Mouse Bone Marrow Mononuclear Cells (MBMMC)

Catalog #M1930-57

Cell Specification

Bone Marrow Mononuclear Cells (BMMC) are located in the bone marrow and have regenerative capabilities. Primary BMMC are a heterogeneous population of single nucleus cells which include hematopoietic stem cells, hematopoietic progenitor cells, immature monocytes, and immature lymphocytes [1]. Recent studies suggest that BMMC are suitable as a cell therapy to treat a variety of diseases such as cardiovascular disease, type 1 diabetes, and ischemic stroke [2, 3, 4]. BMMC may also be used for bone tissue engineering [1]. Primary mouse BMMC (MBMMC) can be utilized to further study BMMC as a potential cell therapy.

MBMMC from ScienCell Research Laboratories are isolated from healthy adult C57BL/6 mouse bone marrow. MBMMC are depleted of erythrocytes and bone marrow macrophages, cryopreserved immediately after isolation, and delivered frozen. MBMMC are a mixed population of cells that include hematopoietic stem cells and progenitor cells, monocytes, and lymphocytes. Each vial contains at least 10 million cells in 1 ml volume. MBMMC are quality control tested for viability. MBMMC are negative for mycoplasma, bacteria, yeast, and fungi. MBMMC can be maintained for a short period of time in culture using the conditions provided by ScienCell Research Laboratories. *MBMMC are not intended for long-term culture and should be used promptly for experiments*.

Recommended Medium

It is recommended to use HematoGro Medium (HeGM, Cat. #5501) for short-term maintenance of MBMMC *in vitro*.

Product Use

MBMMC are for research use only. They are not approved for human or animal use, or for application in *in vitro* diagnostic procedures.

Storage

Upon receiving, directly and immediately transfer the cells from dry ice to liquid nitrogen and keep the cells in liquid nitrogen until they are needed for experiments.

Shipping

Dry ice.

References

[1] Henrich D, Verboket R, Schaible A, Kontradowitz K, Oppermann E, Brune J, Nau C, Meier S, Bonig H, Marzi I, Seebach C. (2015) "Characterization of bone marrow mononuclear cells on biomaterials for bone tissue engineering in vitro." *Biomed Res Int.* 10: 1-12.

[2] Savitz S, Misra V, Kasam M, Juneja H., Cox C, Alderman S, et al. (2011). "Intravenous autologous bone marrow mononuclear cells for ischemic stroke." *Ann Neurol*. 70:59–69.

[3]Fotino C, Ricordi C, Lauriola V, Alejandro R, Pileggi A. (2010) "Bone marrow-derived stem cell transplantation for the treatment of insulin-dependent diabetes." *Rev Diabet Stud*. 7(2): 144-157.

[4] Arnous S, Mozid A, Martin J, Mathur A. (2012) "Bone marrow mononuclear cells and acute myocardial infarction." *Stem Cell Res*. 3(1): 2-10.

Instructions for culturing cells

Caution: Cryopreserved cells are very delicate. Thaw the vial in a 37°C water bath and return the cells to culture as quickly as possible with minimal handling!

Note: *Experiments should be well organized before thawing MBMMC. It is recommended that MBMMC are purified or used for experiments as quickly as possible after thawing the cells. Cells are not intended for long-term culture.*

Initiating the culture:

1. Prepare complete medium (HeGM, Cat. #5501). Thaw HeGS and P/S solution at 37°C. Gently tilt the tubes several times to ensure the contents are completely mixed before adding to the medium. Spray the medium bottle and tubes with 70% ethanol, and wipe to remove excess liquid. In a sterile field, remove the caps without touching the interior threads with fingers. Add HeGS and P/S solution to the medium and mix well.
2. Add 15 ml of complete medium to a T-75 flask. Leave the vessel in the sterile field and proceed to thaw the cryopreserved cells.
3. Place the frozen vial in a 37°C water bath. Hold and rotate the vial gently until the contents completely thaw. Remove the vial from the water bath promptly, wipe it down with 70% ethanol and transfer it to the sterile field.
4. Remove the cap carefully without touching the interior threads. Gently resuspend and dispense the contents of the vial into the equilibrated, culture vessel.

   Note: Dilution and centrifugation of cells after thawing are not recommended since these actions are more harmful to the cells than the effect of residual DMSO in the culture.
5. Replace the cap or lid, and gently rock the vessel to distribute the cells evenly. Loosen cap if necessary to allow gas exchange.
6. Return the culture vessel to the incubator.
7. For best results, do not disturb the culture for at least 16 hours after the culture has been initiated.
8. Cells should be used promptly for experiments or purified to specifically isolate hematopoietic stem cells, hematopoietic progenitor cells, monocytes, or lymphocytes.