

What is claimed is:

1. Use of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one for the manufacture of a medicament for reducing the incidence of multiple sclerosis (MS) relapse in a subject having relapsing multiple sclerosis (RMS) in need thereof, comprising the steps of:
 - a) to be administered to a subject in need thereof (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one for at least 12 weeks; and
 - b) ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one, wherein the incidence of MS relapse in the subject after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is equal to or less than the incidence of MS relapse in the subject during 1 year prior to administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one.
2. The use of claim 1, wherein the subject remains relapse-free for at least 4 weeks after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one.
3. The use of claim 1 or 2, wherein the subject remains relapse-free for at least 6 weeks after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one.
4. The use of any one of claims 1-3, wherein the subject remains relapse-free for at least 21 weeks after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one.
5. Use of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one for the manufacture of a medicament for reducing the number of new gadolinium (Gd)-enhancing T1 hyperintense lesions or the number of new or enlarging T2 hyperintense lesions in a subject having relapsing multiple sclerosis (RMS) in need thereof, comprising the steps of:
 - a) to be administered to a subject in need thereof a BTK inhibitor comprising (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one for at least 12 weeks; and

b) ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one, wherein the number of new gadolinium (Gd)-enhancing T1 hyperintense lesions or the number of new or enlarging T2 hyperintense lesions measured in the subject after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is equal to or less than the baseline of new gadolinium (Gd)-enhancing T1 hyperintense lesions or new or enlarging T2 hyperintense lesions measured in the subject during the 4 weeks prior to administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one.

6. The use of claim 5, wherein the total number of new gadolinium (Gd)-enhancing T1 hyperintense lesions or the number of new or enlarging T2 hyperintense lesions measured in the subject up to 21 weeks after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is equal to or less than 2.

7. The use of claim 6, wherein the total number of new gadolinium (Gd)-enhancing T1 hyperintense lesions measured in the subject up to 21 weeks after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is equal to or less than 1.

8. The use of any one of claims 5-7, wherein the total number of new gadolinium (Gd)-enhancing T1 hyperintense lesions or the number of new or enlarging T2 hyperintense lesions measured in the subject up to 4 weeks after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is equal to or less than 1.

9. The use of claim 5, wherein the total number of new or enlarging T2 hyperintense lesions measured in the subject up to 21 weeks after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is equal to or less than 3.

10. The use of claim 5, wherein the total number of new or enlarging T2 hyperintense lesions measured in the subject up to 6 weeks after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is equal to or less than 1.

11. Use of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one for the manufacture of a medicament for reducing the

total number of gadolinium (Gd)-enhancing T1 hyperintense lesions in a subject having relapsing multiple sclerosis (RMS) in need thereof, comprising the steps of:

a) to be administered to a subject in need thereof a BTK inhibitor comprising (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one for at least 12 weeks; and

b) ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one,

wherein the total number of gadolinium (Gd)-enhancing T1 hyperintense lesions measured in the subject after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is equal to or less than the baseline number of gadolinium (Gd)-enhancing T1 hyperintense lesions measured in the subject prior to administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one.

12. The use of claim 11, wherein the total number of gadolinium (Gd)-enhancing T1 hyperintense lesions measured in the subject up to 21 weeks after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is equal to or less than 4.

13. The use of claim 11 or 12, wherein the total number of gadolinium (Gd)-enhancing T1 hyperintense lesions measured in the subject up to 21 weeks after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is equal to or less than 2.

14. The use of any one of claims 11-13, wherein the total number of gadolinium (Gd)-enhancing T1 hyperintense lesions from baseline measured in the subject up to 4 weeks after ceasing administration of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is equal to or less than 1.

15. The use of any one of claims 1-14, wherein the dose of (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one is 60 mg daily.

16. The use of any one of claims 5-15, wherein the lesions are measured by MRI.

17. The use of any one of claims 1-16, wherein the subject is to be administered (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one for at least 16 weeks.

18. The use of any one of claims 1-17, wherein the subject is to be administered (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one for at least 24 weeks.
19. The use of any one of claims 1-18, wherein the subject is to be administered (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one for at least 48 weeks.
20. The use of any one of claims 1-19, wherein the subject is to be administered (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one for at least 72 weeks.
21. The use of any one of claims 1-20, wherein the subject is to be administered (R)-1-(1-acryloylpiperidin-3-yl)-4-amino-3-(4-phenoxyphenyl)-1H-imidazo[4,5-c]pyridin-2(3H)-one for at least 96 weeks.