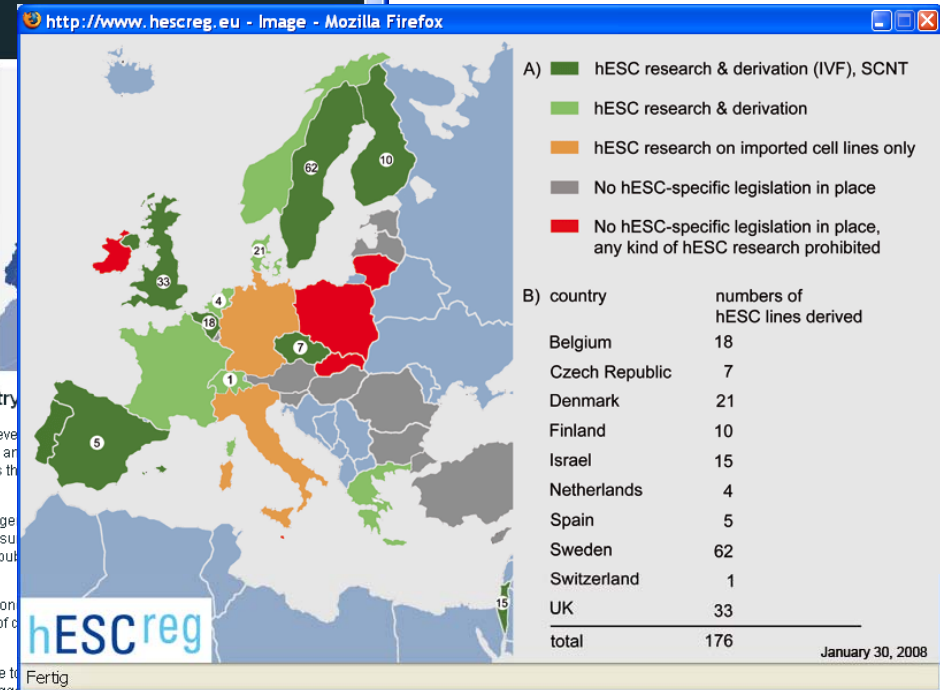
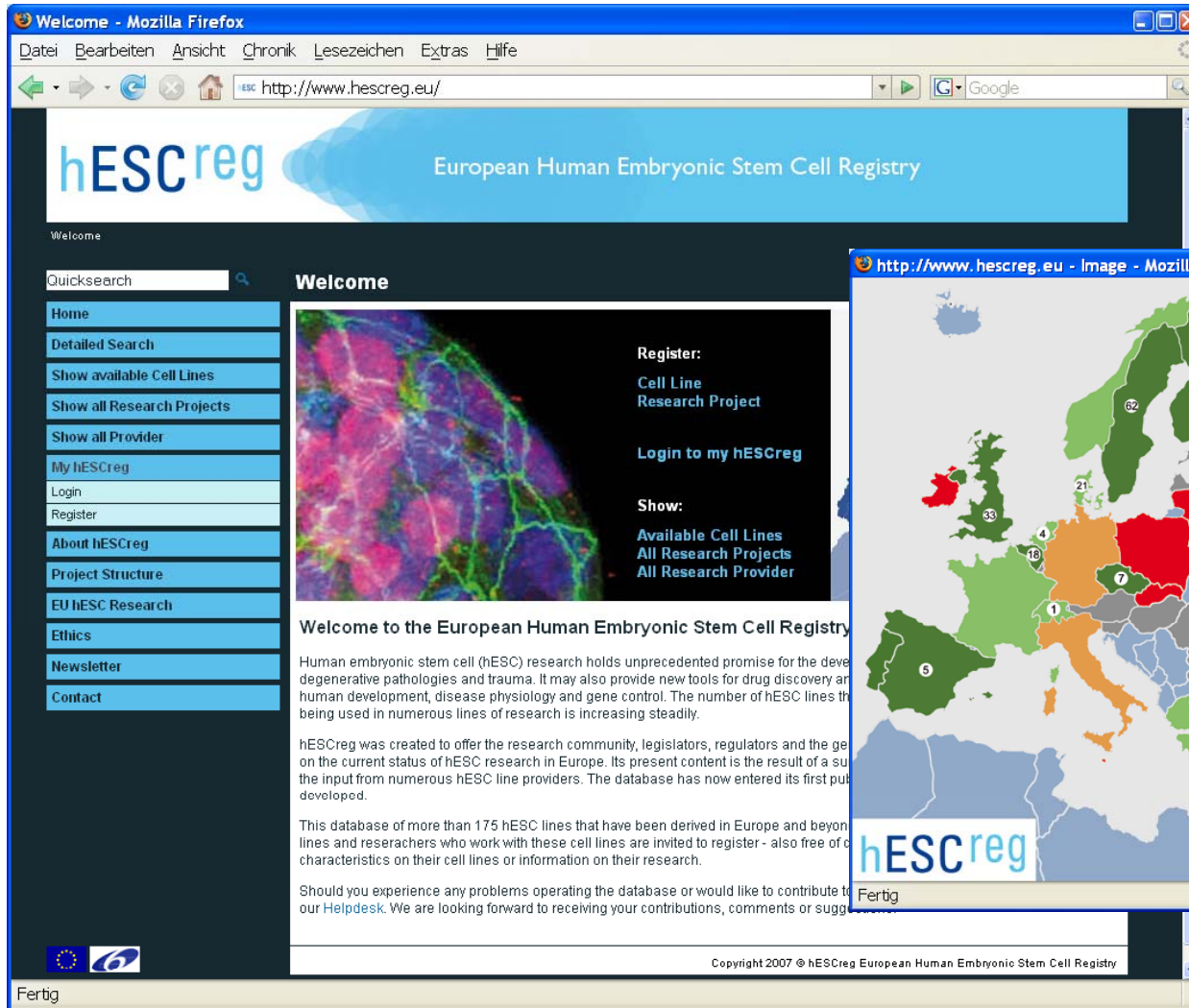


