Who's involved in AUTOSTEM?

The AUTOSTEM consortium is a multi-disciplinary mix of engineers, regenerative medicine scientists and high-tech companies from 4 European countries, led by Dr Mary Murphy of the National University of Ireland, Galway.

OÉ Gaillimh NUI Galway

UNIVERSITÀ DEGLI STUDI DI GENOVA

Fraunhofer IPT

Tyndall National Institute

Pintail

CROSPON

ZELLWERK Zellwerk GmbH-HiPer-Gruppe

CATAPULT Cell and Gene Therapy

Aston University Birmingham

OrbsenTherapeutics Redefining Cell Therapy

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Where can I find out more?

For further information about AUTOSTEM and to contact the team, please visit the project website

http://www.autostem2020.eu

You can also follow us on Facebook (https://www.facebook.com/autostem2020/) or Twitter (https://twitter.com/autostem2020).

AUTOSTEM

AUTOSTEM

ROBOTIC MANUFACTURING PLATFORM FOR STEM CELL THERAPY

THE CHALLENGE

As demand for stem cell therapy increases, current manufacturing protocols will not have the capacity or scale to meet that demand.

THE CONCEPT

AUTOSTEM will build a closed, robotic, remotely operated production line for the safe, efficient and controlled production of stem cells.

THE INNOVATION

High efficiency, low cost, high volume cell production technology.

THE FUTURE

Compliance with strict regulatory standards, strong risk management and acceptable cost of goods will drive the field in the future.

What is AUTOSTEM?

AUTOSTEM is an EU H2020 project that is developing a closed, automated, sterile pipeline for large-scale production of therapeutic stem cells. It will enable lower-cost, higher-quality and more consistent stem cells to be produced, ultimately helping patients to benefit from new stem cell therapies.

Why is AUTOSTEM important?

Stem cells offer new hope as a treatment for several diseases and conditions. Hundreds of clinical trials are in progress, testing new stem cell therapies. However, current manufacturing protocols for stem cells are inefficient and labour-intensive, requiring skilled teams of technicians operating in a clean-room environment. As new stem cell therapies are approved, there is a real risk that the future supply of stem cells will not be able to meet clinical demand.

AUTOSTEM will revolutionise the stem cell production process, generating clinical quantities of high quality stem cells at an affordable cost. This will enable the routine clinical use of stem cell therapies in the future.

How does the pipeline work?

The AUTOSTEM pipeline starts with a bone marrow donation, taken from a donor's hip bone using a novel suction device being developed by the project. This is transferred to a production line, where a robotic arm supports the isolation of stem cells from the bone marrow, the culturing of the stem cells in a bio-reactor and the delivery of a high volume of cells. The production line also includes real-time process management, monitoring of cell quality and environment and maintenance of the bio-reactor. Crucially, the entire process is completed with minimal hands-on human intervention. This removes much of the risk of error and contamination.

The AUTOSTEM Process

Bone marrow is taken from the hip bone of a donor using a novel suction device

Cells are transferred to a sterile production line, designed and developed by AUTOSTEM

Cells are cultured using novel bioreactor technology, which allows for more efficient production than existing methods

AUTOSTEM will support the production of high quality stem cells at scale