

HESUB project combines several individual technologies from previous FP projects into one product that is capable of producing enough stem cells for one therapeutic treatment per day per unit. The HESUB product concept is a Single-Use-Bioreactor, which integrates a nanofibre porous scaffold optimised for the proliferation of cells and a sensor package that measures a range of key parameters. Which provides cost-efficient production of human stem cells for therapeutic treatment or a range of diseases.



The mini-bioreactor included a special insert (called "basket" made from PEEK), which became a precious tool for the scaffold manipulations during operations at KTH. Eight sets of the mini-bioreactor were manufactured in pure AISI316 steel and delivered to KTH. One of the advantages of the mini-bioreactor design is that the scaffolding envelope can easily be modified in height from almost zero to 6 mm. The flow of the medium re-circulated between mini-bioreactor and reservoir is laminar through the scaffold. Furthermore, the mini-bioreactors are autoclavable and resistant to harsh chemical treatment for cleaning and disinfection. In a LAF its possible to open the mini-bioreactor, take the basket and get access to core. The 4 mini-bioreactors have pH and DO monitoring using PreSens system and software.



For scaffold screening, stem cell cultivation the 5 ml envelope volume mini-bioreactors offer freedom.

<p>HESUB's goal is to update the current 2D technology used for culturing satellite cells by inventing a perfused Single-Use-Bioreactor. This device allow the propagation and/or differentiation of large numbers of satellite cells that retain myofibre regeneration properties of satellite cells.</p>	<ol style="list-style-type: none"> 1) Stobbe Tech A/S, Denmark 2) The Electrospinning Company Ltd, United Kingdom (TECL) 3) PreSens Precision Sensing GmbH, Germany 4) 3H Biomedical, Uppsala, Sweden 5) Kunglige Tekniska Högskola (KTH), Royal Institute of Technology, Stockholm, Sweden (Coordinator) 	<p>Project acronym: HESUB Project full title: "High Efficient, Single Use-Bioreactor simulating mammalian tissue conditions for expression and proliferation" HESUB is funded by the European Union 7th framework programme under grant agreement no. 601700</p>
--	--	---