EU hESC line Registry (hESCReg)

- Primary objective: **provide information about all human ESC lines derived and used in Europe** which are available to the scientific community.
- Specific Support Action funded by VI FP European Commission (Duration: 2007 - 2010)
- Eligibility criteria for cell lines and mechanisms for content registration have been defined and implemented, and the registry allows access to hESC providers and users.
- The technical backbone of the registry has been developed and an internet-based web access mode has been designed and implemented for cell line registration
- www.hescreg.eu



Front-end - Homepage

Public front-end with main options for search, register, login as well as general background information about the project: press releases, listings of project members, EU-information, FAQ, legal information

Project Management

CMR[B]

Center of Regenerative Medicine in Barcelona:

Anna Veiga, Scientific Co-ordinator

Begoña Aran, Scientific Content Management



UK Stem Cell Bank:

Glyn Stacey, Banking Issues and Quality Assessment



Berlin-Brandenburg Center for Regenerative Therapies:

Andreas Kurtz, Annotation Issues

Anja Elstner, Annotation Content Management

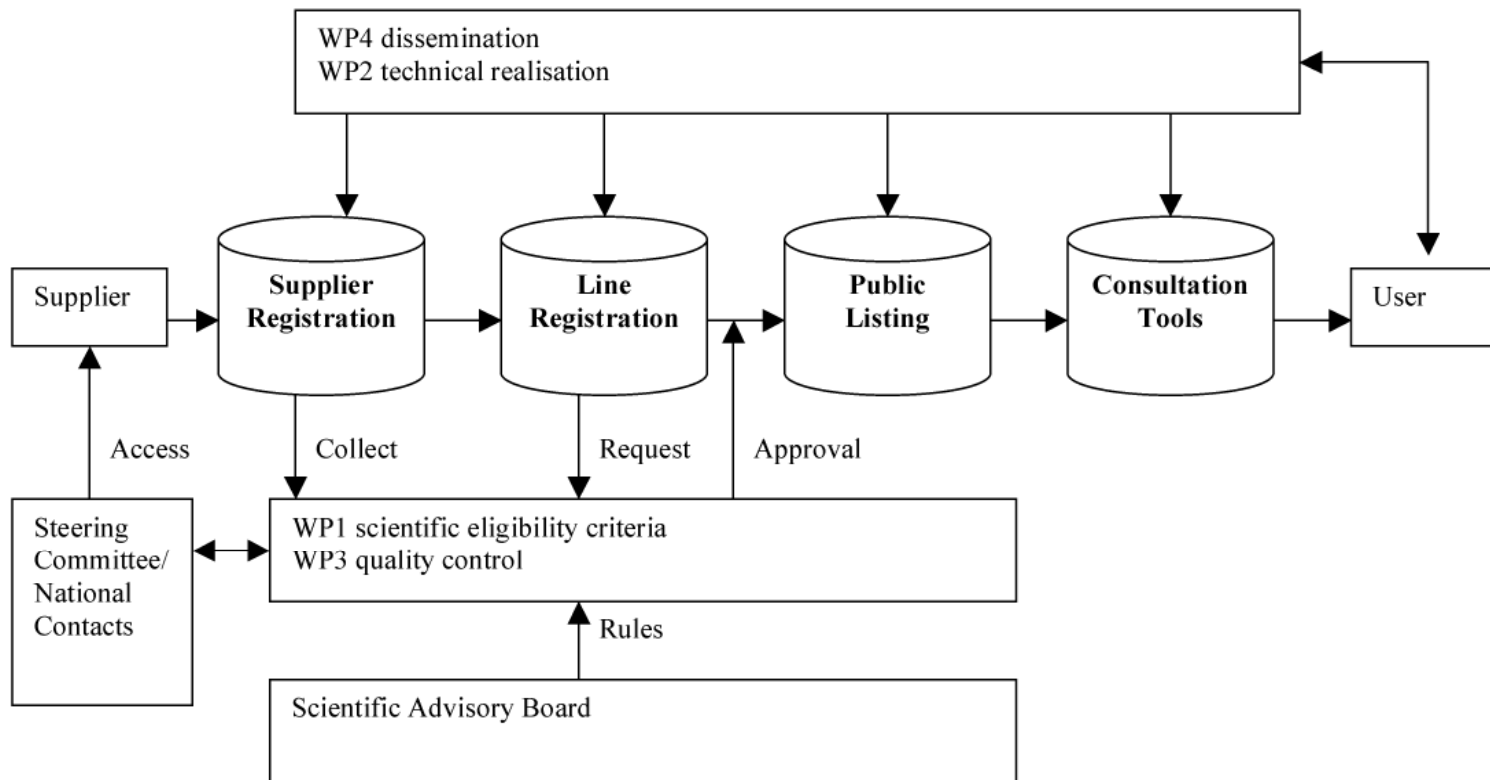
Alexander Damaschun, Technical Realisation

Joeri Borstlap, Technical Co-ordinator

Project Members

- The **Steering Committee (StC)** constitutes the bridge to the national researchers in each partner Member State or country.
- As **National Contacts**, StC members have the responsibility to provide information on the different working groups (either deriving or working with hESC) in their respective countries.
- The **Scientific Advisory Board (SAB)** is constituted of leading European and non-European scientists in the field of hESC research.
