



## The International Stem Cell Banking Initiative (ISCBI)

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### A B S T R A C T

The International Stem Cell Banking Initiative (ISCBI) was started in 2007 to bring together the leading stem cell banks distributing human pluripotent stem cell (hPSC) lines for research and development, to discuss best practice across a range of issues from donor consent to delivery of cells for use in research, diagnostics and cell-based medicines. ISCBI holds workshops around the world and on-line and regularly publishes summaries of discussions and consensus amongst experts in stem cell biology, biobanking technology, regulation and policy making. To date, experts from more than 28 countries have contributed to ISCBI activities which are frequently run in collaboration with other stem cell organisations and has co-ordinated closely with the International Stem Cell Initiative and the hPSCreg European Commission funded database of hPSC lines and clinical trials.

### 1. Introduction: history and ethos

The International Stem Cell Forum (ISCF) originally funded by nine funding agencies held, its first meeting in 2003 chaired by Professor George Radda of the UK Medical Research Council (MRC) with the aim to establish ‘standardised global criteria for the derivation, characterisation and maintenance of stem cell lines’. In recent times the ISCF has moved leadership from the UK MRC and was chaired for a period by Barbara Knoppers (McGill University, Montreal) and responsibility for ISCF moved most recently to Prof Qi Zhou Director for the Institute of Zoology, Chinese Academy of Sciences, Beijing. The ISCF established the International Stem Cell Initiative and the ISCF Ethics Working Party to achieve its primary goals. Subsequently, the ISCF also approved a funding application to initiate the International Stem Cell Banking Initiative (ISCBI, [www.iscibi.org](http://www.iscibi.org)), which was inaugurated in 2007 by a group of stem cell banking experts from organisations distributing human pluripotent stem cell lines. This group came together at a meeting at the Jackson Laboratories in the United States and have continued to work together.

The primary goal of the ISCBI has been to develop a programme of international collaboration to agree consensus on common issues for the pluripotent stem cell banking centres.

The core ethos of ISCBI is to be internationally inclusive and assure diversity of its contributors by bringing together stem cell biobanks supporting diverse applications and engaging diverse expertise and knowledge from stem cell biobanks, leading stem cell research groups,

scientific societies, regulators, industry, funders and policy groups. Its key aims are to:

- Sustain a community supporting international coordination and harmonisation
- Work towards international consensus on delivery of pluripotent stem cell lines including key issues such as ethics, biobanking procedures and quality assurance
- Support development of new stem cell biobanks
- Promote training and educational activities.

Today, the ISCBI has become a self-supporting not for profit organisation which runs regular open conferences and workshops around the globe bringing together national stem cell banking organisations, regulators, policy makers, stem cell networks and other stem cell biologists, to continue to develop and publish international consensus standards. The ISCBI is now a community of more than 300 professionals from over 28 countries. Regular expert workshops are held at least once a year to discuss a broad range of issues for best practice in the biobanking and use of pluripotent stem cells, providing a ‘touch stone’ for numerous stakeholders in the broader stem cell field.

### 2. How we operate

The ISCBI meetings typically have a workshop format with introductory talks on topics developed by the ISCBI Steering Group (see

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<https://doi.org/10.1016/j.scr.2021.102265>

Received 13 December 2020; Accepted 17 February 2021

Available online 22 February 2021

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below), focusing on opportunities for detailed discussion amongst delegates. These are frequently organised in association with the International Society for Stem Cell Research (ISSCR) meetings and are also coordinated with other stem cell events. Meeting proceedings are circulated to delegates and the ISCBI membership, and summaries of key topics discussed are published in peer reviewed journals. The ISCBI keeps in contact with its membership through a regular newsletter which includes focus articles reviewing national programmes and networks in the stem cell field and providing a source of information not available elsewhere on international platforms.

The ISCBI activities have been supported by donations from government organisations, scientific foundations and a range of companies involved in stem cell research and development, which appear on the ISCBI website along with the conditions for such sponsorship. To date such donations have enabled ISCBI to make no charge for academic, regulatory and not for profit delegates at its meetings.

The ISCBI is run by a senior management team (see <https://www.iscbi.org/about>). ISCBI development plans, meeting programmes and policy issues are facilitated through the ISCBI Steering Group (Table 1) comprising senior scientists and stem cell bank directors from around the world who are well known in the field of stem cell research (for the current Steering Group members see <https://www.iscbi.org/about>). New members of the ISCBI community are welcomed via the ISCBI website email or [admin@iscbi.org](mailto:admin@iscbi.org).

