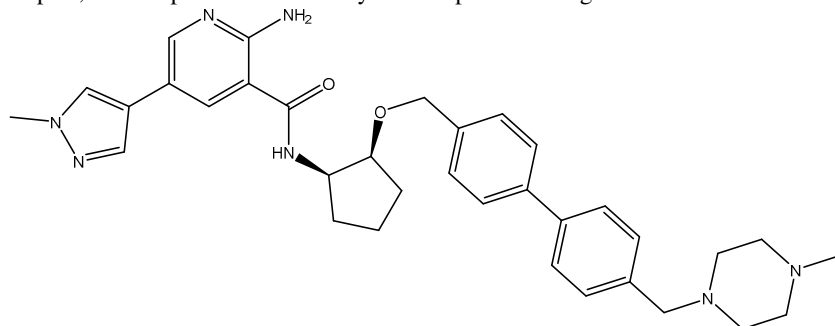


or a stereoisomer thereof, an enantiomer thereof, or a pharmaceutically acceptable salt thereof.

[7g] In another aspect, there is provided a pharmaceutical composition comprising the heterocyclic compound, the stereoisomer thereof, the enantiomer thereof, or the pharmaceutically acceptable salt thereof described herein together with pharmaceutically acceptable carrier.

[7h] In another aspect, there is provided a heterocyclic compound having a structure:



or a stereoisomer thereof, an enantiomer thereof, or a pharmaceutically acceptable salt thereof.

[7i] In another aspect, there is provided a pharmaceutical composition comprising the heterocyclic compound, the stereoisomer thereof, the enantiomer thereof, or the pharmaceutically acceptable salt thereof described herein together with pharmaceutically acceptable carrier.

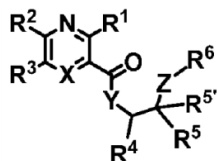
[7j] In another aspect, there is provided a use of the pharmaceutical composition as described herein in the manufacture of a medicament for prevention or treatment of a disease which is influenced by inhibition of Mer kinase, wherein the composition comprises, as active ingredient, the heterocyclic compound, the stereoisomer thereof, the enantiomer thereof, or the pharmaceutically acceptable salt thereof in an amount effective for prevention or treatment of a disease which is influenced by inhibition of Mer kinase

Solution to Problem

[8] Novel Mer kinase inhibitors

[9] The present invention relates to a heterocyclic compound represented by the following Formula I, a stereoisomer thereof, an enantiomer thereof, or a pharmaceutically acceptable salt thereof:

[10] [Formula I]

 $[11]$ 

[12] wherein:

[13] X is $\mathbb{C}P^7$, or N ;

[14] Y is CHR^8 , NR^8 , or O;

[15] Z is CH_2 , CH_2O , C(=O) , C(=O)O , C(=O)NH , NR^8 , NHC(=O) , O or O(C=O) ;

[16] R¹ is H, halogen, C₁₋₃ alkyl, NHR⁸ or OR⁸;

[17] R² is H, halogen, C₁₋₄ alkyl, C₁₋₂ alkylaryl, C₁₋₂ alkylheteroaryl, C₁₋₂ alkylheterocyclyl or -L-aryl, which C₁₋₂ alkylaryl, C₁₋₂ alkylheteroaryl, C₁₋₂ alkylheterocyclyl or -L-aryl may optionally be substituted with one or more R⁹;

[18] R³ is H, halogen, CN, C₁₋₃ alkyl, cycloalkenyl, C₂₋₆ alkenyl, aryl, biaryl, heteroaryl, heterobiaryl, heterocyclyl, C₁₋₂ alkylaryl, C₁₋₂ alkylheteroaryl, or C₁₋₂ alkylheterocyclyl which aryl, biaryl, heteroaryl, heterobiaryl, heterocyclyl, C₁₋₂ alkylaryl, C₁₋₂ alkylheteroaryl, or C₁₋₂ alkylheterocyclyl may optionally be substituted with one or more R⁹;

