What is claimed:

1. An isolated PVMC, ~~capable of~~ expressing CD146, CD105, CD166, CD44, CD73, CD90 ~~*in vivo*~~; wherein the PVMC is CD45- ~~*in vivo*~~; and wherein the PVMC is derived from bone.

2. The isolated PVMC of claim 1, wherein the bone comprises a bone chip, a trabecular bone cavity, bone marrow, bone cavity lavage, or a combination thereof.

3. A method for making an enhanced, autologous bone graft comprising:

a. extracting a cell suspension from a first portion of bone tissue from a subject with an enzyme, mechanical force, or a combination thereof;

b. concentrating the cells in the cell suspension by buoyant density sedimentation, filtration or centrifugation to obtain a population of concentrated bone-derived PVMCs ~~capable of~~ expressing CD146, CD105, CD166, CD44, CD73, CD90~~ *in vivo*~~; wherein the PVMC is CD45- ~~*in vivo*~~; and wherein the PVMC is derived from bone; and

c. supplementing a second portion of bone tissue to be used as a bone graft from the subject with the population of concentrated bone-derived PVMCs, so as to make the enhanced, autologous bone graft.

4. The method of claim 3, wherein the first portion of bone tissue originates from the proximal region of a femur, the distal region of a femur, or a combination thereof.

5. The method of claim 3, wherein the second portion of bone tissue originates from human bones comprising at least one of an ilium crest, a femur, a patella, a tibia, a humerus, a clavicle, a rib, a scapula, or a combination thereof.

6. The method of claim 3, further comprising, supplementing the enhanced, autologous bone graft with fresh autologous bone marrow, processed autologous bone marrow, frozen autologous bone marrow, fresh autologous bone, processed autologous bone, frozen autologous bone, or a combination thereof.

7. A composition comprising a plurality of PVMCs ~~capable of~~ expressing CD146, CD105, CD166, CD44, CD73, CD90 ~~*in vivo*~~; wherein the PVMC is CD45- ~~*in vivo*~~; and wherein the PVMC is derived from any anatomic source containing PVMCs; bone marrow cells; and an acceptable carrier.

8. The composition of claim 7, wherein the plurality of PVMCs comprises PVMCs derived from bone, an umbilical cord blood vessel, or a combination thereof.

isolated PVMCs further comprise bone chips, fully demineralized bone chips, or partially demineralized bone chips.

20. ~~The composition of claim 17, wherein the isolated PVMCs may be capable of expressing CD146, CD105, CD166, CD44, CD73, CD90 *in vivo*, or a combination thereof.~~

21. The composition of claim 17, wherein the isolated PVMCs are isolated from bone.

isolated PVMCs further comprise bone chips, fully demineralized bone chips, or partially demineralized bone chips.

20. The composition of claim 18, wherein the isolated PVMCs express CD146, CD105, CD166, CD44, CD73, and CD90.

21. The composition of claim 17, wherein the isolated PVMCs are isolated from bone.