ICCB-Longwood: Lab Automation and Equipment

Stewart Rudnicki, Richard Siu, Erin Lilienthal, Gary Frey, David Wrobel, Jennifer Nale, Sean Erickson, Katrina Rudnicki, Anuar Mendoza, Mirela Vaso, Jennifer Smith and Caroline Shamu

Seeley G. Mudd Building 6th floor, Harvard Medical School, Boston, MA 02115 • **iccb.med.harvard.edu**

Introduction

- Biosafety level 2 facility on the 6th floor of the Seeley Mudd Building at Harvard Medical School
- Organized around modular workstations with online scheduling software
- Variety of different instruments available for experiments in microplate (96-, 384- and 1536-well) format
- Support custom automation projects
- *Investigator-initiated* model
- Infrastructure and support for compound management
- *In vivo* mouse imaging (luminescence or fluorescence) for endpoint and longitudinal studies in HCCM's NRB facility
- ICCB-L team provides advice and guidance on assay development and optimization, laboratory automation, high-throughput screening, data analysis, and follow up approaches
- ICCB-L provides training in the use of equipment, assists in developing and optimizing assays, and performs complex automation tasks
- ICCB-L maintains all equipment

Custom Lab Automation

- Custom arrayed library creation and screening
- Dose-response screening
- Liquid handling – very small volume transfer, plate replication, re-arraying, etc
- Single cell cloning
- qPCR – dilution plating, Cells-to-CT

Access and Fees

- Fees are charged for use of equipment and custom automation at ICCB-L to help cover a portion of the facility operating costs.
- Each user must cover the cost of consumables and assay reagents used at ICCB-L.
- Access can typically be provided within a couple weeks of contacting ICCB-L.
- NRB IVIS access requests through HCCM website

Fee summary: **https://iccb.med.harvard.edu/fees**

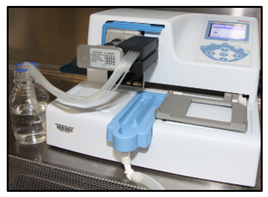
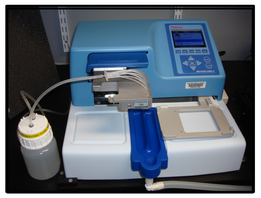
Training and project request forms: **https://iccb.med.harvard.edu/forms**

IVIS information: **https://iccb.med.harvard.edu/hms-ivis**

Equipment

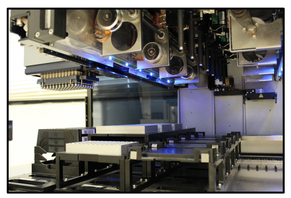
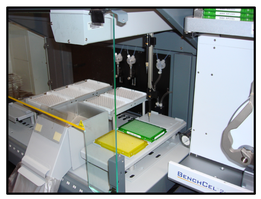
Bulk Reagent Dispensers

Used for rapidly filling microplates
ThermoFisher MultiDrop Combi and *Combi nL*

Automated Pipettors

Used for reformatting or filling microplates with smaller volumes
Hamilton STARlet, Tecan Freedom Evo, Agilent Bravo and *VPrep, Cybio Cybi-Well Vario, Hewlett Packard D300*

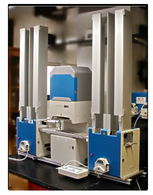
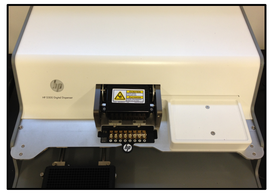
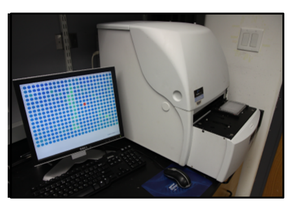
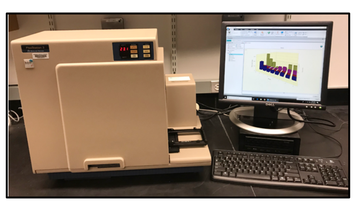



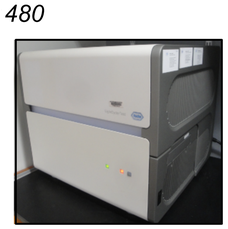
Plate Readers

Used for rapid plate readout of luminescence, fluorescence intensity, absorbance, fluorescence polarization, homogenous time resolved fluorescence
Perkin Elmer EnVisions (3), Molecular Devices M5 and *Flexstation III*

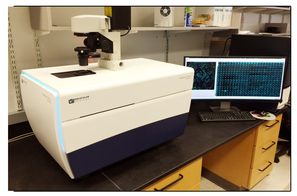
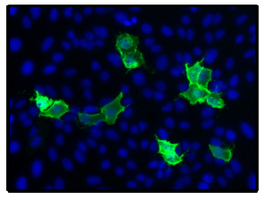
qPCR

Life Technologies QuantStudio7
Roche LightCycler 480

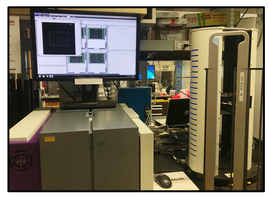
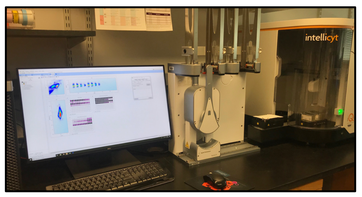
High Content Microscopes

Used for high content (multiparametric) imaging of cellular assays
Molecular Devices ImageXpress Micro-Confocal and ImageXpress Micro

Cytometers

Laser scanning cytometer: *TTP LabTech Acumen eX3*
High throughput flow cytometer: *IntelliCyt iQue Screener PLUS*

IVIS Lumina II

Used for *in vivo* mouse imaging of luminescent or fluorescent reporters
Perkin Elmer IVIS (In Vivo Imaging System) Lumina II, XGI-8 Anesthesia Unit, chemical and biosafety cabinets

Contact

Jennifer Smith, Ph.D., ICCB-L Deputy Director
jennifer_smith@hms.harvard.edu • 617-432-5735

Caroline Shamu, Ph.D., ICCB-L Director
caroline_shamu@hms.harvard.edu • 617-432-3127

ICCB-L Automation Team (Seeley Mudd 611)
iccb_screen@hms.harvard.edu • 617-432-5815