

# Isolation and cultivation of bone marrow-derived mesenchymal stromal cells

Commonly used acronym: BM-MSC

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### **Contact person**

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# Organisation

Name of the organisation Vrije Universiteit Brussel (VUB)

Department Pharmaceutical and Pharmacological Sciences

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

Country Belgium

Geographical Area Brussels Region

## SCOPE OF THE METHOD

| The Method relates to                    | Human health                                  |
|--|---|
| The Method is situated in                | Basic Research                                |
| Type of method                           | In vitro - Ex vivo                            |
| 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 x 10E4 cells/cm<sup>2</sup> 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 ( $5 \times 10E3$  cells/cm<sup>2</sup>) 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

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