



Innovativa stamceller: För terapi- och läkemedelsutveckling

Johan Hyllner
5 december, 2011



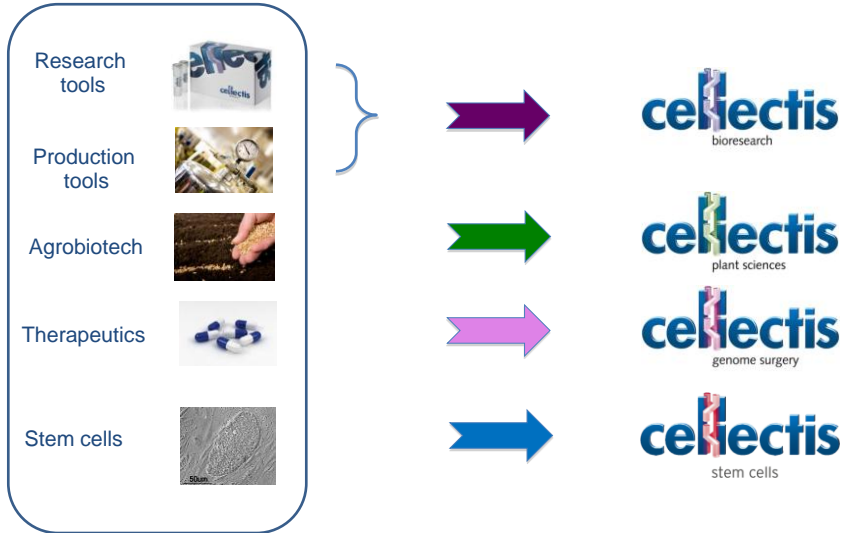
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Collectis group



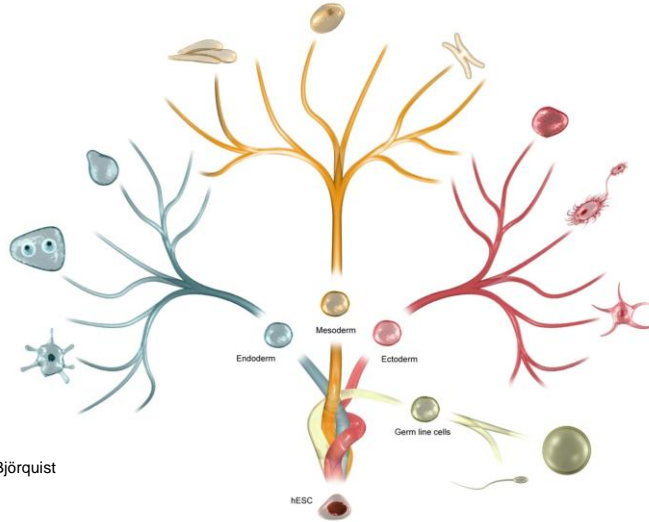
Collectis stem cells

- Part of the Collectis group
- Based in Paris (France), Göteborg (Sweden), Evry (France). Branch in Dundee (Scotland)
- Revenue generated from product sales, R&D collaborations with multinationals as well as grants
- Currently partner in > 100 M€ stem cell research programs funded by EU and other partners
- Business is based on solid science and extensive collaborations with premier academic and industrial partners
- hES cell lines have been approved for research use in all major markets such as Japan, USA, Germany, UK, France etc
- Building large iPS bank from qualified donors (~10 000)
- Provides cardiomyocytes and hepatocytes derived from human pluripotent stem cells
- Active in pluripotent stem cells-based regenerative medicine programs





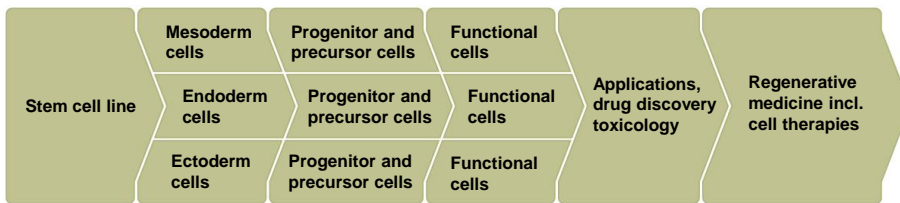
The potential of human pluripotent stem cells



