CLAIMS:

1. Use of an effective amount of formoterol or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for treating anemia in a patient in need thereof.

2. The use of claim 1, wherein the anemia is macrocytic anemia, hemolytic anemia, anemia caused by a ribosomopathy, anemia caused by insufficiency of serine/threonine-protein kinase RIOK2, anemia associated with chronic kidney disease (CKD), anemia caused by one or more mutations and/or deletions in human chromosome 5 or in an ortholog thereof, stress-induced anemia, Diamond Blackfan anemia, aplastic anemia, Schwachman-Diamond syndrome, an anemia associated with an inflammatory disease, anemia associated with rheumatoid arthritis, anemia associated with multiple sclerosis, anemia secondary to chemotherapy in cancer patients, anemia associated with a bone marrow failure syndrome; or
anemia is associated with a cancer, wherein the cancer is i) intestinal cancer, optionally wherein the intestinal cancer is a colorectal cancer, or ii) hematologic malignancy selected from a myelodysplastic syndrome (MDS), acute myeloid leukemia (AML), chronic lymphocytic leukemia (CLL) or multiple myeloma (MM).

3. Use of an effective amount of formoterol or a pharmaceutically acceptable salt thereof in the manufacture of a medicament for promoting differentiation of an erythroid progenitor cell toward a mature red blood cell in a patient in need thereof.

4. The use of claim 3, wherein the patient is a human suffering from anemia, optionally wherein anemia is selected from macrocytic anemia, hemolytic anemia, anemia caused by a ribosomopathy, anemia caused by insufficiency of serine/threonine-protein kinase RIOK2, anemia associated with chronic kidney disease (CKD), anemia caused by one or more mutations and/or deletions in human chromosome 5 or in an ortholog thereof, stress-induced anemia, Diamond Blackfan anemia, aplastic anemia, Schwachman-Diamond syndrome, anemia associated with an inflammatory disease, anemia associated with rheumatoid arthritis, anemia associated with multiple sclerosis, anemia secondary to chemotherapy in cancer patients, anemia associated with a bone marrow failure syndrome; or

anemia is associated with a cancer, wherein the cancer is i) intestinal cancer, optionally wherein the intestinal cancer is a colorectal cancer, or ii) hematologic malignancy selected from a myelodysplastic syndrome (MDS), acute myeloid leukemia (AML), chronic lymphocytic leukemia (CLL) or multiple myeloma (MM).

5. The use of any one of claims 1 to 4, further comprising administering to the patient in need thereof an effective amount of an erythropoiesis-stimulating agent, optionally wherein the erythropoiesis-stimulating agent is erythropoietin, epoetin alfa, epoetin beta, epoetin omega, epoetin zeta, or darbepoetin alfa.

6. The use of any one of claims 1 to 5, wherein formoterol or the pharmaceutically acceptable salt thereof is orally administered to the patient.

7. The use of any one of claims 1 to 6, wherein formoterol or the pharmaceutically acceptable salt thereof is formoterol fumarate.

8. The use of any one of claims 1 to 6, wherein formoterol or the pharmaceutically acceptable salt thereof is arformoterol.

9. The use of claim 8, wherein the arformoterol is arformoterol tartrate.

10. The use of any one of claims 1 to 9, wherein formoterol or the pharmaceutically acceptable salt thereof is administered conjointly with luspatercept, lenalidomide, erythropoiesis-stimulating agents (ESAs)such as epoetin alfa or darbepoetin alfa, and/or a hypomethylating agent, wherein the hypomethylating agent is optionally azacitidine and/or decitabine.