



**FiPS – Freiburg iPS Core**

Faculty of Medicine  
University of Freiburg

## Freiburg iPS Core: User Guidelines

University of Freiburg – Faculty of Medicine

Advances in stem cell research provide novel in vitro models of human disease and avenues for cell therapeutic approaches. The Freiburg iPS Core (FiPS) represents the centralized facility for the generation and provision of human induced pluripotent stem (iPS) cells at the Medical Center – University of Freiburg. In addition to derivation, maintenance, expansion and cryopreservation of human iPS cell lines, the iPS Core offers support to researchers and physicians in the pursuit of projects involving stem cells, including differentiation paradigms and 3D organoid culture. Differentiation protocols are already locally established for a range of cellular phenotypes (e.g., hematopoietic, neural, renal, mesenchymal). Aimed at clinical translation, the routines applied use GMP-compatible protocols and non-genome integrating reprogramming technologies. Moreover, hands-on training and student internships are offered to convey the fundamentals of stem cell research methodology. In close exchange with the complementary units within the institute, experimental gene and cell therapeutic paradigms exploiting iPS cells are being developed.

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### Freiburg iPS Core Website:

<https://www.uniklinik-freiburg.de/itg-en/research-development/freiburg-ips-core.html>

## FiPS Services

The FiPS is a collaboration-based core facility, i.e. users will be taught by iPS Core Facility staff how to generate and culture iPSC lines, how to perform efficient genome editing in those cells, how to clone iPSC lines, and how to perform a standard differentiation to a cell type of interest. All of this will be done in the framework of a collaboration.

### Generation of iPS cells by epigenetic reprogramming:

- reprogramming using non-integrating technologies (RNA amplicons or Sendai vector)
- phenotypic characterization of pluripotent stem cells
- maintenance of pluripotency and expansion of human iPS cell lines
- advanced flow cytometric profiling of pluripotency and lineage differentiation

### Generation of iPS derivatives via established protocols:

- differentiation towards hematopoietic progenitors, myeloid and lymphoid lineage
- differentiation towards CNS type neurons
- differentiation towards neural crest derivatives
- mesenchymal differentiation, adipocytes, osteogenesis

### Assistance and training:

- training of investigators in methods to maintain and differentiate pluripotent stem cells
- assisting and consulting investigators in developing additional differentiation protocols

### Service fees:

There are no service fees. Users will be taught in the framework of a collaboration. The necessary consumables will be provided by the user.

### Data storage and documentation:

Each generated line will be provided with a derivation record form, including reprogramming method, original line, documentation of phenotype characteristics and passage number. Long-term record keeping and archiving is the responsibility of the recipient.

## Access to Services

Access to FiPS services is open to institutional as well as to external users. Service details will be specified after consultation and in-depth consideration of methodological options.

In those cases where reprogramming of cells provided by iPS Core users is to be conducted, the provision of documentation regarding provenance of such cell sources and written confirmation of ethical approval of the study as well as informed consent of the individual (donor) needs to be provided prior to initiation of any project work.

Services will generally be provided in the order of receipt of service requests. In case of requests exceeding our running capacity, prioritization will be given to members of the Medical Faculty of the University of Freiburg.

In the interest of maintaining aseptic conditions and due to space constraints, no physical access to the iPS Core laboratories will be granted beyond the context of practical courses or clearly defined individual training arrangements.

FiPS services may be declined:

- if the user does not fulfill his or her responsibilities in terms of provision of documentation, submission of payment details or processing of payment;
- if the capacity of FiPS equipment or staff is insufficient to fulfill the requested services;
- if there is any indication that FiPS staff, instrumentation or equipment may be harmed through carrying out the services requested.

## Acknowledgment in Publications

The majority of the FiPS equipment was financed with the support from outside sources, such as the Medical Faculty of the University of Freiburg, the DFG or the BMBF. We therefore depend upon proper acknowledgment in publications and grants. Wherever substantial scientific input and intellectual contribution from iPS Core staff members is included in a publication or patent this should be reflected by co-authorship according to the DFG guidelines on Safeguarding Good Scientific Practice (conceptualization, experimental design, data analysis, data interpretation and/or input into drafting, revising or writing any portion of the manuscript). Publications, posters or presentations that make use of Freiburg iPS Core standard services should list this contribution in the respective acknowledgment sections (for instance: *We thank the Freiburg iPS Core for the generation of the .... iPS cell line; we thank the Freiburg iPS Core for differentiation of iPS cells towards... phenotype*). Users should inform us about publications and patents based on the use of the iPS Core. Thank you!

## Training

### Practical training:

- training of investigators in the fundamental methods to generate, gene edit, maintain and differentiate pluripotent stem cells

### Consultation and experimental advice:

- assisting and consulting investigators in developing iPS cell experimental strategies and differentiation protocols



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