Jensen, Hyllner & Björquist
Review JCP 2009



The value chain



Research and discovery tools

Molecules that can direct the differentiation of cells *in vivo*

Cell Therapies

Value €

€€

€€€€

Success Higher probability

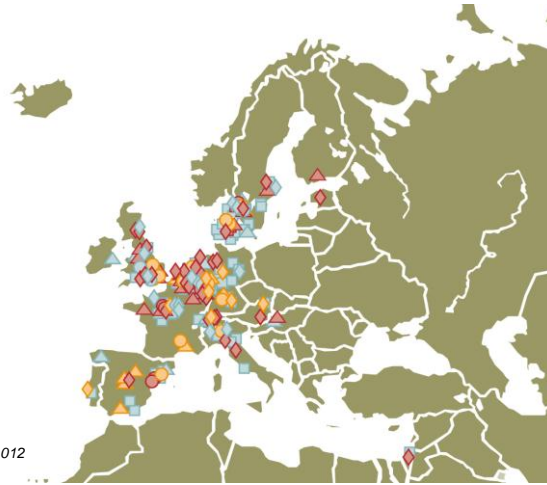
Lower probability



CSC GBG and DD EU project participation



- ▲ **Carcinogenomics**
12 M€/ 5 Yr
- ◆ **ESNATS**
15,5 M€/ 5 Yr
- ◇ **Hyperlab**
3,9 M€/ 3 Yr
- ◇ **SCR&Tox**
9,4 M€/ 5 Yr
- **HEPA-TOX (Eurostars project)**
1,4 M€/ 2,5 Yr
- **InnovaLiv will begin Q4 2011**
7,7 M€/ 3 Yr
- **4D-CellFate will begin Q4 2011**
16,3 M€/ 5 Yr
- **TissueGen will begin Q4 2011**
3,1 M€/ 4 Yr
- ▲ **MIP-DILI (IMI) will begin Q1 2012**
31,5 M€/ 5 Yr
- ▲ **CardioNet (People-ITN) will begin 2012**
4 Yr
- **Finalised projects**
BetaCellTherapy, Vitrocellomics, Heart Repair, Stems, InvitroHeart
48,4 M€



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Svenskar bygger världens första stamcellsfabrik

Dagens Industri 2007-01-18

Det svenska bioteknikbolaget Cellartis från Göteborg startar världens första fabrik för massproduktion av stamceller. Fabriken byggs i skotska Dundee och slåss om en framtida mångmiljardmarknad.

Bioteknikbolag flyr Sverige

Dagens Industri 2007-01-18

Sverige går miste om tusentals jobb i bioteknikbranschen. Detta på grund av svenska skatteregler som missgynnar forskningsbolag. Det senaste exemplet är svenska Cellartis som väljer att bygga sin stamcellsfabrik i Skottland istället för i Sverige.

Cellartis requested to come to Stockholm for "discussions" with "Globaliseringsrådet"

Meeting with three ministers of the Swedish government, such as Maud Olofsson, industrial leaders such as Marcus Wallenberg and leaders of Universities and National Unions.



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Cellartis Internationalisation Why and Where?



- International market - means that we must internationalise sooner or later to be closer to our customers.
- Thanks to the EU entry, Europe is our home market. We do not only think Sweden but EU. Positive with EU institutions, businesses, infrastructure, regulations, funding opportunities.
- Cellartis and other Swedish high-tech companies now have more opportunities. This leads to increased competition between countries, regions, etc.
- Cellartis perspective: The owners originally wanted us to establish in the U.S. We came to the conclusion that this would be a huge effort for a small company due to many reasons. It is like open up the European market in one go.
- Within Europe, we have evaluated the Netherlands, Switzerland and UK (Three different regions, among others Scotland, separately contacted Cellartis directly).
- UK makes huge political investment (about 900 M € over 10 years) in the stem cell field which will have a global impact.

