WHAT IS CLAIMED IS:

1. A method of preparing a population of hematopoietic stem cells (HSC), the method comprising:
   providing a population comprising hemogenic endothelial (HE) cells, and
   (i) contacting the HE cells with an amount of an agonist of transient receptor potential cation channel-subfamily vanilloid member 4 (Trpv4); and/or
   (ii) subjecting the cells to cyclic 2-dimensional strectching,
   for a time and under conditions sufficient to stimulating endothelial-to-HSC transition.

2. The method of claim 1, wherein the HE cells are obtained from iPSC.

3. The method of claim 1, wherein the agonist of Trpv4 is selected from the group consisting of Arachidonic Acid, 5,6-EET, 8,9-EET, bisandrographolide A (BAA), Phorbol ester (e.g., 4α-PDD and 4α-PDH), RN-1747, substituted 1,4-diaminobutane or 1,3-diaminopropane analogues; and GSK10116790A.

4. The method of claim 1, wherein the cells are obtained from a subject who has a blood, bone marrow, metabolic, or immune disease.

5. The method of claim 1, wherein the subject does not have a hematological malignancy.

6. Use of a therapeutically effective amount of hematopoietic stem cells (HSCs) in the manufacture of a medicament for the treatment of a blood, bone marrow, metabolic, or immune disease in a subject, wherein the HSCs are obtained by a method comprising:
   providing a population comprising hemogenic endothelial (HE) cells, and
   (i) contacting the HE cells with an amount of an agonist of transient receptor potential cation channel-subfamily vanilloid member 4 (Trpv4); and/or
   (ii) subjecting the cells to cyclic 2-dimensional stretching,
   for a time and under conditions sufficient to stimulating endothelial-to-HSC transition.

7. The use of claim 6, wherein the HE cells are obtained from iPSC.

8. The use of claim 6, wherein the agonist of Trpv4 is selected from the group consisting of Arachidonic Acid, 5,6-EET, 8,9-EET, bisandrographolide A (BAA), Phorbol ester (e.g., 4α-PDD and 4α-PDH), RN-1747, substituted 1,4-diaminobutane or 1,3-diaminopropane analogues; and GSK10116790A.

9. The use of claim 6, wherein the subject is a human.

10. The use of claim 6, wherein the subject has multiple myeloma; non-Hodgkin lymphoma; Hodgkin disease; acute myeloid leukemia; neuroblastoma; a germ cell tumor; an autoimmune disorder (systemic lupus erythematosus (SLE) or systemic sclerosis); or amyloidosis.