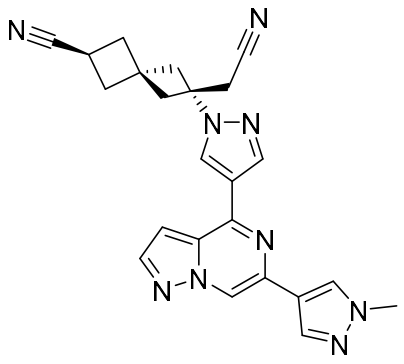
CLAIMS

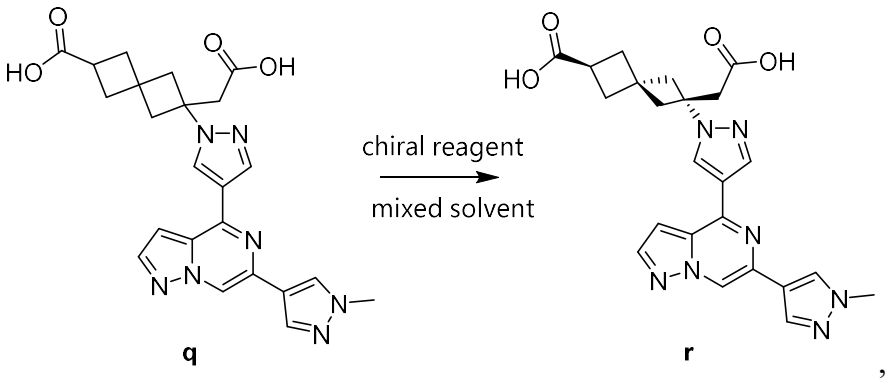
1. A method for preparing a compound of formula (I),



(I)

,

wherein the method comprises a chiral resolution method for compound q,



q **r**

,

wherein

the chiral reagent is selected from the group consisting of chiral reagent 1 and chiral reagent 2;

the chiral reagent 1 is (*R*)-(+)-*N*-benzyl-1-phenylethylamine, and the chiral reagent 2 is (*S*)-(-)-*N*-benzyl-1-phenylethylamine;

the mixed solvent is selected from the group consisting of solvent 2 and solvent 3;

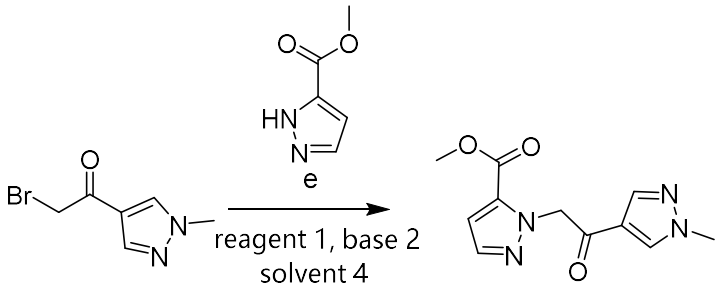
the solvent 2 is tetrahydrofuran, and the solvent 3 is water.

2. The method for preparing the compound of formula (I) according to claim 1, wherein the molar ratio of compound q to the chiral reagent is 1:2 to 1:2.5, preferably 1:2.1.

3. The method for preparing the compound of formula (I) according to claim 1, wherein the volume ratio of the mixed solvent is tetrahydrofuran: water = 15:1 to 20:1; preferably 16.5:1.

4. The method for preparing the compound of formula (I) according to claim 1, wherein the chiral resolution method for compound q further comprises a step of further purification.

5. The method for preparing the compound of formula (I) according to claim 1, comprising performing a selective alkylation method between compound d and compound e,



d f ,

wherein

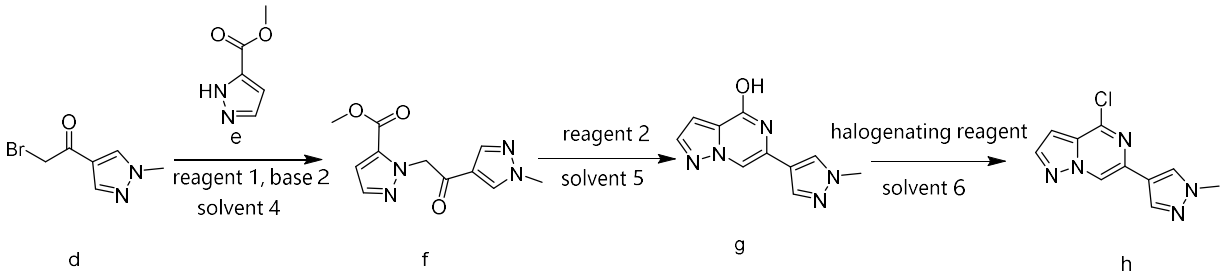
the reagent 1 is magnesium bromide;

the base 2 is DIEA;

