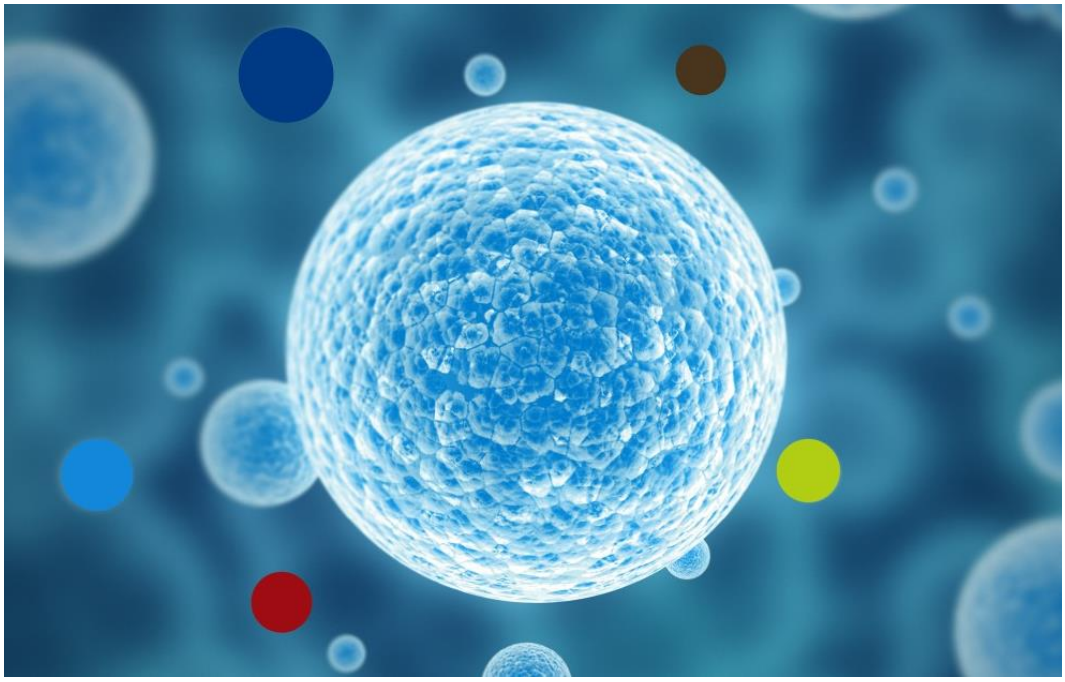
Guidance for EBiSC Depositors

HOW TO DEPOSIT IPSC LINES INTO THE EUROPEAN BANK FOR INDUCED PLURIPOTENT STEM CELLS



www.EBiSC.org

This project has received funding from the Innovative Medicines Initiative 2 Joint Undertaking (JU) under grant agreement No 821362. The JU receives support from the European Union's Horizon 2020 research and innovation programme and EFPIA. www.imi.europa.eu

1. Why should I deposit my cell lines with EBiSC?

The European Bank for induced Pluripotent Stem Cells (EBiSC) is a not-for-profit iPS cell banking and distribution service enabling academic and commercial researchers to access quality-assured, disease relevant, research-grade iPSC lines, data and cell services.

There are numerous benefits to sharing your iPSC lines with EBiSC:

- ***Increase visibility of your institution, your research and your iPSC lines.*** Deposition of your lines into EBiSC makes your iPSC lines and research results more visible by making your iPSCs available to a broad community. Your institution is also recognized through our standardized naming system.
- ***Dissemination of the cell line by EBiSC.*** The Bank saves you time by responding to researchers who request samples of your cell lines and undergoing completion of numerous Material Transfer Agreements. After completion of one deposition process, EBiSC does the rest.
- ***Backup storage.*** If your cryo-freezers fail or your locally held stocks become contaminated, you will have opportunities to request samples of your lines to be returned to your lab, with only the shipping to pay.
- ***Retain rights for self-distribution.*** Through your cell line deposition, you not only satisfy the requirements of funding bodies and journals to share published cell lines, you maintain intellectual property rights and can continue to use and distribute them as you see fit.
- ***Collaboration with EBiSC partners.*** EBiSC consists of both academic, SME and large industrial partners. Through recognition as an owner of an EBiSC line, you become a referral point for potential future collaborators in- and outside of EBiSC.
- ***Additional characterisation data.*** EBiSC will perform additional characterization as part of cell line banking and Quality Control procedures, this data will be shared back to you as the depositor of the line to support your ongoing research activities.
- ***Commercial out licencing.*** Dissemination of your lines through EBiSC increases the chances of commercially licensing your line(s) for downstream applications and puts the negotiation and decision making process entirely at your discretion.
- ***Free access to EBiSC iPSC lines.*** For each line deposited, you will receive back 2 free vials, either of your deposited line after EBiSC banking or of an alternative banked EBiSC line.*

How else can EBiSC accelerate my research?

