MMPC Coordinating Center

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Associate Director, Center for Biotechnology and Genomic Medicine
Regents' Professor
Augusta University, Augusta GA

rmcindoe@augusta.edu

MMPC Coordinating Unit

1) Create data schemas to store animal model and phenotype information as well as links to outside sources.

2) Provide an API to access the underlying data structures

3) Provide access to analysis and comparison tools

4) Organize data curation and data visualization tools

5) Provide website for consortium members, MMPC clients, and the public.

6) Provide organizational infrastructure to facilitate the coordination of the consortium's efforts.

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7) Provide support and fiscal oversight for awarding MICROMouse subcontracts

8) Provide support and fiscal oversight for the distribution of funds as dictated by the NIH

9) Development of reports to track business activities and core utilization of the MMPC

10) Integrate and coordinate with external resources (e.g. dkNET, IMPC) that would provide value to the MMPC.

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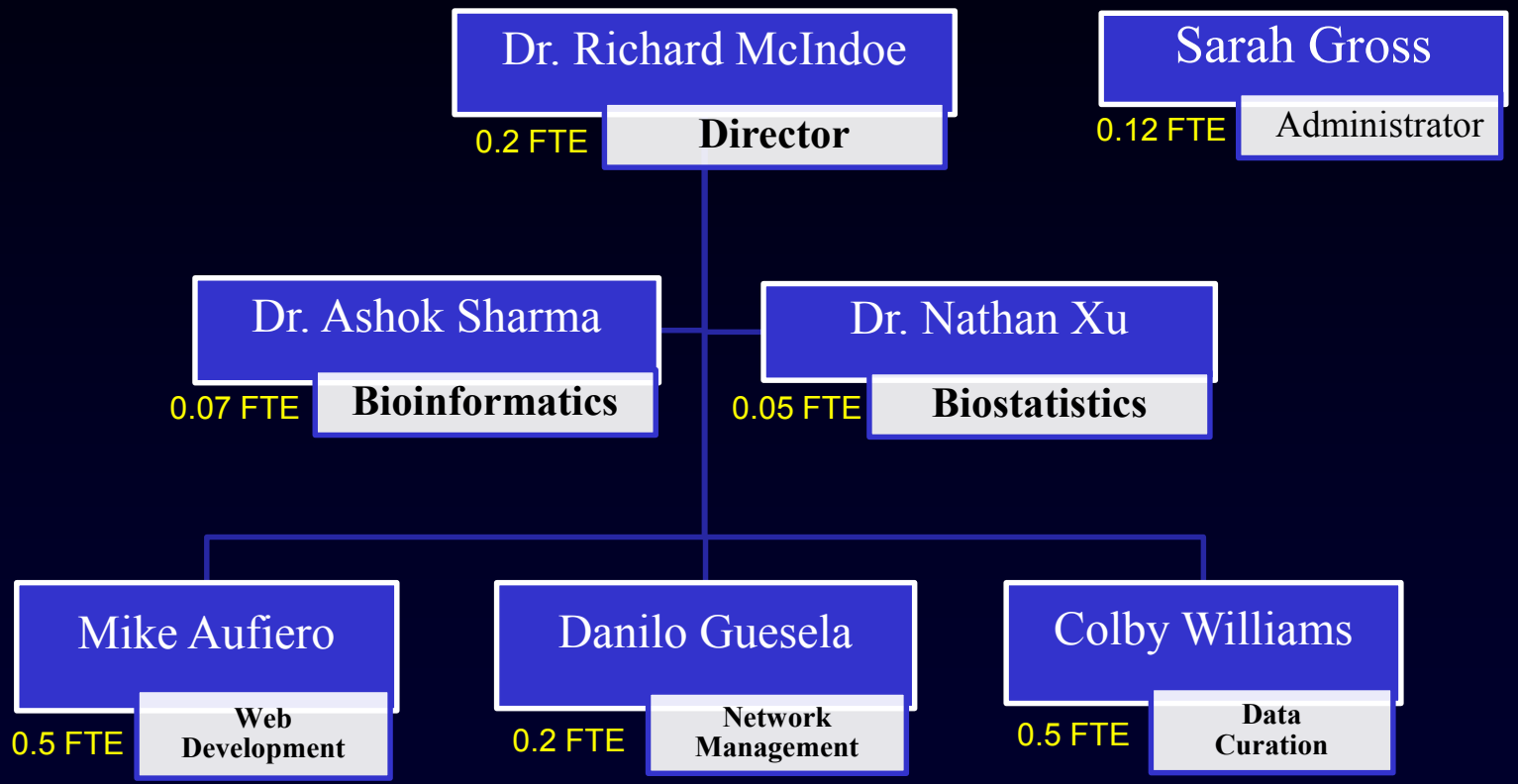
MMPC CU Organization



Total: 1.64 FTE

MMPC 2019 Steering Committee meeting

1) Overview of website activities

2) Website changes/updates

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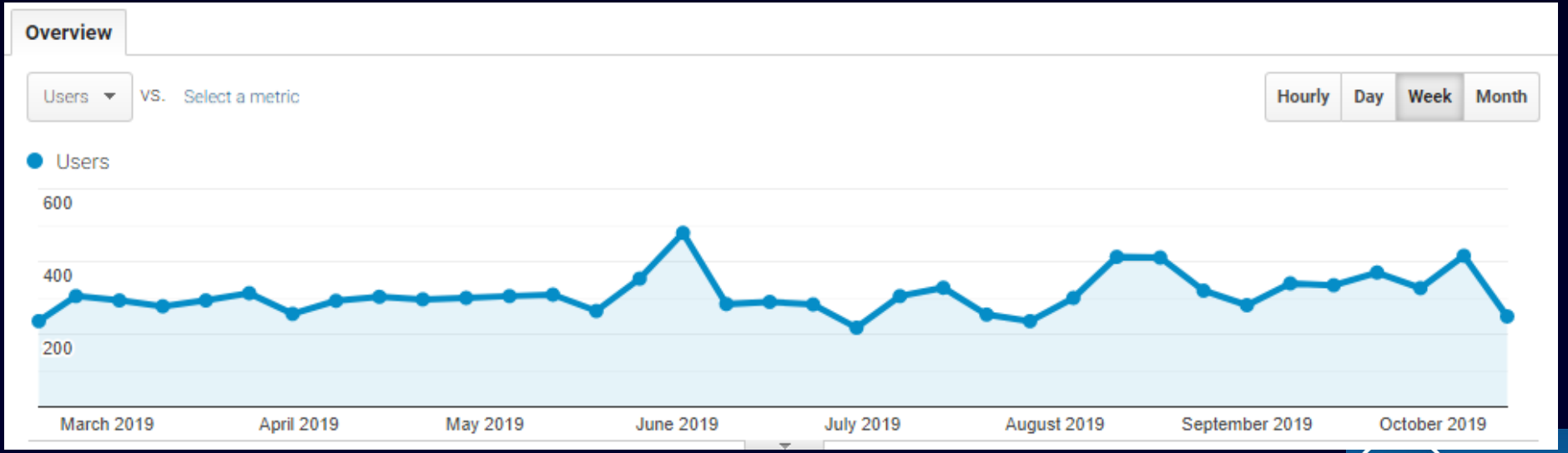
Website Overview

