CLAIMS

1. A method for identifying the presence of mesenchymal precursor cells (MPCs) in a cell sample, the method comprising:

obtaining the cell sample from a tissue source;

contacting the cell sample with a HSP-90beta binding agent antibody or antigen-binding fragment thereof under conditions suitable for binding of HSP-90beta to the HSP-90beta binding agent antibody or antigen-binding fragment thereof; and

detecting the presence of the HSP-90beta binding agent antibody or antigen-binding fragment thereof bound to cells in the sample, in which the presence of MPCs is indicated by cells that bind to the HSP-90beta binding agent antibody or antigen-binding fragment thereof.

2. A method according to Claim 1, in which the cell sample is derived from placenta, adipose tissue, teeth, dental pulp, skin, liver, kidney, heart, retina, brain, hair follicles, intestine, lung, spleen, lymph node, thymus, ovary, pancreas, bone, ligament, bone marrow, tendon or skeletal muscle.

3. A method according to Claim 1, in which the HSP-90beta binding agent or antigen-binding fragment thereof is a STRO-4 monoclonal antibody produced by the hybridoma cell line deposited with the ATCC under deposit number PTA-9362.

4. A population of mesenchymal precursor cells (MPCs) enriched for cells that express a HSP-90beta binding marker by selecting the cells that bind to the HSP-90beta binding agent.

5. A method of generating a tissue specific committed cell population, the method comprising:

culturing a population of MPCs in the presence of one or more stimulatory factors, and

subjecting the cultured population of MPCs to conditions biasing differentiation of the cells to a specific tissue type so as to generate a tissue specific, committed cell population.

6. A method according to Claim 5, in which the tissue type is selected from the group consisting of placental tissue, cardiac muscle, vascular tissue, bone tissue, cartilage tissue, fat tissue, neural tissue, smooth muscle and endothelial tissue.

7. Use of an enriched population according to Claim 4 in the manufacture of a medicament for generating or repairing tissue in a subject.