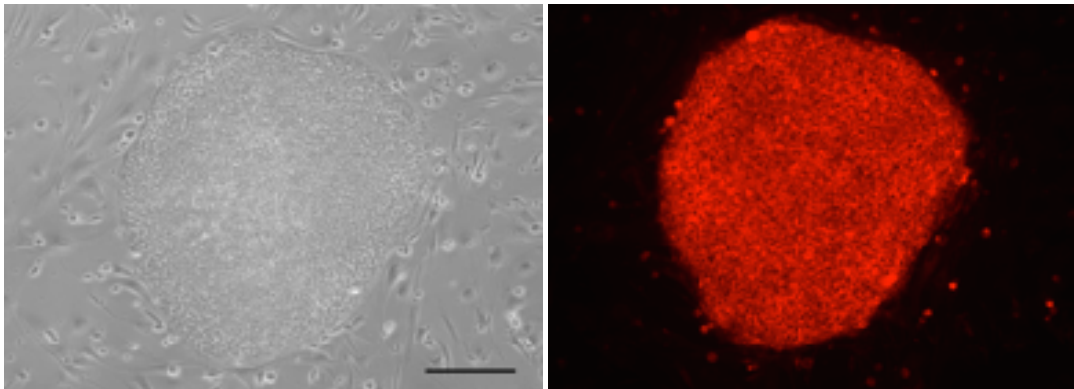




Training Course in Human Induced Pluripotent Stem Cells and Their Differentiation into Endoderm and Lung-Progeny - APRIL 9th-13th 2018



DESCRIPTION

This five-day, hands-on training course will focus on the derivation, maintenance and characterization of human induced pluripotent stem cells (hiPSCs) and their differentiation into endoderm and lung progeny. The course is designed for research scientists working with or planning to work with human iPSC cells that have prior experience in general cell culture techniques. It will include firsthand training, lectures and demonstrations from leading experts and educators in the field of stem cell biology from the Center for Regenerative Medicine (CReM) at Boston University Medical Center. Small class size will enable researchers to learn the entire process of iPSC reprogramming from somatic cell preparation, to reprogramming methodologies, iPSC identification, isolation and characterization, and current approaches to their directed differentiation into endodermal and lung lineages. Additional topics will include lectures and training in novel gene editing techniques, including the design and use of CRISPR/Cas9 in iPSCs, and development of 3D culture systems.

REGISTRATION

- To register, please contact Marianne James: mfjames@bu.edu. Space is limited to 10 students.
- Course date: April 9th-13th, 2018
- Registration fees: \$500 for members of academic institutions
\$3000 for members of industry
 - Registration includes all course and laboratory materials as well as lunches for 5 days.
- Attendees are responsible for booking their own travel and accommodations; a block of rooms at discounted rate has been reserved at the *Hampton Inn & Suites* adjacent to the BUMC course site (see information below).
- Detailed information about the iPSC Training Course, CReM laboratories, iPSC Core, and links to downloadable iPSC protocols can be found at:

<http://www.bu.edu/dbin/stemcells>

LECTURE TOPICS

- Isolation and expansion of somatic cells (blood and fibroblast cells) prior to reprogramming
- Assay for mycoplasma contamination
- Overview of different reprogramming methods for the generation of iPSC lines
- iPSC culture methods using feeder-dependent and feeder-free systems
- Characterization (IF staining) and validation (fingerprinting, karyotyping) of iPSC colonies
- Directed differentiation to definitive endoderm/NKX2.1+ lung progeny
- Gene editing and CRISPR/Cas9 design and construction
- Understanding the principles of flow cytometry (FACS) in the context of iPSC research
- Discussion and troubleshooting with course instructors

PRACTICAL LABORATORY SESSIONS

- Isolate and expand PBMCs for reprogramming
- Reprogramming of PBMCs: plate transduced PBMCs onto MEF feeders and observe morphological changes at early- and late-stages of reprogramming process
- iPSC cell propagation and maintenance on feeder (MEFs) and feeder-free (matrigel™) matrices
- Colony passaging by manual picking and various cell dissociation solutions; removal of differentiated cells
- Cryopreservation and thawing of hiPSCs
- 3D CX plating onto matrigel
- Hands-on introduction to flow cytometry (FACS)
- Immunofluorescence staining of iPSC colonies using antibodies against stem cell surface markers

COURSE INSTRUCTORS

Darrell Kotton, Gustavo Mostoslavsky, Marianne James, and members of their laboratories as well as the iPSC Core Laboratory of the CReM.

LOCATION

Course Location:

iPSC Core Facility
Center for Regenerative Medicine (CReM) of Boston University and Boston Medical Center
670 Albany Street, 2nd Floor
Boston, MA 02118
617-414-2971

Hotel Accommodation:

Hampton Inn & Suites, Boston Crosstown Center (*suggested lodging*)
811 Massachusetts Avenue (one block from BUMC campus)
Boston, MA 02118
617-445-6400
<http://bostonhamptoninn.com/>