

University of Cincinnati MMPC

Center Update

4 Cores of the UC MMPC

Core A: Administrative: Coordinates service request, manages data, invoicing, bookkeeping, sharing of animals and antibodies, coordinates meetings, and tracks publications.

Core B: Husbandry: Coordinates animal transfers, communicates with LAMS, provides specialized husbandry services, and maintains small specialized colonies for investigators.

Core C: Lipid, Lipoprotein, and Glucose

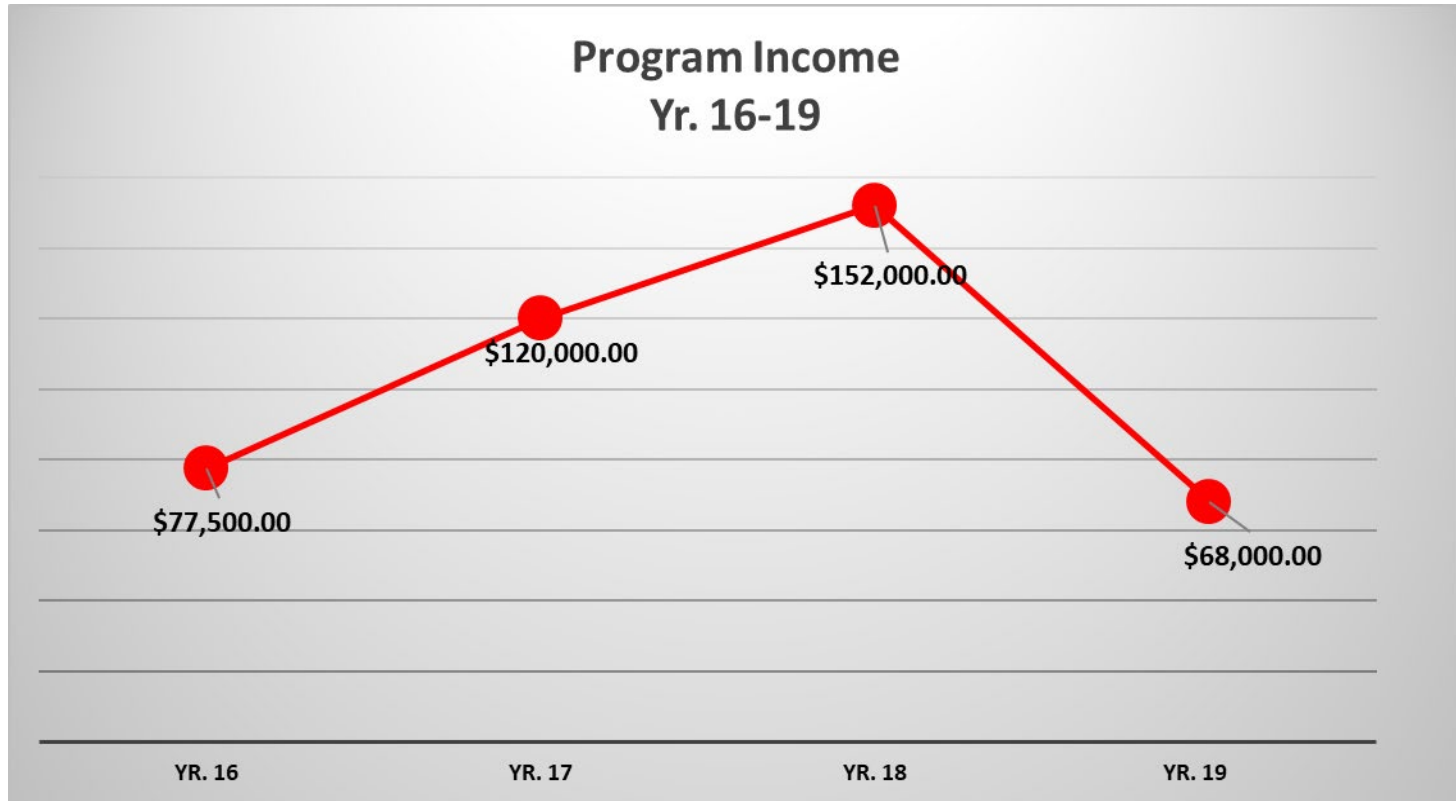
Metabolism: Provides phenotypic testing to allow characterization in mice, consults in experimental design, trains in specialized procedures, and develops new methods.

Core D: Cognitive and Behavioral: Provides specialized and unique testing to assess behaviors in mouse models of metabolic disorders.

Overview

- Program Income
- Publications
- Speakers
- Collaborations
- Core B- Progress
- Core C – Usage and Assay Issues
- Core D- Usage

Cycle 4: Program Income Trend



* Year 19 data is from July 1, 2019 thru October 1, 2019

5 New Publications

Glucose and GLP-2 (Glucagon-Like Peptide-2) Mobilize Intestinal Triglyceride by Distinct Mechanisms.