Total number of visits: ~16,000

Average number of visits: ~1200 per month
~300 per week

Pages/Visit: 3.53

Average Time/Visit: 3:31



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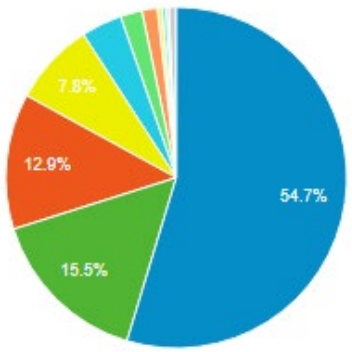
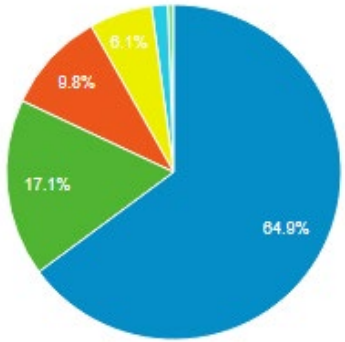
BROWSERS

1. Chrome
2. Safari
3. Internet Explorer
4. Firefox
5. Edge
6. 'Mozilla
7. UC Browser
8. Safari (in-app)
9. Samsung Internet
10. Opera

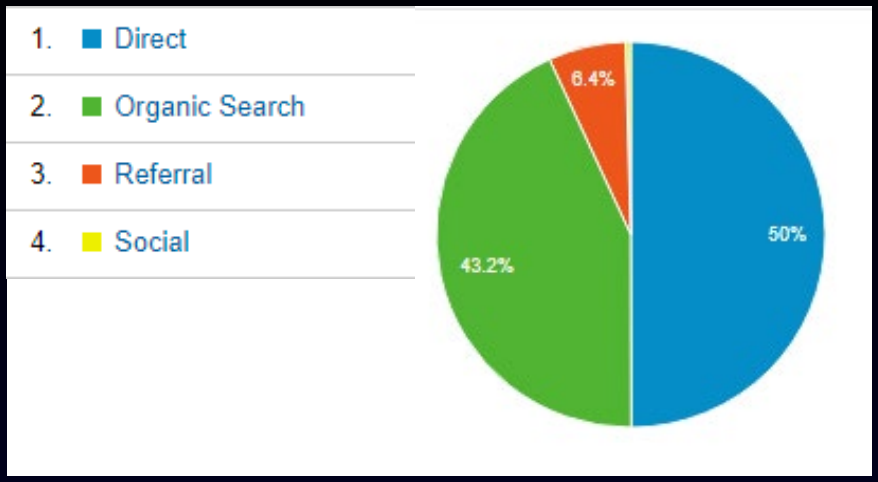


OPERATING SYSTEMS

1. Windows
2. Macintosh
3. iOS
4. Android
5. Linux
6. Chrome OS
7. Firefox OS
8. Playstation 3
9. Xbox

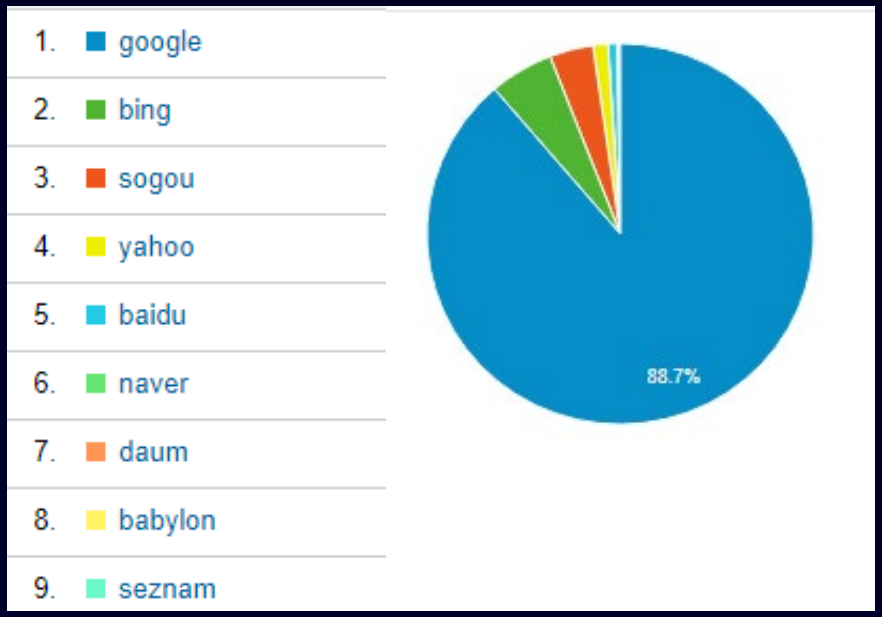


HOW

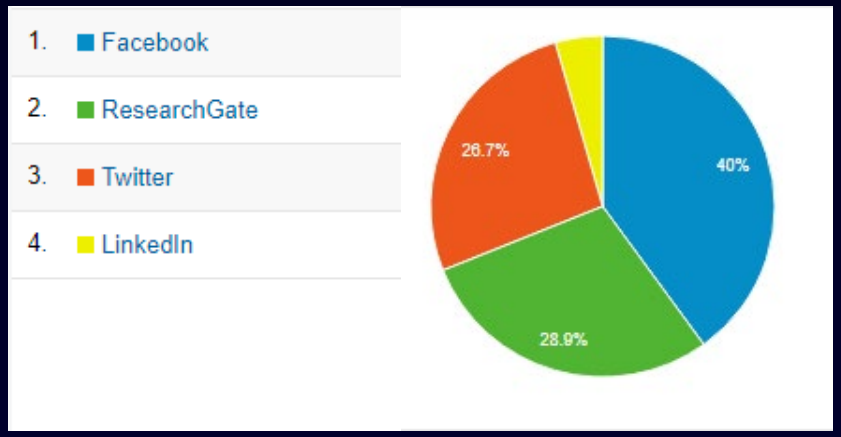


SOURCES

Organic Search



Social Media



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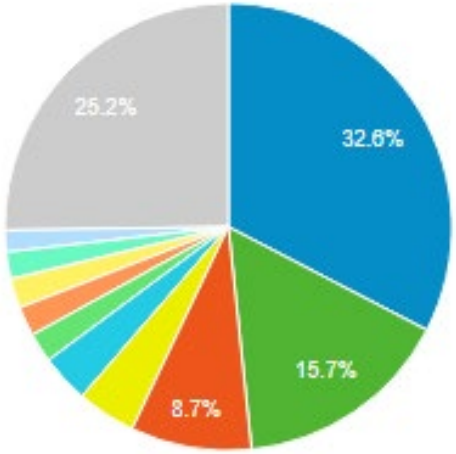
REFERRING SITES

