# **Pluripotent Stem Cell Core Facility**

**Director: Eric Bouhassira**

This facility occupies approximately 600 square-feet on the 9th floor of the Ullman Building and is equipped with 6 incubators and a BSL2 room for virus production. The facility has been providing a number of services to the Einstein community for over 15 years. During that time the facility has served more than 40 labs, generated over 30 lines of IPSCs and created over 30 CRSPR-engineered mutants. The major services provided by the facility are:

1. **iPSC production:** The core facility reprograms peripheral blood cells (generally CD34+CD38- HSPCs) or fibroblasts using the Sendai virus approach and characterize the resulting transgene-free iPSC lines by flow cytometry, an embryoid body assay, and by PCR to demonstrate the lack of any residual transgene
2. **Gene editing, knock-in and knock-out**: The core facility provides full service CRSPR/Cas9 based genetic engineering services. The facility designs the sgRNA and the donor construct, performs the transfections and screens the clones.
3. **Primary tissue processing:** the core facility isolates and makes frozen stocks of mononuclear cells from peripheral blood and fibroblasts from skin biopsy.
4. **Hematopoietic stem and progenitor cells (HSPCs):** the core facility differentiates ES or iPSCs lines into HSPCs using a highly efficient protocol developed in house.
5. **Microglia:** the core facility differentiates ES or iPSCs lines into microglia using a highly efficient protocol developed in house.
6. **Plates of pluripotent cells:** the core facility provides plates of hESCs or iPSCs on a fee for service basis. The facility has stocks of human H1 and H9 ES cell lines as well as a number of transgene-free control iPSC lines.
7. **Pluripotent stem cells reagents:** Pluripotent stem cells are grown in the facility using a feeder-free method on vitronectin using the E8/EDTA approach developed by the Thompson lab. Tested reagents and culture media necessary to grow pluripotent cells are available from the facility.
8. **Training:** Students and post-docs can be trained to perform any of the services provided by the facility.