- The SAB has an advisory role and assures the scientific and technical quality of the registry.
- An independent **Ethics Advisory Board** guides the registry on ethical issues.

Name	Institution	Country
Steering Committee		
Andersen, Claus Yding	University Hospital Copenhagen	Denmark
Camby, Carine	Agence de la Biomedicine	France
Dvořák, Petr	Masayrk University Brno	Czech Republic
Hovatta, Outi	Karolinska Institutet	Sweden
Jaconi, Marisa	University of Geneva	Switzerland
Kurtz, Andreas	Charité Universitätsmedizin Berlin	Germany
Mummery, Christine	Netherlands Institute for Developmental Biology	Netherlands
Reubinoff, Benjamin	Hadassah University Hospital	Israel
Sermon, Karen	Vrije Universiteit Brussel	Belgium
Stacey, Glyn	NIBSC, UK Stem Cell Bank	UK
Tuuri, Timo	University of Helsinki	Finland
Zapata, Agustín	Instituto de Salud Carlos III	Spain
Scientific Advisory Board		
Andrews, Peter	University of Sheffield	UK
Izpisúa, Juan Carlos	CMR[B] and the Salk Institute for Biological Studies	Spain
Braude, Peter	King's College London	UK
de Sousa, Paul	Roslin Cells Ltd.	UK
Findikli, Necati	International Hospital Istanbul	Turkey
Ganten, Detlev	Charité Universitätsmedizin Berlin	Germany
Gerlach, Jörg	University of Pittsburgh	USA
Hyllner, Johan	Cellartis AB	Sweden
Lako, Majlinda	International Centre for Life - Newcastle University	UK
McKay, Ronald	NINDS Porter Neuroscience Research Center	USA
Menéndez, Pablo	Andalucía Stem Cell Bank	Spain
Peschanski, Marc	INSERM U421/IM3	France
Robertson, Marylin	SSCN, Scottish Stem Cell Network	UK
Savatier, Pierre	INSERM U846	France
Simón, Carlos	Centro de Investigacion Príncipe Felipe	Spain
van Steirteghem, Andre	European Society Human Reproduction & Embryology	Belgium
Ethics Advisory Board		
Casado, Maria	Universitat de Barcelona	Spain
Tanner, Klaus	Martin-Luther University, Halle-Wittenberg	Germany
Yvon Englert	Hopital Erasme	Belgium