Stahel P, Xiao C, Davis X, Tso P, Lewis GF. Arterioscler Thromb Vasc Biol. 2019 Aug;39(8):1565-1573. doi: 10.1161/ATVBAHA.119.313011. Epub 2019 Jul 11. PMID: 31294621

Intestinal basolateral lipid substrate transport is linked to chylomicron secretion and is regulated by apoC-III.

Li D, Rodia CN, Johnson ZK, Bae M, Muter A, Heussinger AE, Tambini N, Longo AM, Dong H, Lee JY, Kohan AB. J Lipid Res. 2019 Sep;60(9):1503-1515. doi: 10.1194/jlr.M092460. Epub 2019 May 31. PMID: 31152000

Mitochondrial uncoupling has no effect on microvascular complications in type 2 diabetes.

Hinder LM, Sas KM, O'Brien PD, Backus C, Kayampilly P, Hayes JM, Lin CM, Zhang H, Shanmugam S, Rumora AE, Abcouwer SF, Brosius FC 3rd, Pennathur S, Feldman EL. Sci Rep. 2019 Jan 29;9(1):881. doi: 10.1038/s41598-018-37376-y. PMID: 30696927

Apolipoprotein A-IV: A Multifunctional Protein Involved in Protection against Atherosclerosis and Diabetes.

Qu J, Ko CW, Tso P, Bhargava A. Cells. 2019 Apr 5;8(4). pii: E319. doi: 10.3390/cells8040319. Review. PMID: 30959835

Editorial on Sramkova et al., "Apolipoprotein M: a novel adipokine decreasing with obesity and upregulated by calorie restriction".

Ko CW, Qu J, Tso P. Am J Clin Nutr. 2019 Jun 1;109(6):1495-1496. doi: 10.1093/ajcn/nqz053. No abstract available. PMID: 31075794

Recent Speakers at the UC MMPC

Dr. Bethany Cummings: Cornell University

“Targeting alpha cell proglucagon processing for type 2 diabetes treatment.”

Dr. Kristy Heppner: Novo Nordisk Research Center, Seattle

“Integrating basic science, drug development and patient needs to optimize innovative therapeutics for obesity and diabetes.”

Dr. Bob Eckel: University of Colorado:

What’s Lipoprotein Lipase Doing in the Brain?

Dr. Kwang -Mook Jung: UC Irvine

“Endocannabinoid signaling in the CNS”

Dr. Rebecca Haeusler: Columbia University Medical Center

“Intersection of hepatic insulin signaling with lipoprotein and bile acid metabolism”

Recent Collaborations

- Jane Khoury- CCHMC- T1D & T2D
- John Kopchick- Ohio University- FFA
- Abbott Nutrition- Lipid Absorption
- Aperio- Telemetry Study

Core B

Tamoxifen, Telemetry, and Transgenics

Tamoxifen

- 4 successful telemetry studies have been completed under these new guidelines with a fifth scheduled for December 2019.

Transgenic mouse lines

- 2 -A-IV lines now established and generating data
 - Liver-MAIV-Tg; Liver-HAIV-Tg
 - Gut-MAIV-Tg; Gut-HAIV-Tg

Core C services

- 28 different assays and services
- 3 types of assays for determining CHOL and TG; with Serum/Plasma, Tissue, or FPLC
- GLP-1 Total and Active
- Lipid Extraction via FOLCH
- Non-Invasive measurement of intestinal fat
- Lymph-Fistula Intestinal Lipid absorption in the conscious mouse/rat
- Metabolism of Chylomicrons

Core C projects

- 5 year study in progress with CCHMC

(Cincinnati Children's Hospital and Medical Center)

- Study from 2018-2023

Over 3,000 samples tested to date- C-Peptide, GIP, GLP1- Total, GLP1-Active, Insulin

- Ongoing work for Energen Pharmaceuticals

(develop therapeutics for diabetes, obesity, and lipid disorders by targeting brown adipose tissue.)

- Over 3,800 samples tested to date- Glucose, Insulin, Leptin

- NMR performed on over 350 animals

- SCFA Method Testing-Karen Rahe; Tso Lab

Issues for Core C

- Longstanding backorder(3 months+) for frequently used assays
 - Insulin, Adiponectin, C-Peptide
- Millipore has quality control issues
 - Suggestion?

Core D services

- 36 unique services provided as one or in conjunction with other services
- Body Composition (NMR) Live or carcass
- CLAMS Unit
- Cardiac or Glucose Telemetry- Chemical injections available
- Running wheel- 16 wheels available
- RIA- Cort or ACTH

Core D projects

- RIA testing for CORT and ACTH
 - Over 1,000 samples tested to date
- Telemetry project in progress for Aperio Pharmaceuticals
- Completed 80 animal NOR (Novel Object Recognition) testing for in-house investigator.
- 24 animal running wheel study completed July 2019