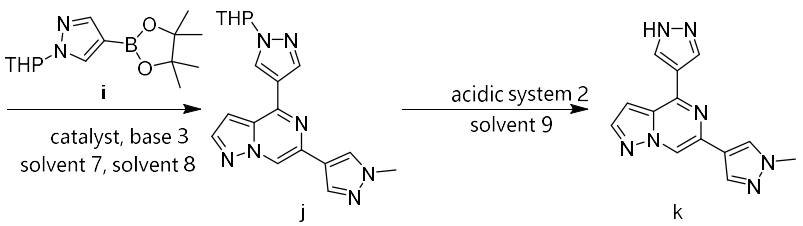
the solvent 4 is tetrahydrofuran.

6. The method for preparing the compound of formula (I) according to claim 5, wherein the molar ratio of compound e, compound d, and the reagent 1 is 1:0.8:0.1 to 1:1.2:0.3, preferably 1:1:0.2.

7. The method for preparing the compound of formula (I) according to claim 1, comprising a method for synthesizing intermediate k,



d f g h



j k

the reagent 1 is magnesium bromide;

the base 2 is DIEA;

the solvent 4 is tetrahydrofuran;

the reagent 2 is ammonium acetate;

the solvent 5 is ethanol;

the halogenating reagent is phosphorus oxychloride;

the solvent 6 is acetonitrile;

the catalyst is [1,1'-bis(diphenylphosphino)ferrocene]dichloropalladium(II);

the base 3 is sodium carbonate;

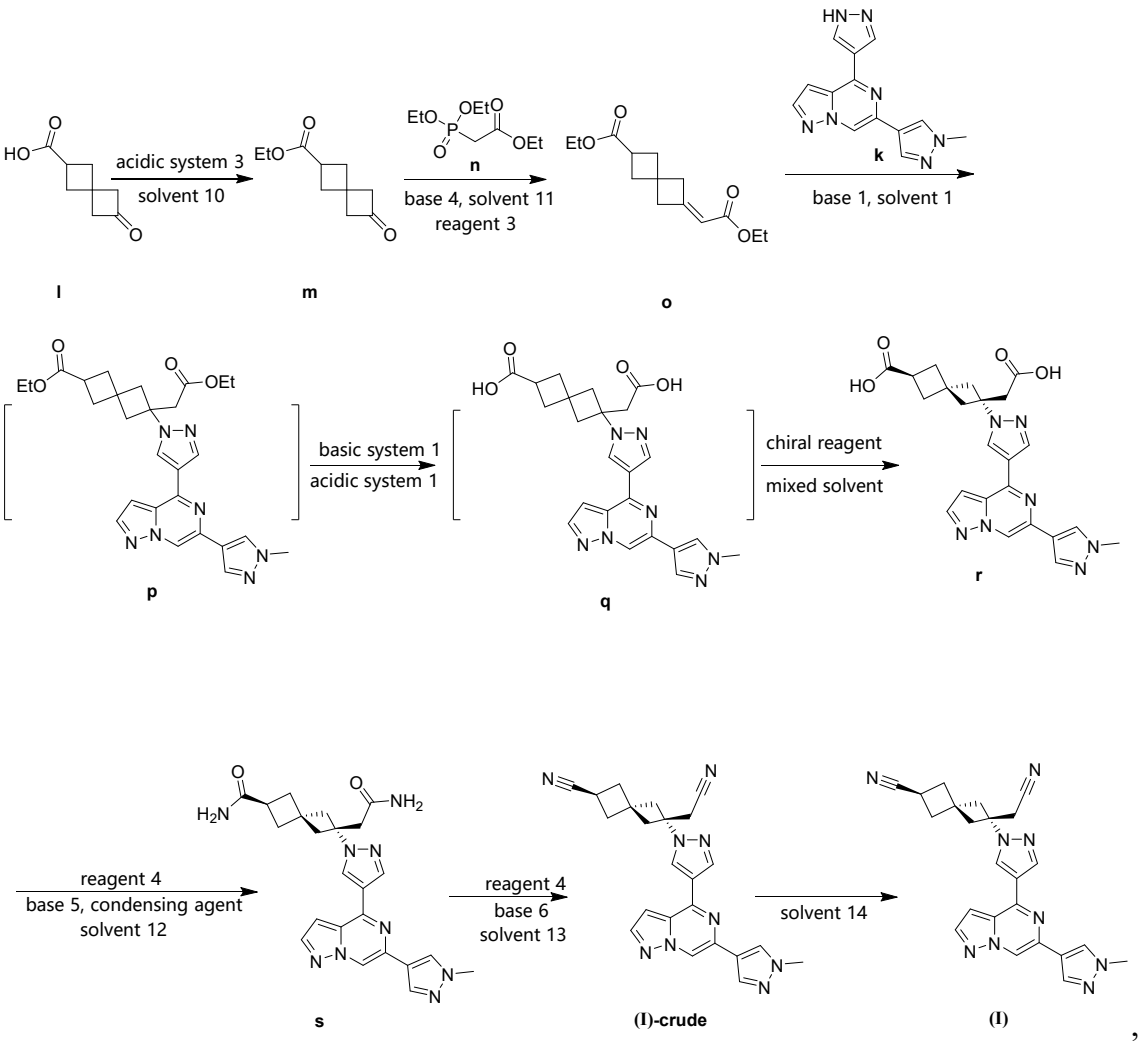
the solvent 7 is dioxane;