1.	vmmpc.org
2.	mmpc.med.umich.edu
3.	ncbi.nlm.nih.gov
4.	duckduckgo.com
5.	calrapp.org
6.	facebook.com
7.	researchgate.net
8.	t.co (Twitter)
9.	mmrrc.ucdavis.edu
10.	com.google.android.gm



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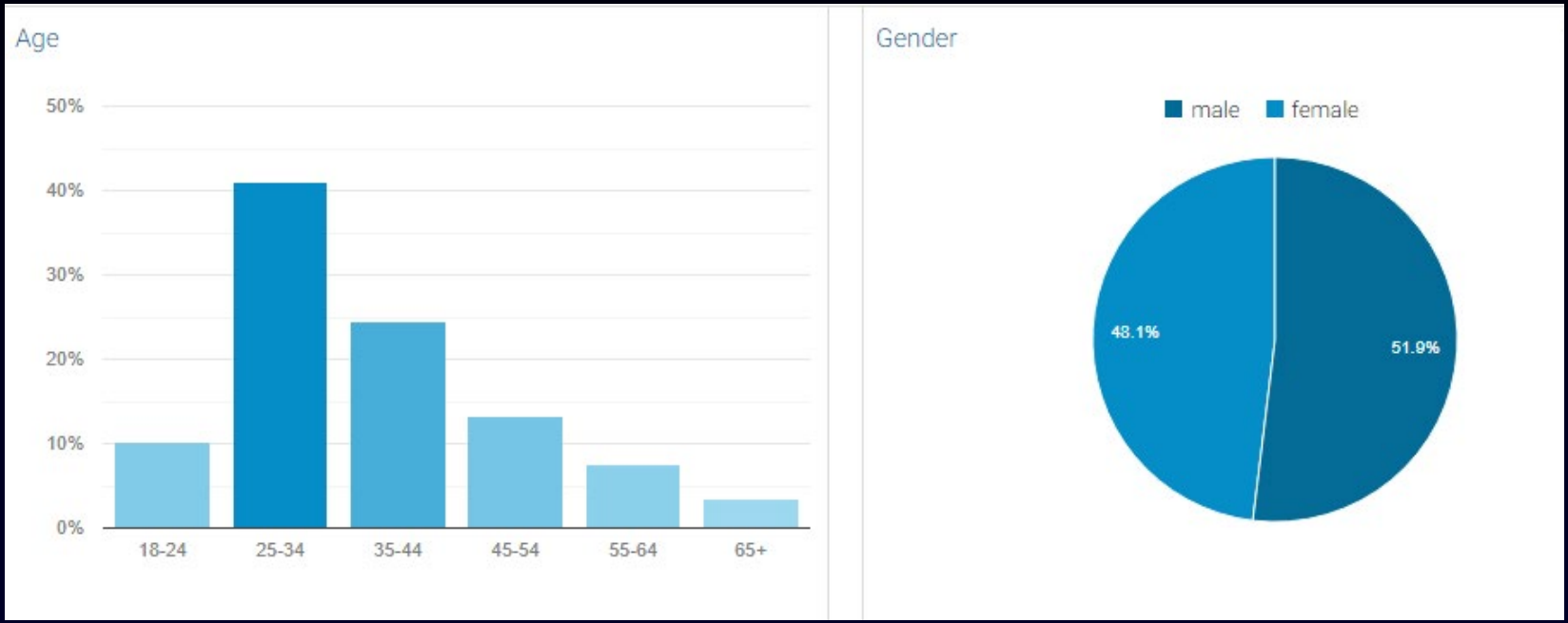
WHO



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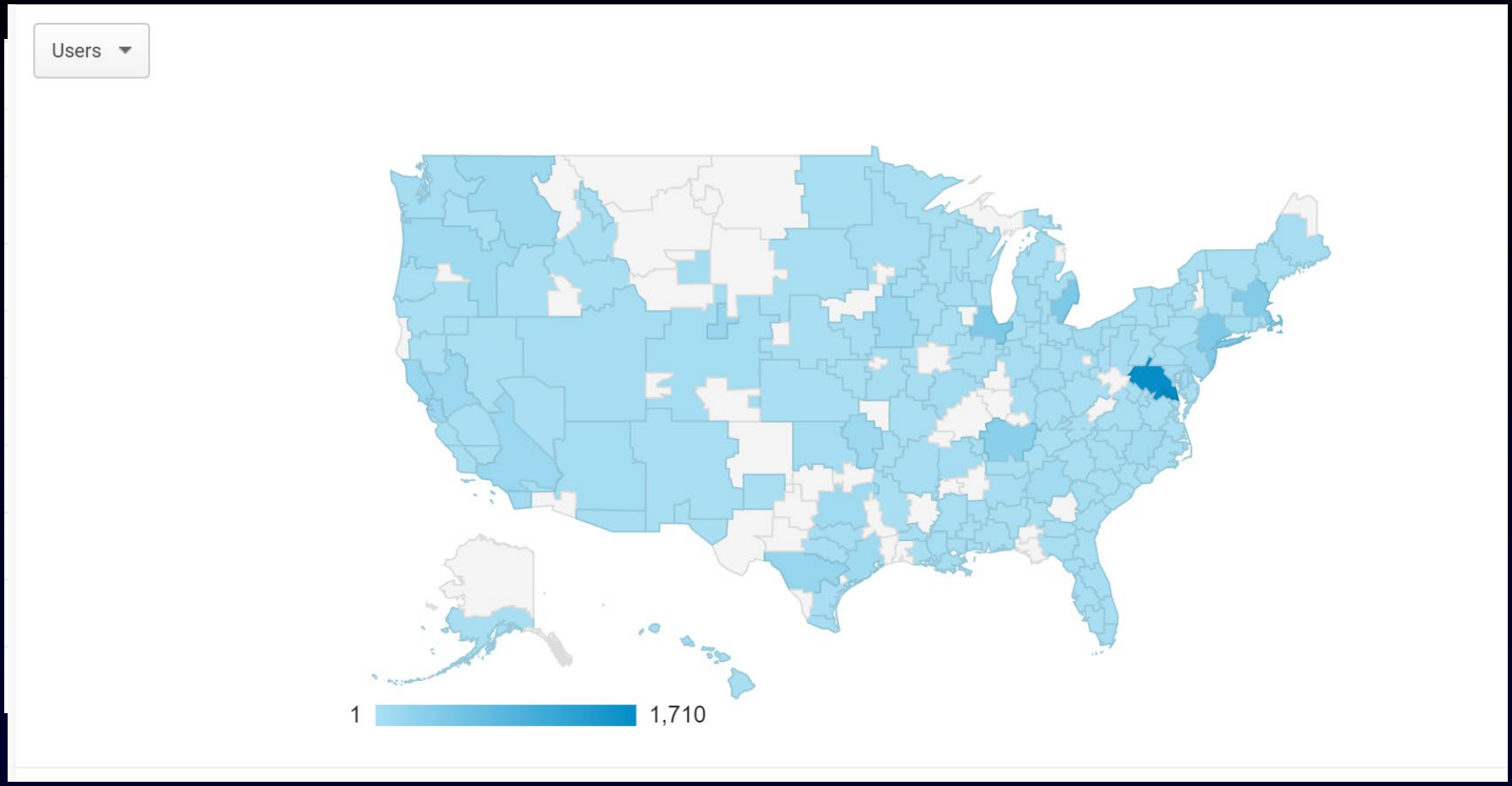
Where are the visitors coming from?