EBiSC can also support your iPSC research program with:

- Establishing a legal framework to establish licencing requirements, data management and distribution rights
- Using consent templates which clearly detail iPSC generation, distribution, genomic analysis and flexibility for use in future research activities

*Subject to Terms

- Intra-project banking and distribution between project partners
- Generation of iPSC derived progenitor and terminal cell populations
- Translation of protocols to automated solutions

2. What do I need to deposit my iPSC line(s) into EBiSC?

To deposit your iPSC line(s) into EBiSC, you need 4 main things:

1. Copies of the template Informed Consent Forms and Participant Information Sheets used to collect the original donated samples and information on local ethical review.

2. Information on the iPSC line(s) including reprogramming method, gene-editing details (if applicable), culture conditions and data on the performance, quality and characterization of the iPSC line(s) including cell line identity, morphology and marker expression

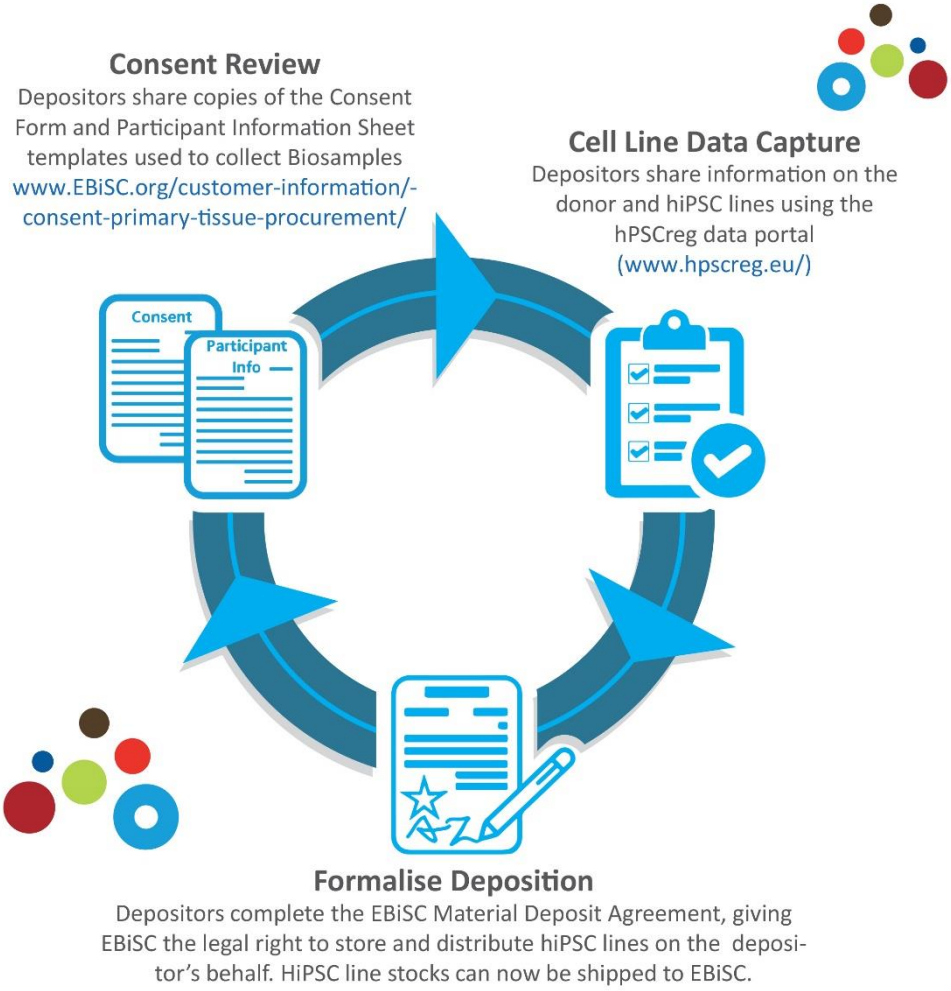
3. A completed EBiSC Material Deposit Agreement which gives EBiSC legal rights to store, bank and distribute your line(s) for research use by other scientists internationally.

4. A minimum of 10 vials of the iPSC line(s) being deposited

More detail on each of these will be provided in the following guidance. The dedicated EBiSC Biosamples Acquisition team will support you through this process to ensure a simple and efficient deposition process.

3. How do I deposit my iPSC line(s) into EBiSC?

Deposition of induced pluripotent stem cell line(s) into EBiSC is a three-step process. See cells.ebisc.org/depositors/ for more details and contact Deposit@EBiSC.org to speak to our Biosamples Acquisition team.



a) Initial Depositor Application

Summary of iPSC lines to be deposited

First, you need to provide initial high level information on the cell lines to deposited, the background of the donor(s), the original bio-specimens and what consent was obtained. This can be done using our Depositor Initial Application Form, available for download here.