[19] R⁴ and R⁵ each independently is H, C₁₋₆ alkyl, C₁₋₆ alkoxy, C₃₋₁₀ cycloalkyl, C(=O) R⁶, C₁₋₂ alkylaryl, aryl; or

[20] R⁴ and R⁵ may be combined with each other to form a 3-7 membered cyclic ring or heterocyclic ring containing 1 or 2 of NR⁸, O or S, and the cyclic or heterocyclic ring may optionally be substituted with 1 or 2 halogen(s), C₁₋₄ alkyl or C₁₋₄ alkoxy;

[21] R^{5'} is H or R⁵ and R^{5'} may be combined with each other to form carbonyl;

Example 458	2-amino-N-((1S,2S)-2-(benzyloxy)cyclopentyl)-6-((4-(4-methylpiperazin-1-yl)phenyl)amino)nicotinamide
-------------	--

Claim 3. A pharmaceutical composition comprising the heterocyclic compound, the stereoisomer thereof, the enantiomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1 or 2 together with a pharmaceutically acceptable carrier.

Claim 4. Use of the pharmaceutical composition of claim 3 in the manufacture of a medicament for prevention or treatment of a disease which is influenced by inhibition of Mer kinase, wherein the composition comprises, as active ingredient, the heterocyclic compound, the stereoisomer thereof, the enantiomer thereof, or the pharmaceutically acceptable salt thereof in an amount effective for prevention or treatment of a disease which is influenced by inhibition of Mer kinase.

Claim 5. The use of claim 4, wherein the disease which is influenced by inhibition of Mer kinase is cancer or immune-related diseases.

Claim 6. The use of claim 5, wherein the cancer is selected from the group consisting of: glioma, gliosarcoma, anaplastic astrocytoma, medulloblastoma, lung cancer, small cell lung carcinoma, cervical carcinoma, colon cancer, rectal cancer, chordoma, throat cancer, Kaposi's sarcoma, lymphangiosarcoma, lymphangioendotheliosarcoma, colorectal cancer, endometrium cancer, ovarian cancer, breast cancer, pancreatic cancer, prostate cancer, renal cell carcinoma, hepatic carcinoma, bile duct carcinoma, choriocarcinoma, seminoma, testicular tumor, Wilms' tumor, Ewing's tumor, bladder carcinoma, angiosarcoma, endotheliosarcoma, adenocarcinoma, sweat gland carcinoma, sebaceous gland sarcoma, papillary sarcoma, papillary adenocarcinoma, cystadenocarcinoma, bronchogenic carcinoma, medullary carcinoma, mastocytoma, mesothelioma, synovial sarcoma, melanoma, leiomyosarcoma, rhabdomyosarcoma, neuroblastoma, retinoblastoma, oligodendroglioma, acoustic neuroma, hemangioblastoma, meningioma, pinealoma, ependymoma, craniopharyngioma, epithelial carcinoma, embryonal carcinoma,

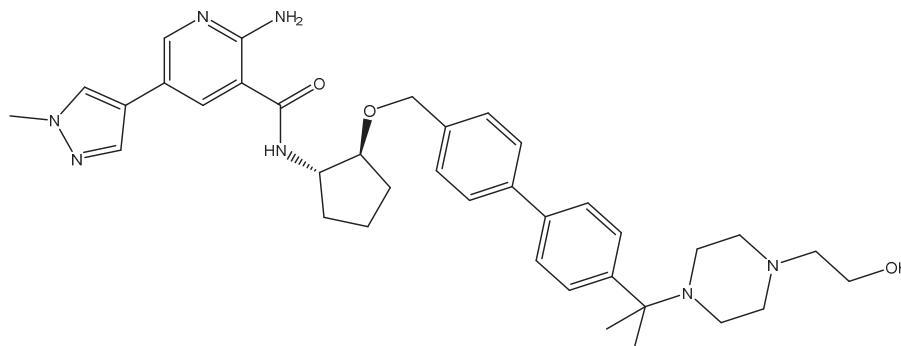
squamous cell carcinoma, base cell carcinoma, fibrosarcoma, myxoma, myxosarcoma, liposarcoma, chondrosarcoma, osteogenic sarcoma, leukemia and metastatic lesions secondary to these primary tumors.