72 % USA

103 Countries/Territories
1514 Cities

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What are the visitors viewing?

1. Courses Pages
2. Order Page
3. EE ANCOVA Page
4. Funding Pages
5. Catalog Page
6. Protocols Page
7. Guidelines and Policies

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Current Year: 528 Orders Entered

Marker Legend (Client Count)

1-3 4-6 7-10 11-14

15-39 40-69 70-99 100+

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National Mouse Metabolic Phenotyping Centers

Center Core Order Statistics

Refresh

Center Core	Orders Pending	Orders Accepted	Orders Completed	Orders Rejected	Orders Withdrawn
Center: University of California Davis; Items: 4					
Animal Care, Surgery, and Pathology Core	0	5	6	0	0
Endocrinology and Metabolism Core	3	13	18	0	1
Energy Balance, Exercise & Behavior Core	0	4	5	0	0
Microbiome & Host Response Core	1	4	41	0	0
Center: University of Cincinnati Medical Center; Items: 2					
Lipid, Lipoprotein and Glucose Metabolism Core	9	0	14	0	0
Energy Metabolism, Food Intake & Body Weight Regulation Core	3	0	3	0	0
Center: University of Massachusetts Medical School; Items: 6					
Metabolism Core	3	40	1	8	0
Analytical Core	2	22	2	3	1
Animal Care Core	0	1	0	0	0
Islet Core	0	2	0	0	0
Cardiovascular Core	1	9	0	2	0
Microbiome Core	1	2	0	0	0
Center: University of Michigan Medical School; Items: 5					
Animal Care and Germ-Free Mouse Core	45	78	0	0	0
Metabolism, Bariatric Surgery and Behavior Core	112	5	0	0	0
Microvascular Complications Core	8	2	7	0	0
Microbiome Core	3	1	10	0	0
Body Weight Regulation Core	1	0	0	0	0
Center: Vanderbilt University School of Medicine; Items: 4					
Metabolic Regulation Core	3	1	5	0	1
Cardiovascular Pathophysiology	2	0	0	0	0
Analytical Resources Core	44	1	2	0	1
Body Weight Regulation Core	3	0	0	0	1

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Center Statistics

Refresh

Center	Orders Pending	Orders Accepted	Orders Completed	Orders Rejected	Orders Withdrawn	Experiments	Phenotype Assays	Assay Measurements	Animals	Strains	Publications
University of Cincinnati Medical Center	10	0	15	0	0	23	20	3719	889	18	0
Vanderbilt University School of Medicine	49	1	5	0	1	0	47	85653	451	18	0
University of California Davis	4	22	64	0	1	127	74	66398	2169	40	0
University of Massachusetts Medical School	4	59	3	9	1	0	58	4922	373	25	0
University of Michigan Medical School	166	84	17	0	0	4	4	60	15	2	1

All centers have uploaded data during the last year.

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Website Updates

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Protocol Updates

1. Continue to work on adding Center protocols into the system.

2. All five centers have submitted protocols to be uploaded into the National MMPC website.

    a. University of California Davis – 86 protocols
    b. University of Massachusetts – 60 protocols
    c. Vanderbilt University - 20 protocols
    d. University of Michigan - 18 protocols
    e. University of Cincinnati - 8 protocols

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protocols.io

SEARCH

EXPLORE FILE MANAGER

Researchers / Richard McIndoe / Groups / Mouse Metabolic Phenotyping Centers / Timeline

Mouse Metabolic Phenotyping Centers

Augusta University

INTERESTS

diabetes, obesity, diabetic complications, metabolic diseases, metabolism

EDIT GROUP

GROUP FOLDER (255)

UPGRADE

NEW

MANAGE MEMBERS

EXPORT GROUP PUBLICATIONS

MANAGE PUBLICATIONS

REMOVE PUBLICATIONS

REAGENTS

Timeline | Research | Publications 218 | Members 5 | Discussions | Resources | News | Feed

FILTER: All

Search

Monday, September 23

U Michigan - DNA Extraction for Illumina 16S rRNA Extraction Version 2

Vincent Young[1]

[1]Microbiome Core Coordinator, University of Michigan, Ann Arbor

Sep 23, 2019

Mouse Metabolic Phenotyping Centers

Tech. support email: info@mmpc.org

Lili Liang

101 views · 5 steps · 1 bookmark

U Michigan - Illumina 16S rRNA gene sequencing using DNA Version 2

Vincent Young[1]

[1]University of Michigan - Ann Arbor

Sep 23, 2019

Mouse Metabolic Phenotyping Centers

Tech. support email: info@mmpc.org

Lili Liang

80 views · 5 steps

UC Davis - Metabolomics: Primary metabolites by GC-TOF MS Version 2

Oliver Fiehn[1]

[1]University of California, Davis

Sep 23, 2019

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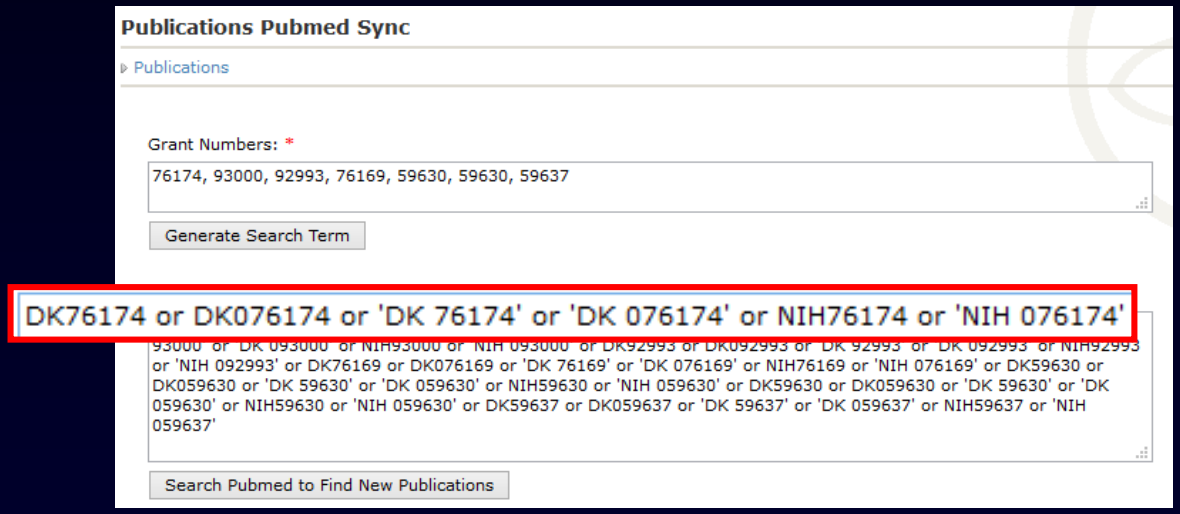
Publications

- Semi-Automated Search using Center/CBU grant numbers
- Run once a month.
- We use the PubMed REST APIs now to access PubMed via web services.



