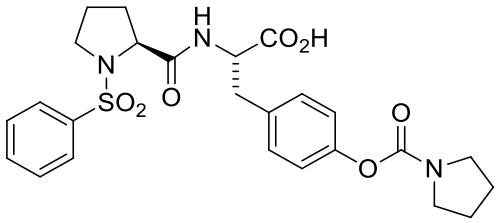
THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. An antagonist of an α9 integrin and a CXCR4 antagonist for use in mobilising bone marrow hematopoietic cells (HSC) and progenitors thereof into the peripheral blood of a subject,

wherein the antagonist of an α_9 integrin is a compound of:



or a pharmaceutically acceptable salt thereof; and

wherein the CXCR4 antagonist is AMD3100.

2. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to claim 1, wherein the antagonist of an α9 integrin is an α9β1 integrin antagonist.

3. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to claim 1 or claim 2 with an antagonist of α4 integrin.

4. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to claim 3, wherein the antagonist of α4 integrin is an α4β1 integrin antagonist.

5. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 1 to 4, wherein the antagonist of an α9 integrin mobilises the HSC and progenitors thereof from the bone marrow stem cell niche, or the central or endosteal niche of the bone marrow into the peripheral blood.

6. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 1 to 5, wherein the HSC or progenitors thereof are endosteal HSC or progenitor cells selected from the group including CD34+cells, CD38+ cells, CD90+

cells, CD133+ cells, CD34+CD38− cells, lineage-committed CD34− cells, or CD34+CD38+ cells and their precursors and progenitors thereof.

7. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 1 to 6 in the absence of G-CSF.

8. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 1 to 7, wherein the antagonist of an α9 integrin and the CXCR4 antagonist are used in combination, simultaneously or sequentially.

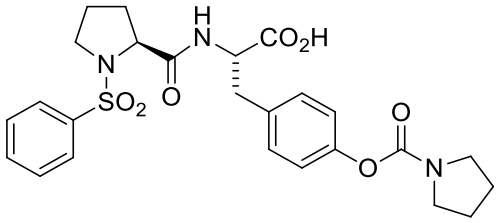
9. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 1 to 8 with an HSC mobilizing agent selected from the group comprising interleukin-17, cyclophosphamide (Cy), Docetaxel and G-CSF.

10. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 1 to 9, wherein the mobilised HSC and progenitors thereof can be harvested from the peripheral blood.

11. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to claim 10, wherein the harvested HSC and progenitors thereof can be transplanted into a subject following therapy to treat a haematological disorder, wherein the transplantation repopulates hematopoietic and lymphocytic cell populations depleted during therapy.

12. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to claim 11, wherein the HSC and progenitors thereof are allogeneic.

13. An α9 integrin and a CXCR4 antagonist for use in harvesting hematopoietic stem cells (HSC) and progenitors thereof from the peripheral blood of a subject, wherein the α9 antagonist mobilises the HSC and progenitors thereof from the bone marrow into the peripheral blood of a subject, and wherein the the α9 integrin antagonist is:



or a pharmaceutically acceptable salt thereof; and

wherein the CXCR4 antagonist is AMD3100.

14. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to claim 13, wherein the antagonist of an α9 integrin is an α9β1 integrin antagonist.

15. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to claim 13 or claim 14 with an antagonist of α4 integrin.

16. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 13 to 15, wherein the antagonist of α4 integrin is an α4β1 integrin antagonist.

17. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 13 to 16, wherein the antagonist of an α9 integrin mobilises the HSC and progenitors thereof from the bone marrow stem cell niche, or the bone marrow central or endosteal niche into the peripheral blood.

18. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 13 to 17, wherein the HSC or progenitors are endosteal HSC or progenitor cells selected from the group including CD34+cells, CD38+ cells, CD90+ cells, CD133+ cells, CD34+CD38− cells, lineage-committed CD34− cells, or CD34+CD38+ cells and their precursors and progenitors thereof.

19. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 13 to 18 in the absence of G-CSF.

20. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 13 to 19 with an HSC mobilizing agent selected from the group comprising interleukin-17, cyclophosphamide (Cy), Docetaxel, or G-CSF.

21. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 13 to 20, wherein the HSC and progenitors thereof can be transplanted by reintroducing the cells into the same subject or transplanting the cells into a second subject with a haematological disorder.

22. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to any one of claims 11, 12, or 21, wherein the haematological disorder is selected from haematological neoplastic disorders, autoimmune diseases, cancers, and non-malignant disorders.

23. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to claim 22, wherein the haematological disorder is selected from poorly differentiated acute leukemias, myeloid disorders, lymphoid malignancies, and malignant lymphomas; and autoimmune diseases are selected from multiple sclerosis (MS), myasthenia gravis, autoimmune neuropathy, scleroderma, aplastic anemia, and systemic lupus erythematosus; and non-malignant disorders are selected from aplastic anemia, a hemoglobinopathy, including sickle cell anemia, or an immune deficiency disorder.

24. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to claim 23, wherein the haematological disorder is an acute leukemia selected from erythroblastic leukemia and acute megakaryoblastic leukemia; myeloid disorders are selected from acute promyeloid leukemia (APML), chronic myelogenous leukemia (CML); lymphoid malignancies are selected from acute lymphoblastic leukemia (ALL), chronic lymphocytic leukemia (CLL), prolymphocytic leukemia (PLL), hairy cell leukemia (HCL) and Waldenstrom's macroglobulinemia (WM); and malignant lymphomas are selected from Hodgkin's Disease and Medium/High grade (aggressive) Non-Hodgkin's lymphoma and variants thereof, peripheral T cell lymphomas, adult T

cell leukemia/lymphoma (ATL), cutaneous T-cell lymphoma (CTCL), large granular lymphocytic leukemia (LGF), Hodgkin's disease and Reed- Sternberg disease.

25. The antagonist of an α9 integrin and the CXCR4 antagonist for use according to claim 24, wherein the haematological disorder is an acute lymphoblastic leukemia (ALL) selected from B-lineage ALL and T-lineage ALL.