Information flow and decision making process

Back-End - My hESCreg

Personalised Back-End to add, edit or delete Information about Cell Lines, Research Projects and Publications. Acces to ,internal' discussion about lines in discussion board.

Back-End - Provider: Add Cell Line

Only possible after reviewed and approved registration as a provider
Registration Information - Additional Information

Back-End - Governance

SAB/ StC, SEB: comments and discussion

Front-end - Detailed Search / Consultation

Search for all possible criteria in categories: Registration Information, Additional Information, Research Projects, Publications, Persons

Front-end - Search Results List


Output of all search functions (here: show all available cell lines)
Check lines for comparison or directly go to ,full' view

Front-end - Cell Line ,Full'




Complete information of a registered Cell Line

My hESCreg

▼ **Personal Data**

Mr. Joeri Borstlap 


▼ **Working Group**

hESCreg - European Human Embryonic Stem Cell Registry   


▼ **My Cell Lines**

Provided Cell Lines:


Cell Line
Add Cell Line



▼ **My Research Projects**



▼ **My Publications**



Back-End - My hESCreg

Personalised Back-End to add, edit or delete Information about Cell Lines, Research Projects and Publications.

Registration information

(minimal data)

- name
- provider data
- cell line source (fresh, frozen, ips, other)
- availability (vials, price, mta)
- genetic information (karyotyping, mutations)
- differentiation
 - in vivo (terratoma, 3 germlayers)
 - in vitro (embroid bodies)
- cell markers (20 of which 10 ISCI-1)

Additional information

- patient screening (virus detection)
- source data (date, embryo stage, quality)
- blastocyst quality (morphology)
- derivation methodology (ZP removal, ICM isolation, seeding)
- culture conditions (medium kryopreservation, passaging)
- feeder cells (name and specification)
- characterisation data (genetic studies, fingerprinting, markers)
- teratoma information (details on terratoma test)
- regulatory & ethics (provenance, consent, regulatory bodies etc.)

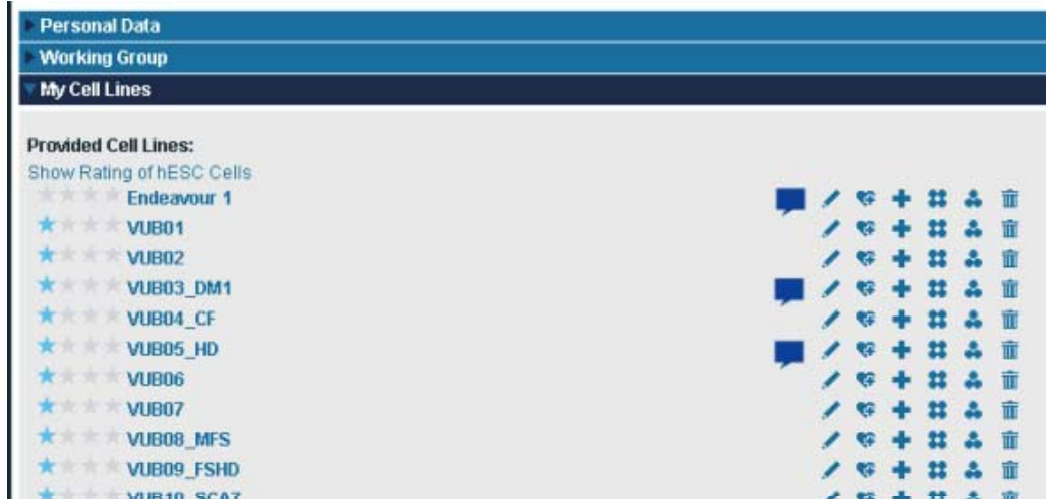
Add Cell Line: *Registration Information and Additional Information*

