Biochemically Equivalent Substitutive Technology for Stem Cells

From 2009-07-01 to 2012-12-31, closed project

Project details

<table>
<thead>
<tr>
<th>Total cost:</th>
<th>Topic(s):</th>
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<tbody>
<tr>
<td>EUR 3 983 495,40</td>
<td>HEALTH-2007-1.4-7 - Development of stem cell culture conditions</td>
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<table>
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<tr>
<th>EU contribution:</th>
<th>Call for proposal:</th>
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<tbody>
<tr>
<td>EUR 2 999 067</td>
<td>FP7-HEALTH-2007-B</td>
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<tr>
<td></td>
<td>See other projects for this call</td>
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<tr>
<th>Coordinated in:</th>
<th>Funding scheme:</th>
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<tr>
<td>United Kingdom</td>
<td>CP-FP - Small or medium-scale focused research project</td>
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Objective

Current technology to control embryonic and adult stem cell behaviour is dependent on conventional in vitro culture systems and crude factors such as serum and purified proteins, often sourced from vertebrate animal tissue. These factors contribute to variations in cell properties and differentiation potential which impact on the efficacy of cell culture. More worryingly these factors are potential avenues for the introduction of unknown or known pathogens with the capacity to infect transplant recipients thereby becoming communicable to the general population. Especially concerning is the opportunity for transmission of potentially lethal diseases across vertebrate species for which there are no known cures. The propensity of primitive stem cell populations to spontaneously differentiate is an added challenge which generally necessitates cumbersome manipulation of cells by skilled operators involving daily assessment, media replenishment and or cell passaging by physical dissociation. Realising the promise of stem cells and their derivatives for clinical and industrial applications therefore requires the evolution of new paradigms for cell culture which maximise chemical definition, minimise the involvement of skilled operators, and offer non-invasive modulation of cells by biocompatible means. The aim of this proposal is to discover and integrate with established and new cell culture technology, synthetic and non-vertebrate derived purified molecules with a capacity to mimic the functional properties of crude biological reagents currently used to control the behaviour of embryonic and adult stem cells, most notably affecting self-renewal, pluripotency, lineage specification and stability following cryopreservation. These will be validated to deliver new culture paradigms designed for compliance with Good Manufacturing Practice Standards necessary for the delivery of clinical grade cells for therapeutic use.

Related information

<table>
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<tr>
<th>Result In Brief</th>
<th>Enhancing human stem cell culture</th>
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<tr>
<td>Report Summaries</td>
<td>Final Report Summary - BEST-STEM CELLS (Biochemically equivalent substitutive technology for stem cells)</td>
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</tbody>
</table>
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EU contribution: EUR 154 950

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EU contribution: EUR 98 400
EU contribution: EUR 68 190

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Activity type: Private for-profit entities (excluding Higher or Secondary Education Establishments)

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Subjects
Biotechnology - Medical biotechnology

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