January 1st 2019 to present: 74

Total Publications in system: 1720

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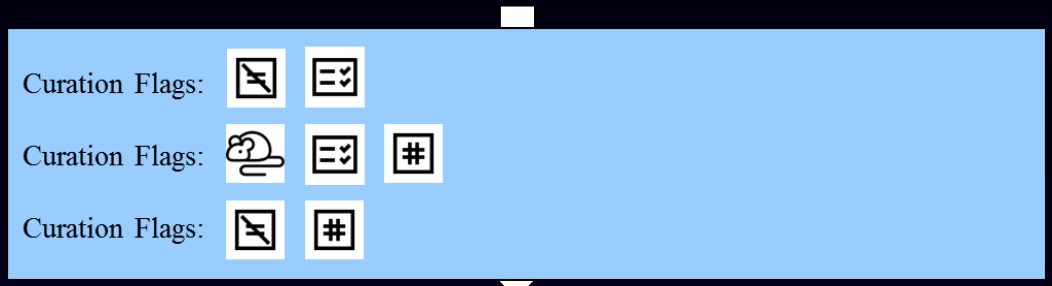
Data Curation Workflow

Experiment status set to “Complete” by Center



Database curation record inserted, curation status set

Email sent to Data Curator notifying that data has been uploaded to an experiment. Attaches data template uploaded to the system.

Data Curator begins review of data uploaded to system and uses workflow to keep track of status and interact with Center personnel.

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Curation Flag Information

University of Cincinnati Medical Center	Total	Cleared	Remain
Only Experiment / Control	8	8	0
Same Experiment / Control strains	37	37	0
Duplicate metadata	5	5	0
# Animals Different	11	11	0
No Data Uploaded	33	5	28
No Experimental Control Group	4	4	0
Mice / Samples Inconsistent	0	0	0
Drug Administration Inconsistent	0	0	0
Mouse Diet Inconsistent	1	1	0
Experiment Description Blank	39	39	0
Need Experimental Conditions	4	4	0
Strain Nomenclature Discrepancy	4	4	0
Remain	146	118	28

Vanderbilt University School of Medicine	Total	Cleared	Remain
Only Experiment / Control	15	15	0
Same Experiment / Control strains	62	62	0
Duplicate metadata	8	8	0
# Animals Different	48	48	0
No Data Uploaded	15	9	6
No Experimental Control Group	0	0	0
Mice / Samples Inconsistent	0	0	0
Drug Administration Inconsistent	0	0	0
Mouse Diet Inconsistent	0	0	0
Experiment Description Blank	74	74	0
Need Experimental Conditions	0	0	0
Strain Nomenclature Discrepancy	0	0	0
Remain	222	216	6

University of California Davis	Total	Cleared	Remain
Only Experiment / Control	7	5	2
Same Experiment / Control strains	187	184	3
Duplicate metadata	21	21	0
# Animals Different	84	82	2
No Data Uploaded	10	8	2
No Experimental Control Group	7	7	0
Mice / Samples Inconsistent	1	1	0
Drug Administration Inconsistent	0	0	0
Mouse Diet Inconsistent	2	2	0
Experiment Description Blank	59	59	0
Need Experimental Conditions	5	5	0
Strain Nomenclature Discrepancy	3	1	2
Remain	386	375	11

University of Massachusetts Medical School	Total	Cleared	Remain
Only Experiment / Control	7	7	0
Same Experiment / Control strains	178	178	0
Duplicate metadata	58	58	0
# Animals Different	99	98	1
No Data Uploaded	20	11	9
No Experimental Control Group	10	9	1
Mice / Samples Inconsistent	3	3	0
Drug Administration Inconsistent	1	1	0
Mouse Diet Inconsistent	1	1	0
Experiment Description Blank	143	142	1
Need Experimental Conditions	3	2	1
Strain Nomenclature Discrepancy	15	15	0
Remain	538	525	13

University of Michigan Medical School	Total	Cleared	Remain
Only Experiment / Control	6	0	6
Same Experiment / Control strains	9	3	6
Duplicate metadata	7	1	6
# Animals Different	1	0	1
No Data Uploaded	4	1	3
No Experimental Control Group	0	0	0
Mice / Samples Inconsistent	0	0	0
Drug Administration Inconsistent	2	1	1
Mouse Diet Inconsistent	1	0	1
Experiment Description Blank	10	4	6
Need Experimental Conditions	12	2	10
Strain Nomenclature Discrepancy	12	1	11
Remain	64	13	51

