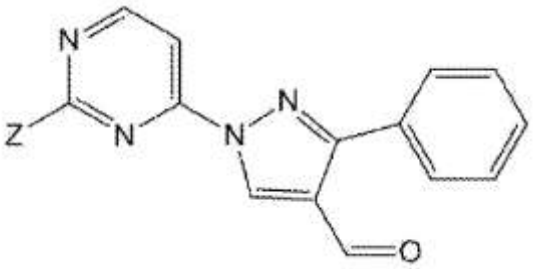
CLAIMS

1. A process for preparing N-(5-(4-(4-formyl-3-phenyl-1H-pyrazol-1-yl)pyrimidin-2-ylamino)-4-methoxy-2-morpholinophenyl)acrylamide, the process comprising reacting tert-butyl (5-acrylamido-2-methoxy-4-morpholinophenyl)carbamate or N-(5-amino-4-methoxy-2-morpholinophenyl)acrylamide with a compound of Formula 13:

<Formula 13>



wherein, Z is halogen.

2. The process according to claim 1, wherein the N-(5-amino-4-methoxy-2-morpholinophenyl)acrylamide is obtained by reacting tert-butyl (5-acrylamido-2-methoxy-4-morpholinophenyl)carbamate with an acid.

3. The process according to claim 2, wherein the acid is one or more selected from the group consisting of hydrochloric acid, sulfuric acid, phosphoric acid, nitric acid, acetic acid, formic acid, sulfonic acid and p-toluenesulfonic acid.

4. The process according to claim 1, wherein the reacting of tert-butyl (5-acrylamido-2-methoxy-4-morpholinophenyl)carbamate with the compound of Formula 13 is carried out in the presence of an acid.

5. The process according to claim 4, wherein the acid is one or more selected from the group consisting of hydrochloric acid, sulfuric acid, phosphoric acid, nitric acid, acetic acid, formic acid, sulfonic acid and p-toluenesulfonic acid.

6. The process according to claim 1, wherein the reacting of the N-(5-amino-4-methoxy-2-morpholinophenyl)acrylamide with the compound of Formula 13 is carried out in the presences of a metal catalyst, a ligand, and a base.

7. The process according to claim 6, wherein the metal catalyst is one or more selected from the group consisting of palladium, copper, iron, cadmium, zinc, and nickel.

8. The process according to claim 7, wherein the metal catalyst is palladium acetate, palladium acetylacetonate, bis(dibenzylideneacetone)palladium, or tris(dibenzylideneacetone)dipalladium.

9. The process according to claim 6, wherein the ligand is one or more selected from the group consisting of 2,2'-bis(diphenylphosphino)-1,1'-binaphthalene, 1,1'-bis(diphenylphosphino)ferrocene, and 4,5-bis(diphenylphosphino)-9,9-dimethylxanthene.

10. The process according to claim 6, wherein the base is one or more selected from the group consisting of potassium tert-butoxide, sodium hydroxide, potassium hydroxide, sodium hydride, sodium carbonate, potassium carbonate, potassium phosphate, sodium phosphate, cesium carbonate, 1,8-diazabicyclo[5.4.0]undec-7-ene, 1,4-diazabicyclo[2.2.2]octane, 1,5-diazabicyclo[4.3.0]non-5-ene, pyridine, triethylamine, diisopropylamine, and diisopropylethylamine.

11. The process according to claim 1, wherein the reacting of N-(5-amino-4-methoxy-2-morpholinophenyl)acrylamide with the compound of Formula 13 is carried out in the presence of an acid.

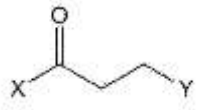
12. The process according to claim 11, wherein the acid is one or more selected from the group consisting of hydrochloric acid, sulfuric acid, phosphoric acid, nitric acid, acetic acid, formic acid, sulfonic acid and p-toluenesulfonic acid.