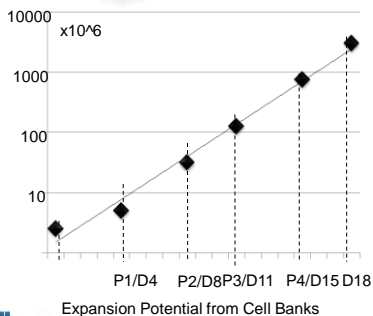


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Large scale production

From one vial to a billion hES cells in 2 weeks



- Large scale automated production from fully characterized Cell Banks
- Shipped fresh "Ready to plate" or "Plated"

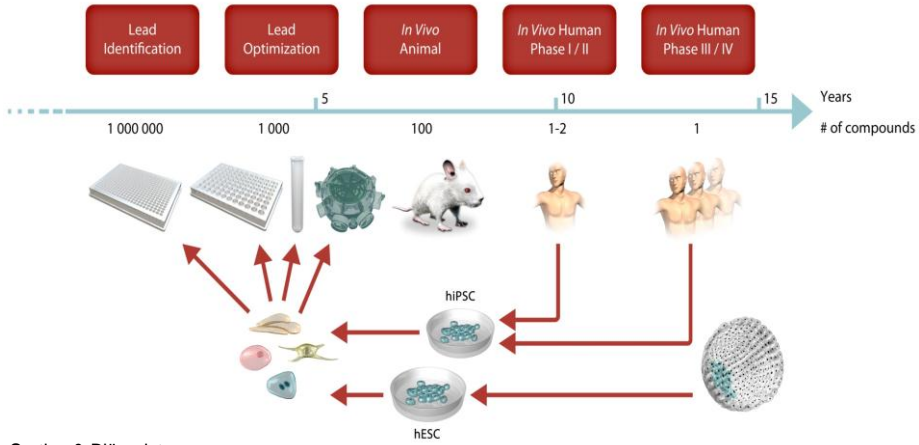


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Frontloading human relevant toxicity testing in pre-clinical drug discovery



Sartipy & Björquist
Stem Cells, 2011



Products: Available and selling now

hES-HEP™002
Hepatocyte-like cells

NEW Hepatocyte-like cells
hES-HEP™002
hES-HEP™002 is a highly homogenous population of hES cell derived hepatocytes. These cells are shipped fresh, ready-to-use in 24- and 96 well plate formats. The cells are ideal to use in hepatocyte related applications...

order [more](#)

hES-CMC™2D
Beating Cardiomyocytes

NEW Cardiomyocyte monolayers
hES-CMC™2D
hES-CMC™2D are hES cell-derived cardiomyocyte clusters prepared as monolayers in a 96-well plate format. These spontaneously beating cultures exhibit electrical coupling, as demonstrated by their synchronous contractions...

order [more](#)

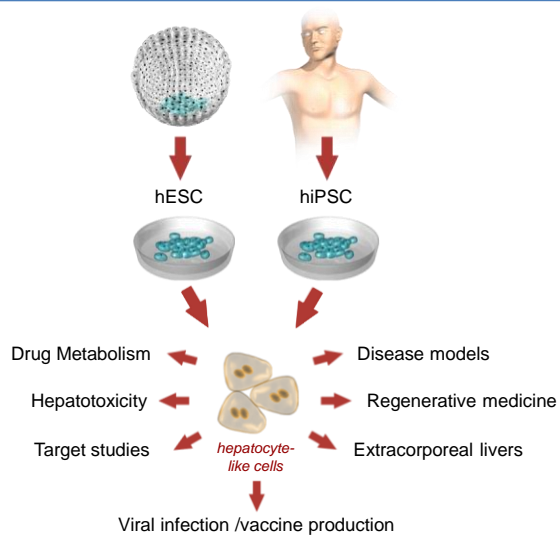
hES-CMC™002
Beating Cardiomyocyte clusters