Add Cell Line

Registration Information	
Name of the cell	JB 001
Is Subset	Yes
Original Cell Line	HS293
Source data	
Origin	Fresh
Source	SCNT
SCNT	Human oocytes
Single cell derivation	Yes
Specify embryo stage	Enter a new one 12 days
Availability	
Cell line available	Yes
Price	500 €
Passage number	22 23 52
Number of vials available	6 33 124
Karyotyping	
Karyotype	46XY
Passage No.	12
No. of metaphases	3
Transgenic line	
Transgenic line y/n	No
Differentiation	
In vitro	Embryoid bodies
In vivo teratomas	Yes, all 3 germ layer detect
Cell	Submit
ALP	Submit Cell Line
	RT-PCR
	Array
	Immuno-fluorescence
	ELISA
	Flow cytometry

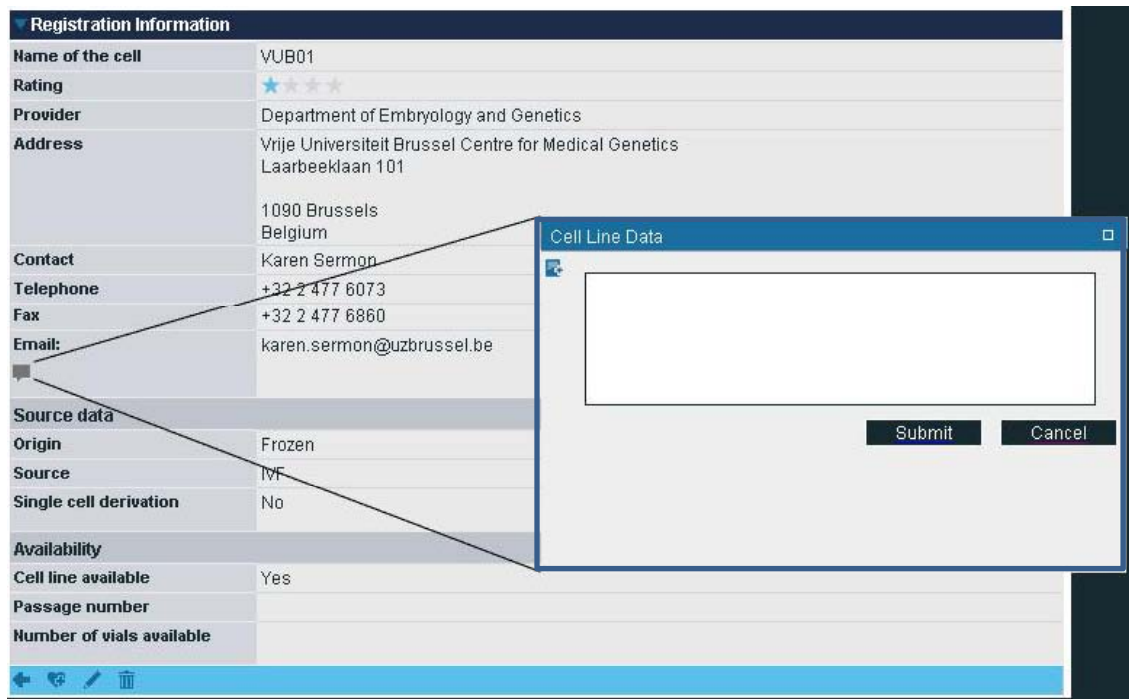
Back-End - Provider: Add Cell Line

Only possible after reviewed and approved registration as a provider
Registration Information -
Additional Information



Back-End - Governance

SAB/ StC, EAB: comments and discussion



Detailed Search

Registration Information

Name of the cell

Number of stars

Source data

Origin

Source

Single cell derivation

Availability

Cell line available

Karyotyping

Karyotype

Passage No.