### 3. Coordination with other organisations

Other projects supported by the ISCF include the International Stem Cell Initiative (Initiated by Prof Peter Andrews (University of Sheffield, UK) in 2003, now led by Prof Martin Pera (Jackson Laboratories, USA) and the ISCF Ethics working party (initiated by Prof Barbara Knoppers, McGill University, more recently led by Ms Rosie Isasi JD MPH, University of Miami). Both of these groups have published influential work on stem cell science and policy and the ISCBI works closely with them and the human Pluripotent Stem Cell registry (hPSCreg) (<https://hp.screg.eu/>) led by Dr Andeas Kurtz. ISCBI collaborates actively with other groups in the area of hPSCs in order to maximise benefits and avoid redundancy of efforts. Most recently ISCBI has organised meetings in collaboration with other stem cell networks such as COREdinates, GAIIT, HESI-TRACS and the International Society for Cell and gene Therapy (ISCT).

### 4. Key publications

The ISCBI community publishes influential reports representing consensus from leaders in stem cell science, ethics, industry and regulation. Publications have covered topics such as best practice in stem cell banking, special issues for hPSC lines intended for clinical use and hPSC data management (Andrews et al., 2009, 2015; Crook et al., 2010; Crook and Stacey, 2014; Kim et al., 2017, 2019; Stacey et al., 2013). For an up to date list of publications see <https://www.iscbi.org/copy-of-expertise>. Workshops are held once or twice a year including Melbourne University (June 2018), CIRM Broad Centre, Los Angeles (June 2019) and most recently in Korea with a symposium at the CHA University (Pangyo-Seoul) and a workshop at the Korean NIH (Osong) in September 2019.

The ISCBI produces meeting reports on key topics discussed at each face to face meeting and these are published in peer reviewed journals, on the website or by application to [admin@iscbi.org](mailto:admin@iscbi.org).

Two of the ISCBI's key publications have been papers on the requirements for banking of hESCs for research use (Andrews et al., 2009) and key considerations in the development of hPSC stocks for use in clinical applications (Andrews et al., 2015).

### 5. Current developments and future plans

The ISCBI continues its schedule of international meetings to seek

**Table 1**  
ISCBI Steering Group.

Role on ISCBI Steering Group	Member Affiliation/s
ISCBI coordinator and co-director	International Stem Cell Banking Initiative, Institute of Zoology Chinese Academy of Sciences, Beijing, China and SSCBio Ltd
Human pluripotent stem cell registry (hPSCreg) database representative and ISCBI co-director	Fraunhofer-IBMT and Charite University MedizinInstitut, Berlin, Germany
ISCBI Policy expert and co-director	University of Miami, USA
Founding member	WiCell, Madison, USA
<b>Networks and Projects Representatives</b>	
European Bank for Induced pluripotent Stem Cells (EBiSC) Representative <a href="http://www.ebisc.org">www.ebisc.org</a>	Fraunhofer IBMT and EBiSC representative, Germany
The Global Alliance for iPSC Therapies (GAIIT) Representative <a href="http://www.gait@global.org">www.gait@global.org</a>	GAIIT, Edinburgh, UK
Human Induced Pluripotent Stem Cell Initiative (HipSci) iPSC Resource Centre Representative	Wellcome Trust Sanger Institute, Hinxton, UK
International Stem Cell Initiative (ISCI) Representative	Jackson Laboratories, Bar Harbor, USA
RUDCR Representative	RUDCR Biobanking Resource
<b>National Representatives</b>	
Brazil	Universidade Federal do Rio Grande do Sul, Porto Alegre, Brazil
China	National Stem Cell Resource Center and Institute of Zoology, Chinese Academy of Sciences, Beijing, China
Germany	Life and Brain Centre, University of Bonn, Bonn, Germany
France	I-Stem, Paris/independent
India	Jawaharlal Nehru Centre for Advanced Scientific Research (JNCASR), India.
Japan	Kyoto University, Kyoto, Japan
Korea	Korean National Institute for Health, Osong, Korea
UK	UK Stem Cell Bank, South Mimms, UK
USA	Memphismeat, Berkeley, USA

consensus on challenging issues and disseminate best practice in the stem cell field. It will continue to develop its programme of collaboration with other organisations with shared interests and complementary expertise and is now delivering a programme of on-line webinars addressing a range of topics of special interest to stem cell banking centres. In 2019, ISCBI also initiated a series of bursaries designed to promote the diversity of delegates attending meetings and support invited academic speakers. Following the very successful meeting in Los Angeles in 2019 on validation of raw materials for manufacture of hPSC-based therapies (<https://www.iscbi.org/event-archive>), a working group has been initiated on regulatory terminology and similar activities are planned to develop the discussions on stem cell data, genetic testing and cost of goods for hPSC banking and manufacture held at the Korean meetings in 2019 (for details of upcoming meetings see <https://www.iscbi.org/news-1/categories/bulletins>). A programme of regular on-line meetings has also been initiated to promote multinational engagement and details can be found at [www.iscbi.events](http://www.iscbi.events).

### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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