Cardiomyocyte clusters
hES-CMC™002
hES-CMC™002 are spontaneously beating hES cell derived cardiomyocytes in a cluster format, ranging in size from 200-300µm. The cells exhibit specific markers and functional similarities to adult human cardiac myocytes...

order [more](#)



hPSC-derived hepatocytes



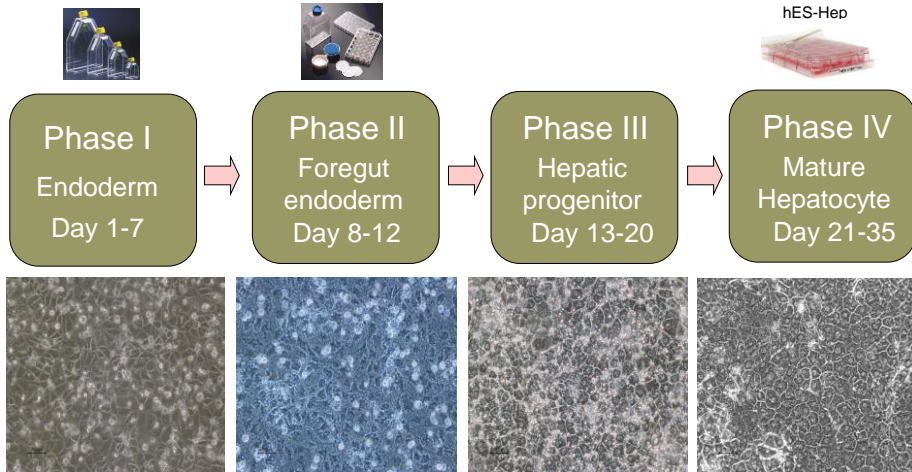
Björquist, Andersson
2011





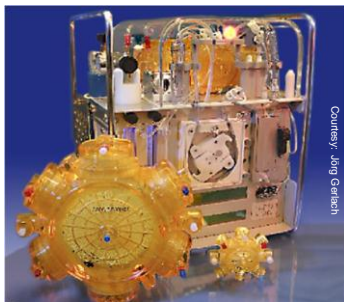
Production of hPSC derived hepatocyte-like cells

Modulation of each phase by specific culture conditions and exogenous factors

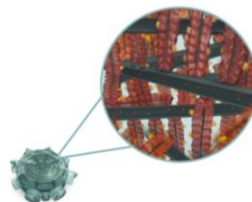
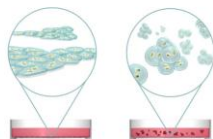
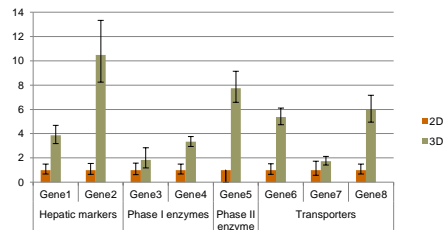