13. The process according to claim 1, wherein the tert-butyl (5-acrylamido-2-methoxy-4-morpholinophenyl)carbamate is obtained by a process comprising

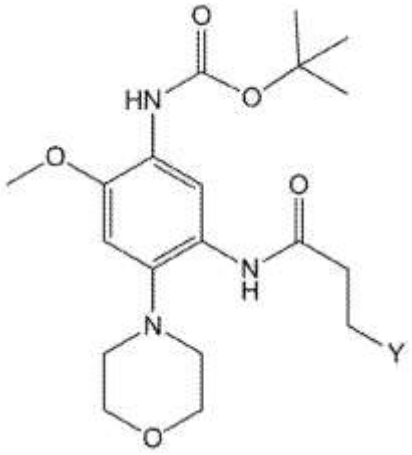
(i) reacting tert-butyl (5-amino-2-methoxy-4-morpholinophenyl)carbamate with a compound of Formula 11 to form a compound of Formula 5; and

(ii) reacting the compound of Formula 5 with a base to obtain tert-butyl (5-acrylamido-2-methoxy-4-morpholinopheny1)carbamate:

<Formula 11>



<Formula 5>



wherein, X and Y are, independently of each other, halogen.

14. The process according to claim 13, wherein Step (i) and Step (ii) are carried out in a one-pot reaction without isolating the compound of Formula 5.

15. The process according to claim 13, wherein the reacting of Step (i) or the reacting of Step (ii) is carried out in the presence of one or more base(s) selected from the group consisting of potassium tert-butoxide, sodium hydroxide, potassium hydroxide, lithium hydroxide, sodium hydride, sodium carbonate, sodium bicarbonate, potassium carbonate, potassium phosphate, sodium phosphate, 1,8-diazabicyclo[5.4.0]undec-7-ene, 1,4-diazabicyclo[2.2.2]octane, 1,5-diazabicyclo[4.3.0]non-5-ene, pyridine, triethylamine, diisopropylamine and diisopropylethylamine.

16. The process according to claim 13, wherein the tert-butyl (5-amino-2-methoxy-4-morpholinophenyl)carbamate is obtained by performing a reduction of tert-butyl (2-methoxy-4-morpholino-5-nitrophenyl)carbamate.

17. The process according to claim 16, wherein the reduction is carried out with a reducing agent selected from the group consisting of formic acid and ammonium formate.

18. The process according to claim 16, wherein the reduction is carried out in the presence of a catalyst selected from the group consisting of palladium, palladium/carbon, zinc, copper, magnesium, and platinum.

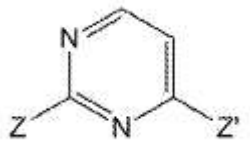
19. The process according to claim 16, wherein the tert-butyl (2-methoxy-4-morpholino-5-nitrophenyl)carbamate is obtained by reacting tert-butyl (4-fluoro-2-methoxy-5-nitrophenyl)carbamate with morpholine.

20. The process according to claim 19, wherein the reacting is carried out in the presence of one or more base(s) selected from the group consisting of sodium hydride, sodium C_1~C_6 alkoxide, potassium C_1~C_6 alkoxide, sodium carbonate, potassium carbonate, lithium carbonate, cesium carbonate, sodium bicarbonate, potassium bicarbonate, potassium phosphate, 1,8-diazabicyclo[5.4.0]undec-7-ene, 1,4-diazabicyclo[2.2.2]octane, 1,5-diazabicyclo[4.3.0]non-5-ene, pyridine, dimethylaminopyridine, triethylamine, and diisopropylethylamine.

21. The process according to claim 19, wherein the tert-butyl (4-fluoro-2-methoxy-5-nitrophenyl)carbamate is obtained by reacting 4-fluoro-2-methoxy-5-nitroaniline with dibutyl dicarbonate.

22. The process according to claim 1, wherein the compound of Formula 13 is obtained by reacting a compound of Formula 14 with 3-phenyl-1H-pyrazole-4-carbaldehyde:

<Formula 14>



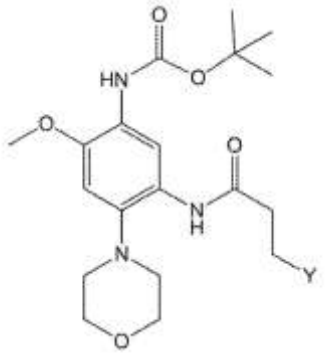
wherein, Z and Z' are, independently of each other, halogen.

23. A compound, wherein said compound is N-(5-amino-4-methoxy-2-morpholinophenyl)acrylamide.

24. A compound, wherein said compound is tert-butyl (5-acrylamido-2-methoxy-4-morpholinophenyl)carbamate.

25. A compound of Formula 5 or salt thereof:

<Formula 5>



wherein, Y is halogen.

26. A compound, wherein said compound is tert-butyl (5-amino-2-methoxy-4-morpholinophenyl)carbamate.

27. A compound, wherein said compound is tert-butyl (2-methoxy-4-morpholino-5-nitrophenyl)carbamate.