Isolation and cultivation of bone marrow-derived mesenchymal stromal cells

Commonly used acronym: BM-MSC


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

<table>
<thead>
<tr>
<th>The Method relates to</th>
<th>Human health</th>
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</thead>
<tbody>
<tr>
<td>The Method is situated in</td>
<td>Basic Research</td>
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<tr>
<td>Type of method</td>
<td>In vitro - Ex vivo</td>
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<tr>
<td>Specify the type of cells/tissues/organs</td>
<td>bone marrow-derived mesenchymal stromal cells</td>
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</tbody>
</table>

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 $2 \times 10^4$ cells/cm$^2$ 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 ($5 \times 10^3$ cells/cm$^2$) 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