No. of metaphases

Transgenic line

Transgenic line y/n

Differentiation

In vitro

In vivo teratomas

Cell Marker

	Northern	RT-PCR	Array	Immuno-fluorescence	ELISA	Flow cytometry
ALPL	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
CD9	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
DNMT3B	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
GABRB3	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
GCTM2	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
GCT343	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
GDF3	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
HLA1	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
HAHOG	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
POU5F1 (OCT-4)	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>
SSFA 2	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>	<input type="text" value=""/>

Front-end - Detailed Search / Consultation

Search for all possible criteria in categories: Registration Information, Additional Information, Research Projects, Publications, Persons

<input type="checkbox"/>	CCTL9	Masaryk University	Czech Republic
<input checked="" type="checkbox"/>	FES21	University of Helsinki	Finland
<input checked="" type="checkbox"/>	FES22	University of Helsinki	Finland
<input type="checkbox"/>	FES23	University of Helsinki	Finland
<input checked="" type="checkbox"/>	FES24	University of Helsinki	Finland
<input type="checkbox"/>	FES61	University of Helsinki	Finland

Display
Display selectet items

Front-end - Search Results List

Output of all search functions

Check lines for comparison or directly go to ,full' view

Compare Search Results				
Cell Lines				
Name	VUB05_HD	CCTL10	CCTL6	FES21
Provider	Department of Embryology and Genetics	Petr Dvorak's Laboratory	Petr Dvorak's Laboratory	Basic Biology of Human Embryonic Stem Cells
Contact	Karen Sermon	Petr Dvorak	Petr Dvorak	Timo Tuuri
Source data				
Origin	Fresh	Fresh	Frozen	Frozen
Source	IVF	IVF	IVF	IVF
IVF				
SCIT				
Single cell der...	No	No	No	No
Specify embryo...				
Availability				
Cell line avail...	Yes	Yes	Yes	Yes
Price				
Passage number				
Number of vials...				
Karyotyping				
Karyotype	46XY		46XY	46XY
Passage No.	121		14	4
No. of metaphases	20	8	12	20
Transgenic line				
Transgenic line...	No	No	No	No
Transgenic line				
Reporter gene				
Differentiation				
In vitro	Embryoid bodies	Embryoid bodies	Embryoid bodies	Embryoid bodies
Germ layer				

Marker	Group 1						Group 2						Group 3						Group 4					
	Northern	RT-PCR	Array	Immuno- fluorescence	ELISA	Flow cytometry	Northern	RT-PCR	Array	Immuno- fluorescence	ELISA	Flow cytometry	Northern	RT-PCR	Array	Immuno- fluorescence	ELISA	Flow cytometry	Northern	RT-PCR	Array	Immuno- fluorescence	ELISA	Flow cytometry
ALPL			+						+		+					+		+						
CD9																								
DIHMT3B	+						+						+								+			
GABRB3							+						+								+			
GCTM2																								
GCT343																								
GDF3	+						+														+			
HLA1							+						+											
IIAHO6	+						+						+								+			
POU5F1 (OCT-4)	+						+		+		+		+		+		-			+				
SSEA-3			+						+		+				+		+					+		
SSEA-4			-						-		-				-		-					-		
TRA 1-60			+						+		+				+		+					+		
TRA 1-81			+						+		+				+		+					+		
TDGF1							+														+			
THY1 (CD90)																								
REX-1	+						+						+								+			
SSEA-1			-						-		-				-		-					-		
SOX-2	+																				±			

Front-end - Compare Search Results

Compares up to 4 short lists (registration information and markers) of cell lines

Show Cell Line CCTL10

Registration Information

Name of the cell	CCTL10
Rating	■ ■ ■ ■ ■
Provider	Petr Dvorak's Laboratory
Address	Masaryk University Faculty of Medicine bud. A6/209, Kamenice 5 625 00 Brno Czech Republic
Contact	Petr Dvorak
Telephone	+420 54 949 3318
Fax	+420 54 949 1327
Email:	pdvorak@med.muni.cz
Has the CL been derived with the Donors' Informed Consent?	
Is the donor traceable?	No
Derivation Data	
Origin	Embryo
Source	IVF
Single cell derivation	No
Availability	
Cell line available	Yes
Karyotyping	
Karyotype	46XY
Highest Passage No. for above Karyotype	38
Karyotype Change	
Genetic Modification	
Occurrence	
Differentiation into cell types of the 3 germ layers	