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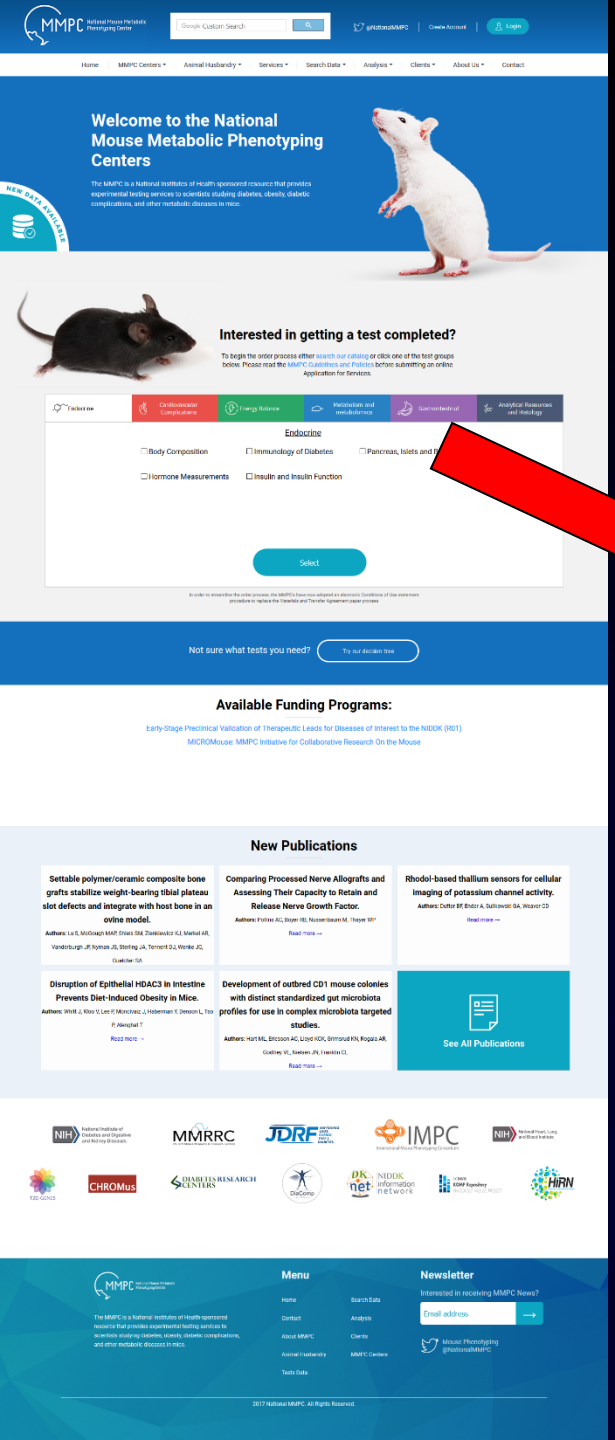
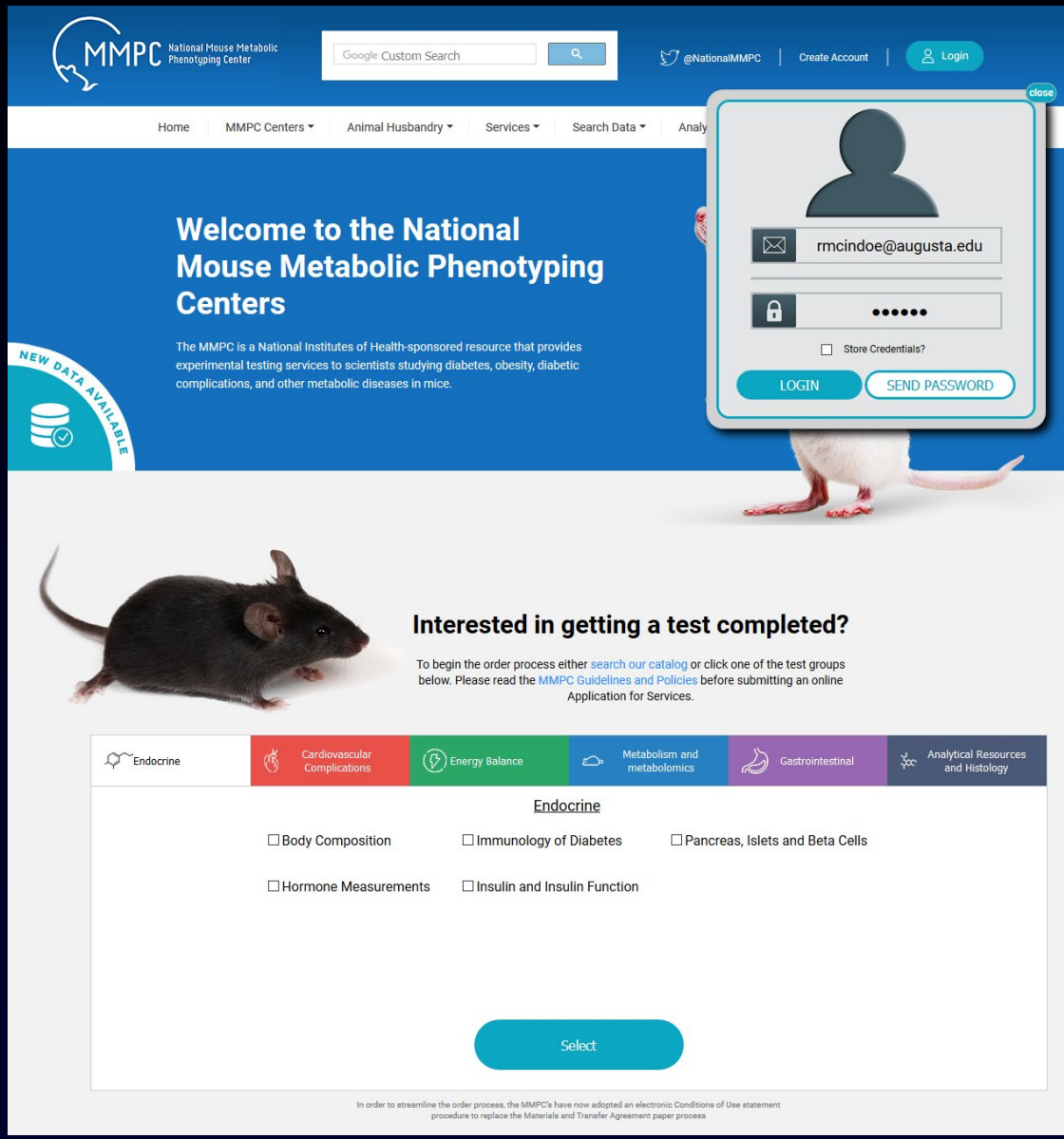
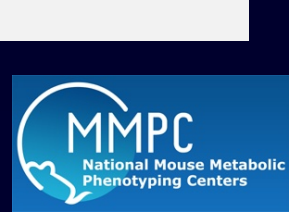

MMPC
Welcome to the National Mouse Metabolic Phenotyping Centers
Interested in getting a test completed?
Endocrine
Body Composition
Immunology of Diabetes
Hormone Measurements
Insulin and Insulin Function
Select
Not sure what tests you need?
Available Funding Programs:
New Publications
See All Publications
Menu
Newsletter


