

Isolation and cultivation of bone marrow-derived mesenchymal stromal cells

Commonly used acronym: BM-MSC

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SCOPE OF THE METHOD

Alternative method relates to	Human health
Alternative method is situated in	Basic Research
Type of alternative method	In vitro - Ex vivo
This method makes use of	Human derived cells / tissues / organs
Specify the type of cells/tissues/organs	bone marrow-derived mesenchymal stromal cells

DESCRIPTION

Method keywords

Stem cells

stem cell culture

bone marrow

stem cell isolation

mesenchymal stromal cells

Scientific area keywords

mesenchymal stromal cells

stem cell culture

stem cell isolation

Method description

Mononuclear cells (MNC) are isolated from bone marrow aspirates by density gradient centrifugation and washed in Hank's buffered salt solution. MNC are seeded at a cell density of 2×10^4 cells/cm² in low glucose DMEM supplemented with 15% (v/v) heat-inactivated FBS, 2 mM L-glutamine and 0.5% (v/v) antibiotic/antimycotic solution. Cells are incubated at 37 °C in a 5% (v/v) CO₂-enriched humidified atmosphere, cultured up to 90% confluency, trypsinized, centrifuged, and subcultured at a lower density (5×10^3 cells/cm²) for all subsequent passages for 2 weeks.

Lab equipment

Biosafety cabinet level 2

Cell incubator

Centrifuge

Method status

History of use

Internally validated

Published in peer reviewed journal

PROS, CONS & FUTURE POTENTIAL

Advantages

Robust protocol for isolation of bone marrow-derived mesenchymal stromal cells

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

References

De Kock J, Najar M, Bolleyn J, Al Battah F, Rodrigues RM, Buyl K, Raicevic G, Govaere O, Branson S, Meganathan K, Gaspar JA, Roskams T, Sachinidis A, Lagneaux L, Vanhaecke T, Rogiers V. (2012) Mesoderm-derived stem cells: the link between the transcriptome and their differentiation potential. *Stem Cells Dev.* 21(18):3309-23

Associated documents

PARTNERS AND COLLABORATIONS

Organisation

Name of the organisation Vrije Universiteit Brussel

Department Pharmaceutical and Pharmacological Sciences (FARM)

Specific Research Group or Service In Vitro Toxicology and Dermato-cosmetology

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