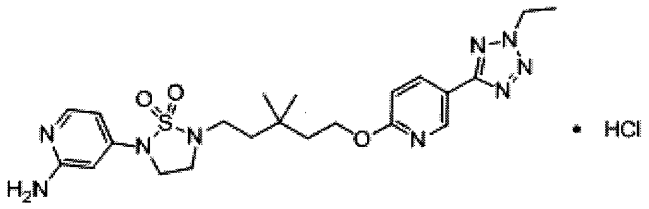


6. Compound 1 represented by the following formula and crystal form A thereof, XRPD spectrum of the crystal form A is as shown in FIG. 1:



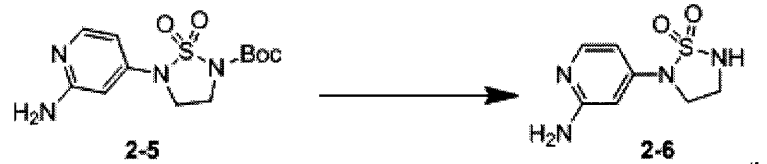
Compound 1 .

7. Compound 2 represented by the following formula and crystal form B thereof, XRPD spectrum of the crystal form B is as shown in FIG. 4.

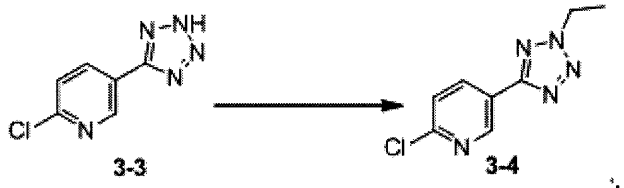


compound 2

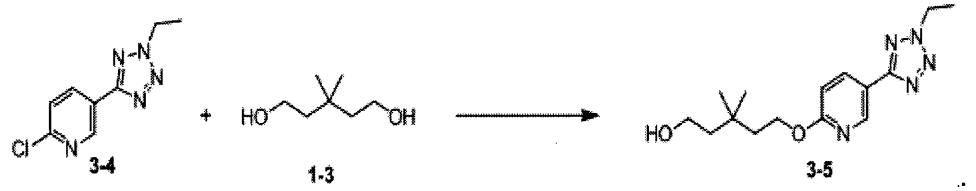
8. The method according to claim 2, comprising the following steps:



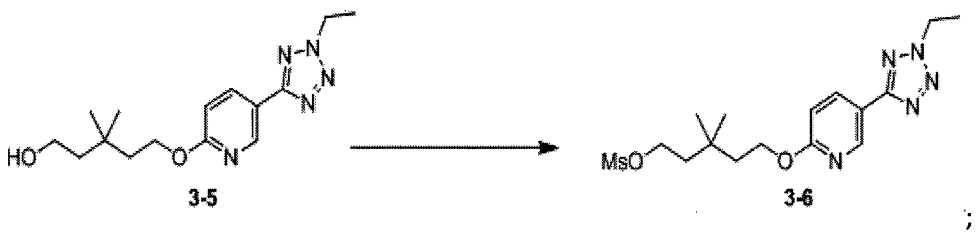
2-5 2-6 ;



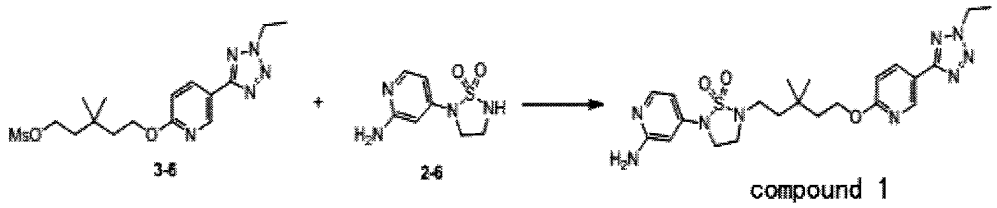
3-3 3-4 ;



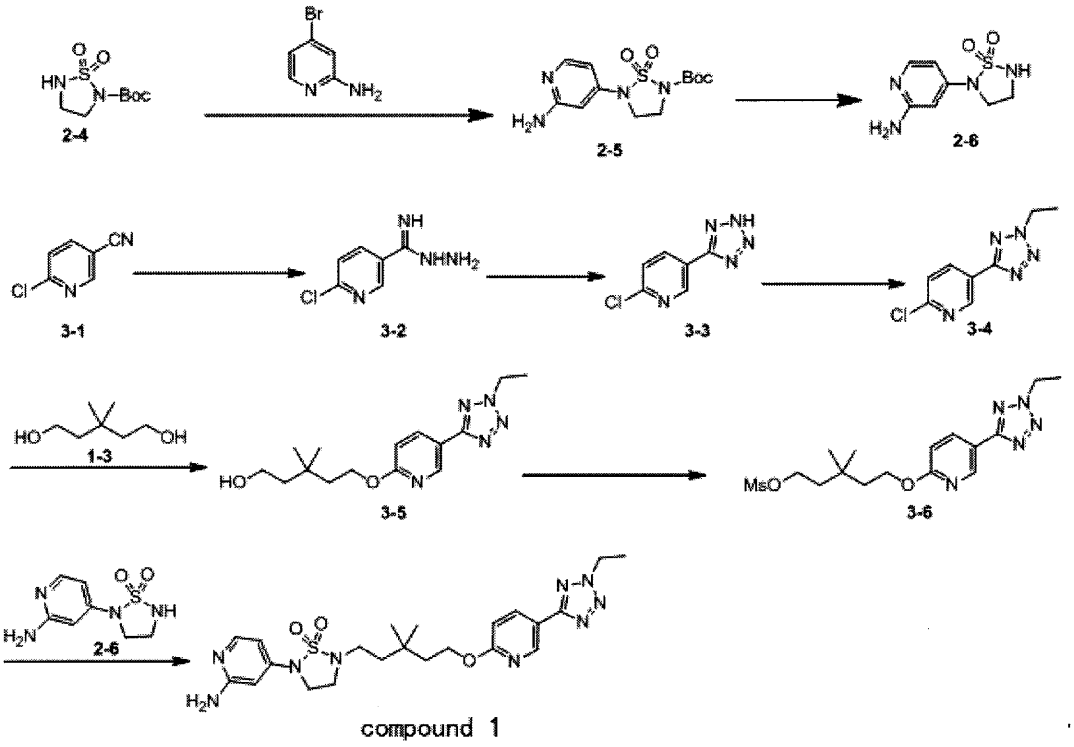
3-4 1-3 3-5 ;



3-5 3-6 ;


MsO
3-5
2-6
compound 1

; or,


HN
N–Boc
2-4
Br
NH2
Boc
2-5
NH
2-6
CN
Cl
3-1
NH
NHNH2
3-2
N–NH
3-3
3-4
HO
OH
1-3
3-5
MsO
3-6
2-6
compound 1