MMPC National Mouse Metabolic Phenotyping Center
Google Custom Search
@NationalMMPC
Create Account
Login
Home
MMPC Centers
Animal Husbandry
Services
Search Data
Welcome to the National Mouse Metabolic Phenotyping Centers
The MMPC is a National Institutes of Health-sponsored resource that provides experimental testing services to scientists studying diabetes, obesity, diabetic complications, and other metabolic diseases in mice.
NEW DATA AVAILABLE
close
rmcindoe@augusta.edu
Store Credentials?
LOGIN
SEND PASSWORD
Interested in getting a test completed?
To begin the order process either search our catalog or click one of the test groups below. Please read the MMPC Guidelines and Policies before submitting an online Application for Services.
Endocrine
Cardiovascular Complications
Energy Balance
Metabolism and metabolomics
Gastrointestinal
Analytical Resources and Histology
Body Composition
Immunology of Diabetes
Pancreas, Islets and Beta Cells
Hormone Measurements
Insulin and Insulin Function
Select
In order to streamline the order process, the MMPC's have now adopted an electronic Conditions of Use statement procedure to replace the Materials and Transfer Agreement paper process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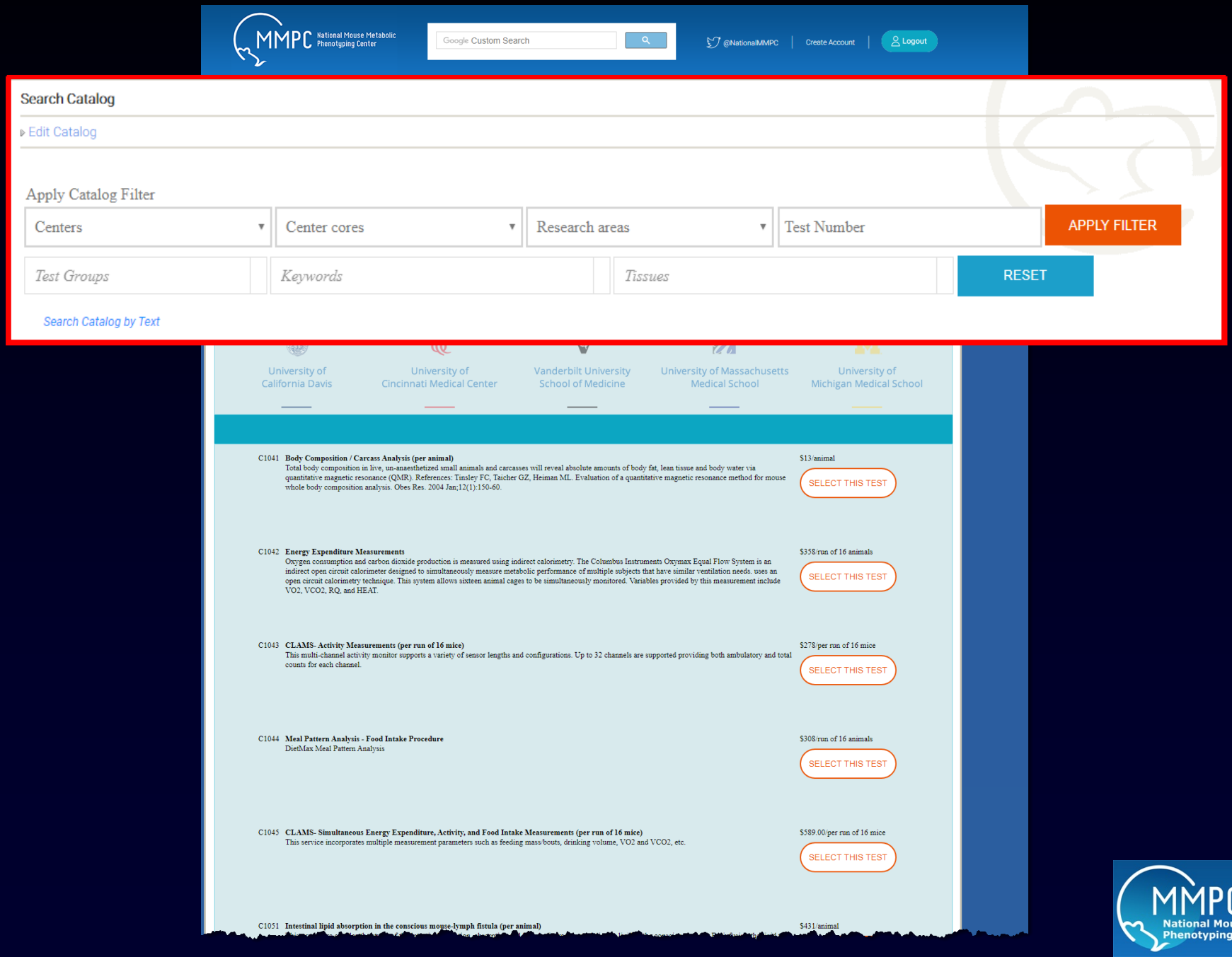
Updated Catalog Search Interface