the solvent 8 is water;

the acidic system 2 is a hydrogen chloride/ethyl acetate solution;

the solvent 9 is dichloromethane.

8. The method for preparing the compound of formula (I) according to claim 1, further comprising a method for synthesizing the compound of formula (I) from compound l,



the acidic system 3 is sulfuric acid;

the solvent 10 is ethanol;

the base 4 is triethylamine;

the solvent 11 is tetrahydrofuran;

the reagent 3 is lithium bromide;

the solvent 1 is acetonitrile;

the basic system 1 is an aqueous sodium hydroxide solution;

the acidic system 1 is concentrated hydrochloric acid;

the chiral reagent is selected from the group consisting of chiral reagent 1 and chiral reagent 2;

the chiral reagent 1 is (*R*)-(+)-*N*-benzyl-1-phenylethylamine, and the chiral reagent 2 is (*S*)-(-)-*N*-benzyl-1-phenylethylamine;

the mixed solvent is selected from the group consisting of solvent 2 and solvent 3;

the solvent 2 is tetrahydrofuran, and the solvent 3 is water;

the reagent 4 is ammonium chloride;

the base 5 is DIEA;

the condensing agent is HATU;

the solvent 12 is DMF;

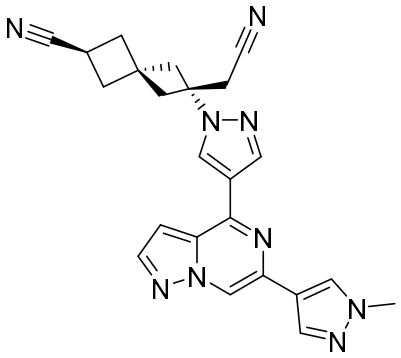
the reagent 4 is trifluoroacetic anhydride;

the base 6 is triethylamine;

the solvent 13 is dichloromethane;

the solvent 14 is methanol.

9. A Form 1 crystal form of a compound of formula (I) as shown below,



(I)

wherein the Form 1 crystal form of the compound of formula (I) has an X-ray powder diffraction pattern, measured using Cu Kα radiation, comprising characteristic diffraction peaks at the following 2θ angles: 8.087 ± 0.200°, 9.379 ± 0.200°, 11.188 ± 0.200°, and 12.852 ± 0.200°.