Cell Marker						
	Northern	RT-PCR	Array	IHC/HC	ELISA	Flow cytometry
ALPL				+		+
DNMT3B		+				
GABRB3		+				
GDF3		+				
HAHOG		+				
POU5F1 (OCT-4)		+		+		+
SSEA-3				+		+
SSEA-4				+		+
TRA 1-60				+		+
TRA 1-81				+		+
TDGF1		+				
REX-1		+				
SSEA-1				-		-
Additional Information						
Was there a specific purpose to derive the CL?						
Has the CL been derived under GMP?						
HLA Typing						
Type I						
A	allele 1: allele 2:					
B	allele 1: allele 2:					
C	allele 1: allele 2:					
Type II						
DR	allele 1: allele 2:					
DQ	allele 1: allele 2:					
Virology/Microbiology Screening						
HIV I before derivation						
HIV I after derivation						
HIV II before derivation						
HIV II after derivation						
HBV before derivation						
HBV after derivation						
HCV before derivation						
HCV after derivation						
TPHA before derivation						
TPHA after derivation						

Additional derivation data	
Date of embryo generation	28.7.2003
Embryo stage	Blastocyst
Embryo quality	Good
Blastocyst quality	
Expansion status	2
ICM morphology	A
Trophectoderm morphology	A
Cell line derivation	
Date of derivation of cell line	
ZP removal	Enzymatic
Cell isolation	Immunosurgery
Seeding	Embryo
Cell line culture conditions	
Culture medium	DMEM/F-12
Protein source	Serum free
Serum concentration (percentage)	
Surface Coating/Matrix	MEF
Supplements	
Growth factors	FGF 2
Attach PDF for culture medium recipe	
Freeze/thaw method	
Gas phase O ₂ (percentage)	20
Gas phase CO ₂ (percentage)	5
Passaging Method	
Enzyme(s) used	
Feeder cells	
Cell name or strain of origin	CF-1 mice
Original tissue type	12,5day embryos
Seeding density (x 10 ⁶ cells per ml)	0,5
Maximum passage for use	2
Feeder cell inactivation	Mitomycin C
Matrix used	None
Protein(s) used	
Material(s) used	

Teratoma information	
Strain of mice	
Age of mice (months)	
Passage at inoculation	
Inoculation site	
Inoculum preparation	
Number of cells injected	
Type of histology	
Chimeras	
Animal species	
Strain of recipient	
Age of recipient	
Passage at injection	
Number of cells injected	
Percentage of integrated cells	
Site of integration	
Developmental time point	
Regulatory documents	
MTA	No
Attach a Document	
Copy of blank consent form	Yes
Attach a Document	
Institutional review board approval/Competent authority approval	
Are there references or weblinks for SOPs?	Yes
Attach a Document	
Weblink	http://www.med.muni.cz/biologie/Publicat05.htm
Official oversight bodies involved	No
Are there specific measures employed to establish traceability?	
Attach a Document	
Is there a certificate of analysis available?	
Attach a Certificate of Analysis	
Accrediting authority involved	
Clinical Application	