Perfused Bioreactors for hES-Hep culture

More competent cells at larger scale – for use *in vitro* and in therapies

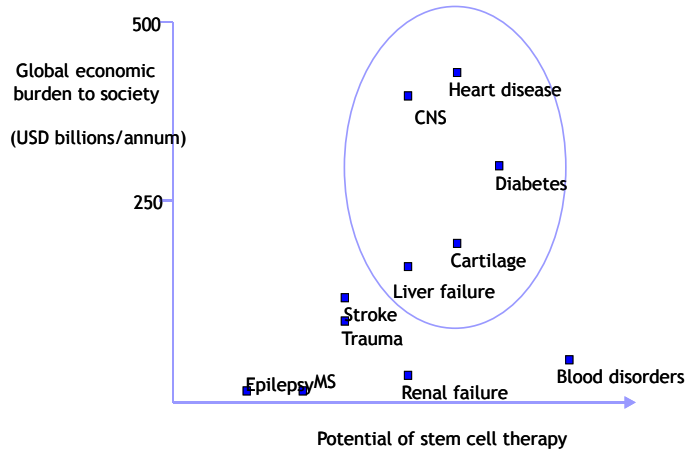


Expression of hepatic genes





Regenerative medicine: High value for society



Stem cells and cell therapy



LUND UNIVERSITY
Faculty of Medicine



Press Release

23 October 2008

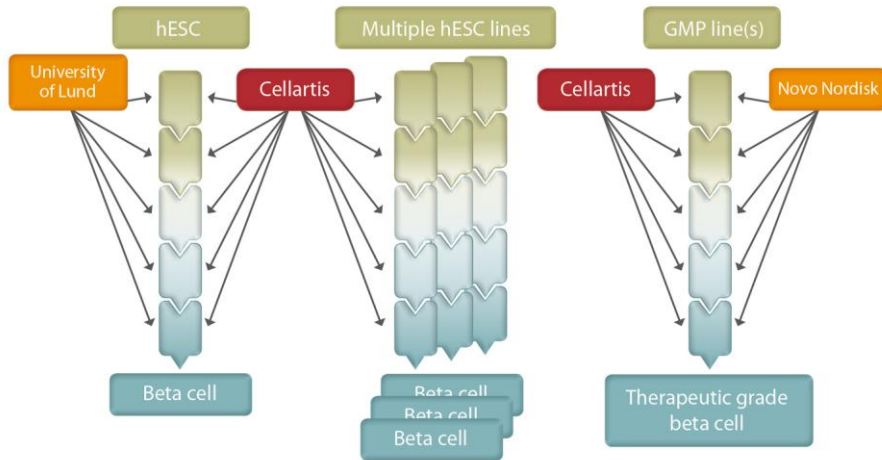
Novo Nordisk, Cellartis and Lund University enter into a collaboration to develop insulin-producing cells from stem cells for the treatment of diabetes

Novo Nordisk A/S, a world leader in diabetes care, Cellartis AB, a forefront stem cell biotechnology company, and Lund University Stem Cell Center today signed a collaborative research agreement for the development of insulin-producing cells from human stem cells. The collaboration aims to develop a cell therapy for the treatment of insulin-dependent diabetes and, in the longer term, a cure for diabetes.

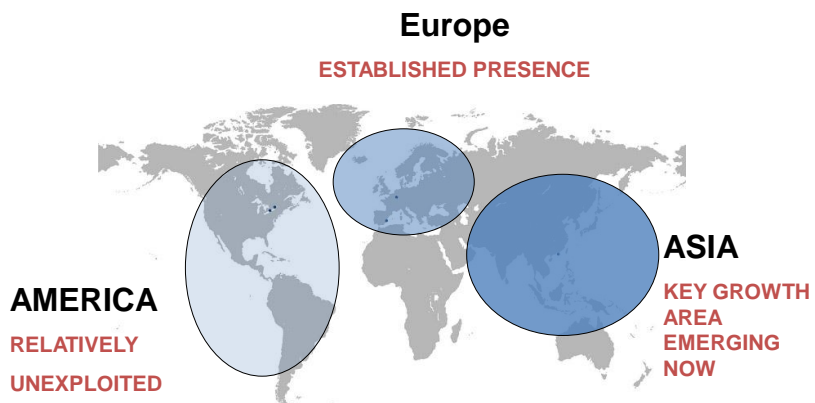
Total deal value: €119.5 M plus FTE costs and royalties



Strategy towards cell therapy – the Nordic example...



Global growth opportunities Much to exploit

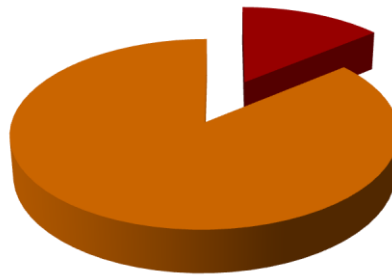




Revenues 2009

MSEK 53,5

Revenues



- Sweden
- Other



tack
merci
thank you ...