Consent Review

EBiSC ensures that all deposited lines originate from tissue samples which were collected under fully informed consent relating to iPSC generation and downstream use. You will need to share **templates** of

the Participant Information Sheet and Informed Consent Form under which the relevant samples were collected, with EBiSC.

If tissue collection has not yet taken place, please share planned templates where possible – please contact EBiSC if you have any queries relating to collection of informed consent.

Please ensure **only templates** are shared and no identifiable information such as Participant name, date of birth or initials are included.

Once completed with as much information as possible on the iPSC line cohort, email a copy of this form and the consent templates to Deposit@EBiSC.org for EBiSC review.

b) hPSCreg Data Entry

All lines deposited into EBiSC must be registered in the human Pluripotent Stem Cell registry as a global registry for human pluripotent stem cell lines (hPSCreg, https://hpscreg.eu/). More information on this process is available on the hPSCreg website.

After registering your iPSC line:

- Your iPSC line will be assigned a standard cell line name according to the hPSCreg nomenclature system
- You will need to enter information on the background of your iPSC line(s) including:
    - Donor details such as biological sex, age at time of tissue donation and disease association (if applicable).
    - How the line was reprogrammed and associated culture conditions such as matrix, media and passaging method.
    - If gene-edited, you will be asked to provide details of how the genetic modification was performed and confirmation of the resulting genotype.
    - Cell line characterisation data
    - If the line is published, you can share the paper with us to collect this information.
- We require depositors to share the following minimal cell line characterisation data with us, so that we can confirm the provenance of each line:
    - A negative result for Mycoplasma
    - A negative sterility result screening for bacterial, fungal and yeast contaminants
    - Confirmed cell line identity relative to the original fibroblasts or PBMCs (or other). STR or SNP arrays are the most common method for this.
    - Viability
    - Morphology – images of the line
    - Phenotype – Marker expression typical of a human pluripotent stem cell line by flow cytometry or immunostaining.
- If available, please also share the following extra datapoints with EBiSC:

- Proof of trilineage differentiation, such as spontaneous differentiation and subsequent analysis of germ layer markers
- Data confirming a disease associated genotype in the iPSC line (if applicable)
- Genomic stability data such as G-Banding, SNP arrays, aCGH or similar

Please contact Deposit@EBiSC.org if you have any queries on the acceptability of these datasets for your cohort. Note that for large cell line cohorts, EBiSC may be able to help input data into hPSCreg using automated methods – please contact EBiSC to discuss this further.

c) Completion of the EBiSC Material Deposit Agreement

The EBiSC MDA is the legal document that enables us to distribute your iPSC lines to other researchers. This agreement sets out the rights and responsibilities of the depositor and the EBiSC Bank. The MDA's appendix holds information on the individual cell lines included in the agreement and takes note of any third party obligations which are linked to one or more of the lines which an end user must be made aware of. For example, if a novel technology was used in the creation of the iPSC line, an end user may have to contact the holder of the related intellectual property rights to negotiate a license.

Key points established in the MDA are:

- That the depositor continues to own their iPSC lines and associated data
- That the depositor retains rights over their cell line(s) and can continue to distribute their lines to whomever they choose, independently of EBiSC.
- That EBiSC may store, bank, QC and distribute deposited iPSC lines for research use to non-profit and for-profit researchers worldwide.
- That EBiSC may generate derived cell types from deposited iPSC lines for research use by non-profit and for-profit researchers worldwide.
- That the depositor agrees to make information about the line and linked consent/ethics available to EBiSC for due diligence purposes.
- Whether third party obligations and/or restrictions for use need to be passed onto iPSC line users. For example there may be licensing obligations associated with vectors/technologies used during reprogramming or gene editing, which users must be made aware of.

Once the EBiSC MDA is completed, you just need to ship a minimum of 10 vials of each line to one of the EBiSC central facilities and your deposition is complete!

4. What quality control data is required?

EBiSC recommends the following characterisation to be performed on each iPSC line. Starred assays indicate mandatory screening prior to sharing vials with EBiSC:

- ***Cell line identity****: use of STR profiling is preferred
- ***Phenotype***: expression of gold-standard hPSC and self-renewal markers such as POU5F1, SSEA1 and SSEA4
- ***Viability***: cells should be able to grow to confluence within 5-7 days after thaw
- ***Karyology***: Genome stability should be recorded, ideally in comparison to the original tissue which was reprogrammed. Common methods include G-Banding and SNP arrays.
- ***Microbiology****: Screening for bacterial and fungal contaminations via inoculation into TSB and FTB broths
- ***Mycoplasma****: Screening of cell line stocks which are to be sent to EBiSC
- ***Human viral pathogens**** (HIV1, HIV2, HBV and HCV): Screening can be performed on donor material instead of the iPSC line
- ***Pluripotent potential***: Through spontaneous or directed differentiation with analysis of germ layer formation

Access the EBiSC iPSC Catalogue:
www.EBiSC.org

Contact the EBiSC BioSample Acquisition Team:
Contact@EBiSC.org

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