10. The Form 1 crystal form of the compound of formula (I) according to claim 9, wherein the Form 1 crystal form of the compound of formula (I) has an X-ray powder diffraction pattern, expressed in terms of 2θ angles, comprising at least 6, 7, 8, or 9 diffraction peaks selected from the group consisting of: 8.087 ± 0.200°, 9.379 ± 0.200°, 11.188 ± 0.200°, 12.852 ± 0.200°, 16.163 ± 0.200°, 18.306 ± 0.200°, 18.626 ± 0.200°, 19.105 ± 0.200°, 19.447 ± 0.200°, and 20.666 ± 0.200°.

11. The Form 1 crystal form of the compound of formula (I) according to claim 10, wherein the Form 1 crystal form of the compound of formula (I) has an X-ray powder diffraction pattern comprising characteristic diffraction peaks at the following 2θ angles: 8.087

± 0.200°, 9.379 ± 0.200°, 11.188 ± 0.200°, 12.852 ± 0.200°, 16.163 ± 0.200°, 18.306 ± 0.200°, 18.626 ± 0.200°, and 19.105 ± 0.200°.

12. The Form 1 crystal form of the compound of formula (I) according to claim 11, wherein the Form 1 crystal form of the compound of formula (I) has an X-ray powder diffraction pattern comprising characteristic diffraction peaks at the following 2θ angles: 8.087 ± 0.200°, 9.379 ± 0.200°, 11.188 ± 0.200°, 12.852 ± 0.200°, 16.163 ± 0.200°, 18.306 ± 0.200°, 18.626 ± 0.200°, 19.105 ± 0.200°, 19.447 ± 0.200°, 20.666 ± 0.200°, 20.875 ± 0.200°, and 21.210 ± 0.200°.

13. The Form 1 crystal form of the compound of formula (I) according to claim 12, wherein the Form 1 crystal form of the compound of formula (I) has an X-ray powder diffraction pattern comprising characteristic diffraction peaks at the following 2θ angles: 8.087 ± 0.200°, 9.379 ± 0.200°, 11.188 ± 0.200°, 12.852 ± 0.200°, 16.163 ± 0.200°, 18.306 ± 0.200°, 18.626 ± 0.200°, 19.105 ± 0.200°, 19.447 ± 0.200°, 20.666 ± 0.200°, 20.875 ± 0.200°, 21.210 ± 0.200°, 22.417 ± 0.200°, 23.446 ± 0.200°, 24.043 ± 0.200°, and 24.402 ± 0.200°.

14. The Form 1 crystal form of the compound of formula (I) according to claim 13, wherein the Form 1 crystal form of the compound of formula (I) has an X-ray powder diffraction pattern comprising characteristic diffraction peaks at the following 2θ angles: 6.516°, 8.087°, 9.378°, 11.188°, 11.881°, 12.852°, 13.880°, 14.564°, 15.615°, 16.163°, 18.306°, 18.626°, 19.105°, 19.477°, 20.666°, 20.875°, 21.210°, 22.417°, 23.446°, 23.715°, 24.043°, 24.402°, 25.159°, 25.663°, 26.227°, 26.742°, 26.897°, 27.127°, 27.752°, 28.341°, 29.332°, 30.727°, 30.956°, 31.678°, 32.197°, 32.574°, 34.479°, 35.051°, 35.341°, 35.873°, and 36.960°.

15. The Form 1 crystal form of the compound of formula (I) according to claim 9, wherein the Form 1 crystal form of the compound of formula (I) has an XRPD pattern as shown in FIG. 1.

16. The Form 1 crystal form of the compound of formula (I) according to claim 9, wherein the Form 1 crystal form of the compound of formula (I) has a differential scanning calorimetry (DSC) curve showing an endothermic peak onset at 161.77°C ± 3.00°C.

17. The Form 1 crystal form of the compound of formula (I) according to claim 9, wherein the Form 1 crystal form of the compound of formula (I) has a thermogravimetric analysis (TGA) curve showing a weight loss of 0.3182% at 150.00°C ± 3.00°C.

18. A use of the Form 1 crystal form of the compound of formula (I) as defined in any one of claims 9 to 17 in the manufacture of a medicament for treating psoriasis and/or inflammatory bowel disease.

19. The Form 1 crystal form of the compound of formula (I) as defined in any one of claims 9 to 17 for use in therapy.