International Harmonisation

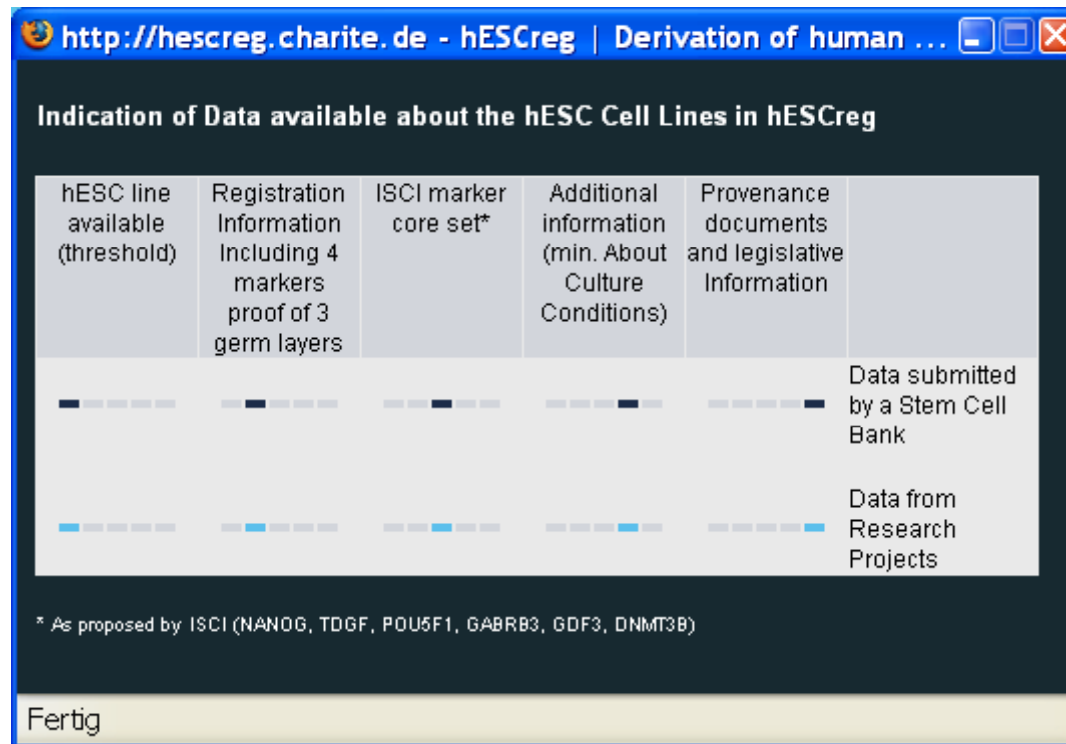
- **Banks:** UKStemCellBank – Glyn Stacey, NIH (WiCell)
- ISCF (www.iscf.org): International Stem Cell Initiative (ISCI-1,2),
- Further Initiatives of the **ISCF:** Working Group on Ethics
IPR-Project – Clive Moris, Banking Projekt
- Projects of European Commission **6th+7th FP**
- Interstate Alliance on Stem Cell Research, USA, incl. CIRM and NAS (www.iascr.org)
- Stem Cell Network of the Asia-Pacific region (**SNAP**), incl. China, Australia, Japan, Singapur, Taiwan
- International Society for Stem Cell Research (www.isscr.org), Ethics Database
- International Consortium of Stem Cell Networks (www.icscn.org) incl. 14 International Networks – international legislation overview
- **Nature** Networks and Nature Reports on Stem Cells – Group functions, Literature and News exchange

Country	lines	Center
Belgium	13	hESC laboratory. Vrije Universitet Brussel
	5	Research laboratory on Human Reproduction. Univ. Libre de Bruxelles
Czech Republic	7	Department of Molecular Embryology, Academy of Sciences of the Czech Republic. Prague
Denmark	11	Laboratory of Reproductive Biology. University of Copenhagen
	4	Ciconia Fertility Clinic. Aarhus
	6	Department of Molecular Endocrinology. University of Southern Denmark. Odense
Finland	6	Biomedicum Stem Cell Center. Helsinki
	4	REGEA, Institut for Regenerative Medicine. Tampere
Israel	6	Laboratory at Hadassah hESC Center. Jerusalem
	5	Technion. Israel Institute of Technology. Haifa
	1	Hadassah University Medical Center
Spain	5	Banco Líneas Celulares. Centro Investigación Príncipe Felipe. Valencia
	5	Center of Regenerative Medicine in Barcelona
Sweden	29	Stem Cell laboratory of Karolinska Institut. Stockholm
	35	Cellartis, AB. Göteborg
Switzerland	1	University of Geneva
The Netherlands	4	Developmental Biology and Stem Cell Research. Hubrecht Institut. Utrech
UK	9	University of Newcastle. Center of Stem Cell Biology and Developmental Genetics
	4	King's College London. Stem Cell laboratory
	2	University of Nottingham
	6	Universities of Edinburgh
	7	Axordia/ Center for Stem Cell Biology. University of Sheffield
	4	University of Cambridge
Total	179	

Non- European stem cell lines registered

Country	lines	Center
Australia	1	Prince of Wales Hospital. Sydney
Canada	2	Mount Sinai Hospital. Toronto
Japan	3	Kyoto University. Kyoto
Singapore	5	Cell International Pte Ltd
USA	2	Advanced Cell Technology, Inc. Los Angeles
	17	Harvard University. Cambridge
	3	Novocell, Inc. Athens
	2	University of California. San Francisco
	5	Wi Cell Reserach Institute. Madison
Total	40	

Data Evaluation



Borstlap J, Stacey G, Kurtz A, Elstner A, Damaschun A, Aran B, Veiga A, *First evaluation of the European hESCreg*, Nature Biotechnology, Vol. 25 Nr. 8, p 859, August 2008