Claim 7. The use of claim 5, wherein the immune-related disease is selected from the group consisting of infection and sepsis.

Claim 8. Use of compositions comprising, as active ingredients, the heterocyclic compounds, isomers thereof or pharmaceutically acceptable salts thereof according to claim 1 or 2, in the manufacture of a medicament for treating or preventing immune-related diseases or cancer in a mammal including humans in need thereof.

Claim 9. Use of compositions comprising, as active ingredients, the heterocyclic compounds, the stereoisomer thereof, the enantiomer thereof, or the pharmaceutically acceptable salt thereof according to claim 1 or 2, in the manufacture of a medicament for preventing or treating cancer or immune-related diseases.

Claim 10. A heterocyclic compound having a structure:

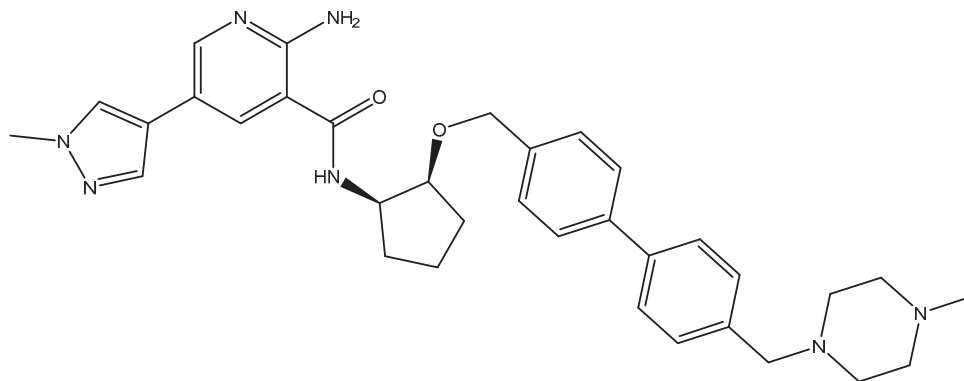


or a stereoisomer thereof, an enantiomer thereof, or a pharmaceutically acceptable salt thereof.

Claim 11. A pharmaceutical composition comprising the heterocyclic compound, the stereoisomer thereof, the enantiomer thereof, or the pharmaceutically acceptable salt thereof according to claim 10 together with pharmaceutically acceptable carrier.

Claim 12. Use of the pharmaceutical composition of claim 11 in the manufacture of a medicament for prevention or treatment of a disease that is influenced by inhibition of Mer kinase, wherein the composition comprises, as active ingredient, the heterocyclic compound, the stereoisomer thereof, the enantiomer thereof, or the pharmaceutically acceptable salt thereof in an amount effective for prevention or treatment of a disease that is influenced by inhibition of Mer kinase.

Claim 13. A heterocyclic compound having a structure:



or a stereoisomer thereof, an enantiomer thereof, or a pharmaceutically acceptable salt thereof.

Claim 14. A pharmaceutical composition comprising the heterocyclic compound, the stereoisomer thereof, the enantiomer thereof, or the pharmaceutically acceptable salt thereof according to claim 13 together with pharmaceutically acceptable carrier.

Claim 15. Use of the pharmaceutical composition of claim 14 in the manufacture of a medicament for prevention or treatment of a disease that is influenced by inhibition of Mer kinase, wherein the composition comprises, as active ingredient, the heterocyclic compound, the stereoisomer thereof, the enantiomer thereof, or the pharmaceutically acceptable salt thereof in an amount effective for prevention or treatment of a disease that is influenced by inhibition of Mer kinase.