Achievements & Developments of Metabolic Phenotyping and In Vivo Imaging Cores

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BUMC Faculty Meeting
December 1, 2015
Introduction

- Other cores
  - Cellular Imaging Cores – Mike Kirber
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  - Immunohistochemistry – Natalie Bitar
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  - Metabolomics – Anqi Zhang
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  - High Throughput Screening Core - TBA
  - Analytical Instrumentation Core – Lynn Deng
    lynndeng@bu.edu later presentation Matt
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What We Have

- Instrumentation-EchoMRI-700™

What Is it Good For

- Determination of total body fat, lean mass, body fluids, total body water in live rats/mice up to 700 grams

Old vs. New System

- Larger range of weights with greater precision (smaller rodents)
- Faster resolution times
Instrumentation-EchoMRI-700™

- Usage

- Calendar year	Minutes of use
  2012	1500
  2013	2395
  2014	2792
  2015 (11 Mo.)	3138

- Challenges - Major user is leaving (44% usage loss)

- Resolution - 4 new users & Contract with Harvard for Carcass analysis
Instrumentation-CLAMS

- measurement of metabolic rate (caloric expenditure)
- determination of substrate used (fat / carbohydrate)
- assessment of activity patterns
- greater sensitivity (sleep detection)
Instrumentation-CLAMS

- **Usage**
- **Calendar year** | **Days of use**
  - 2012 | 29
  - 2013 | 60
  - 2014 | 43
  - 2015 (11 Mo.) | 50
- **Challenges** - Major user is leaving (74% usage loss)
- **Resolution** - 2 new users & Characterization of 2 new strains
Partial List of Publications using Echo and CLAMS


Instrumentation-Thermoneutrality Chambers

Donated
Instrumentation-Thermoneutrality Chambers

- Usage

- Calendar year
  - 2014 195
  - 2015 (11 Mo.) 316

- Challenges – Major user is leaving (100% usage loss)

- Resolution – New Instrument
Instrumentation-IVIS

Bioluminescence
Fluorescence
Instrumentation-IVIS Spectrum

- Usage
  - Calendar year       Minutes of use
    2012                3132
    2013                6093
    2014                6581
    2015 (11 Mo.)       3872

- Challenges – Major user left for each of past 2 years
Instrumentation-IVIS Spectrum

- Resolution – New users including non-academic
- Current contracts
  - Arietis
  - Pixabio
- Under negotiation
  - Selecta


Seminars for More Methods

Special Seminar sponsored by the Metabolic Phenotyping and In Vivo Imaging Core of the Department of Medicine, BUSM

“In Vivo Brown Adipose Imaging”

Chongzhao Ran, PhD

Martinos Center for Biomedical Imaging
Massachusetts General Hospital
Harvard Medical School

Wednesday, November 18th, 2015 - 1 p.m.
EBRC, 650 Albany St., X714

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