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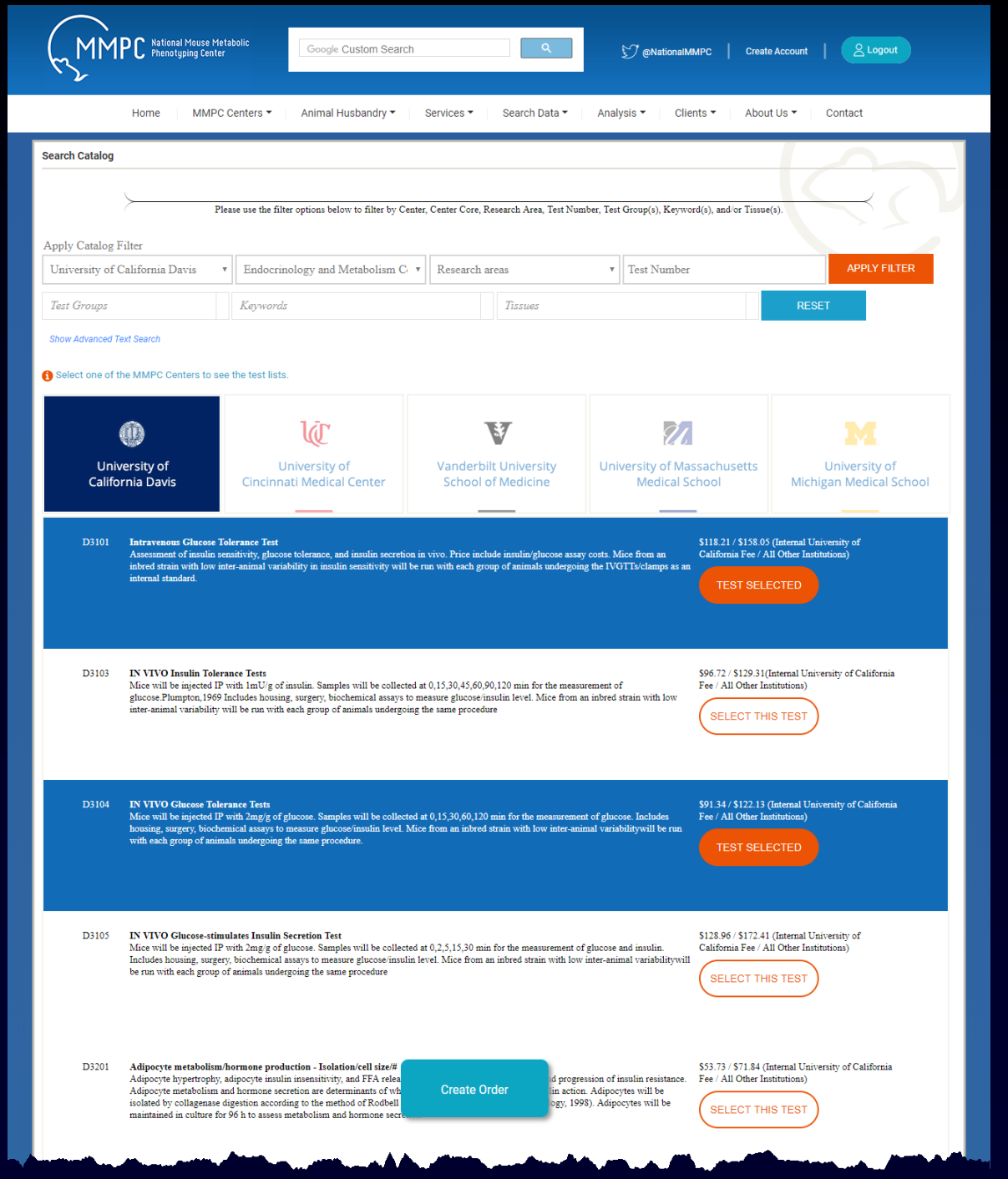
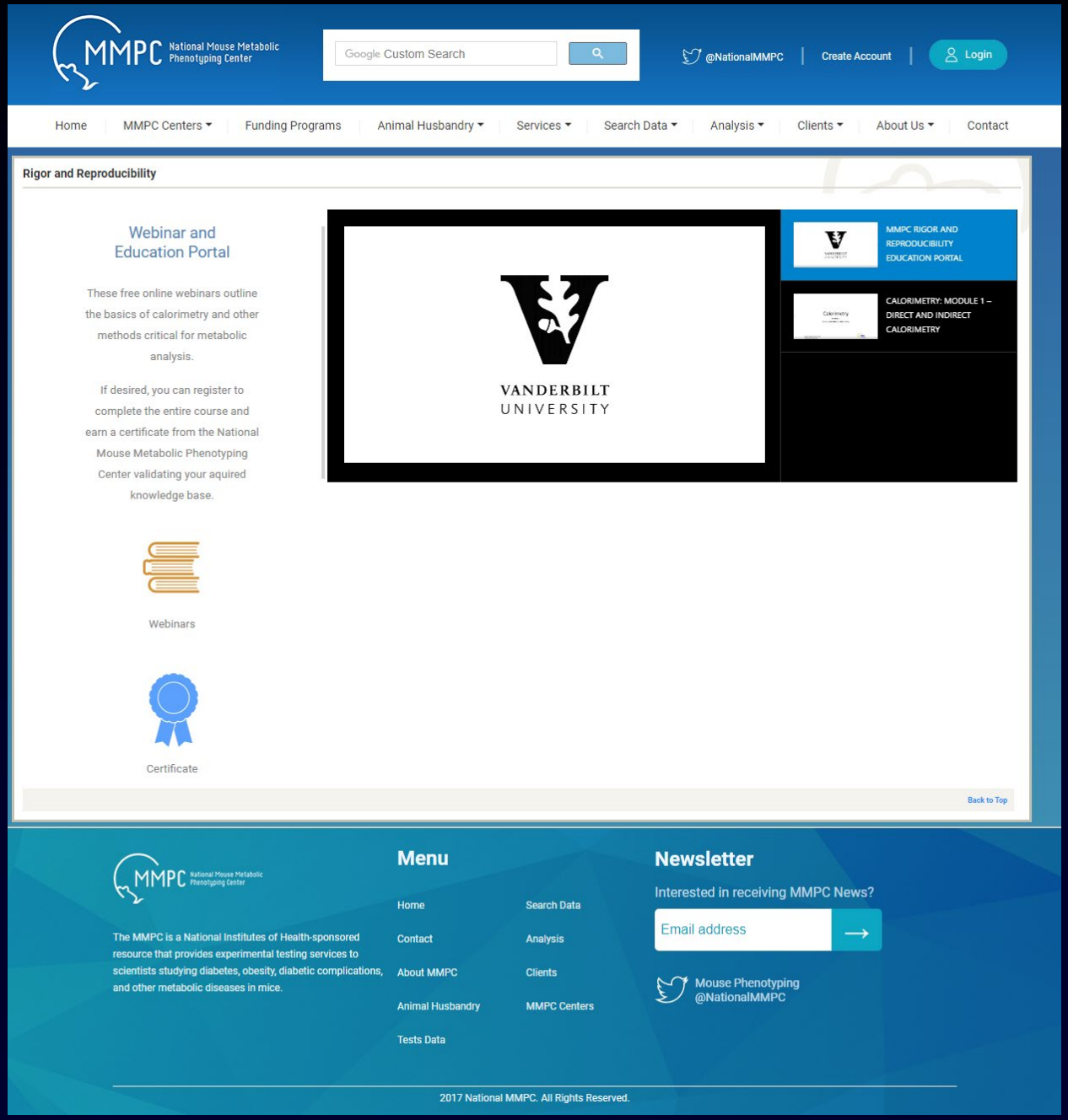

MMPC National Mouse Metabolic Phenotyping Center
Google Custom Search
@NationalMMPC
Create Account
Logout
Home
MMPC Centers
Animal Husbandry
Services
Search Data
Analysis
Clients
About Us
Contact
Search Catalog
Please use the filter options below to filter by Center, Center Core, Research Area, Test Number, Test Group(s), Keyword(s), and/or Tissue(s).
Apply Catalog Filter
University of California Davis
Endocrinology and Metabolism C
Research areas
Test Number
APPLY FILTER
Test Groups
Keywords
Tissues
RESET
Show Advanced Text Search
Select one of the MMPC Centers to see the test lists.
University of California Davis
University of Cincinnati Medical Center
Vanderbilt University School of Medicine
University of Massachusetts Medical School
University of Michigan Medical School
D3101
Intravenous Glucose Tolerance Test
Assessment of insulin sensitivity, glucose tolerance, and insulin secretion in vivo. Price include insulin/glucose assay costs. Mice from an inbred strain with low inter-animal variability in insulin sensitivity will be run with each group of animals undergoing the IVGTTs/clamps as an internal standard.
$118.21 / $158.05 (Internal University of California Fee / All Other Institutions)
TEST SELECTED
D3103
IN VIVO Insulin Tolerance Tests
Mice will be injected IP with 1mU/g of insulin. Samples will be collected at 0,15,30,45,60,90,120 min for the measurement of glucose.Plumpton,1969 Includes housing, surgery, biochemical assays to measure glucose/insulin level. Mice from an inbred strain with low inter-animal variability will be run with each group of animals undergoing the same procedure
$96.72 / $129.31(Internal University of California Fee / All Other Institutions)
SELECT THIS TEST
D3104
IN VIVO Glucose Tolerance Tests
Mice will be injected IP with 2mg/g of glucose. Samples will be collected at 0,15,30,60,120 min for the measurement of glucose. Includes housing, surgery, biochemical assays to measure glucose/insulin level. Mice from an inbred strain with low inter-animal variabilitywill be run with each group of animals undergoing the same procedure.
$91.34 / $122.13 (Internal University of California Fee / All Other Institutions)
TEST SELECTED
D3105
IN VIVO Glucose-stimulates Insulin Secretion Test
Mice will be injected IP with 2mg/g of glucose. Samples will be collected at 0,2,5,15,30 min for the measurement of glucose and insulin. Includes housing, surgery, biochemical assays to measure glucose/insulin level. Mice from an inbred strain with low inter-animal variabilitywill be run with each group of animals undergoing the same procedure
$128.96 / $172.41 (Internal University of California Fee / All Other Institutions)
SELECT THIS TEST
D3201
Adipocyte metabolism/hormone production - Isolation/cell size/#
Adipocyte hypertrophy, adipocyte insulin insensitivity, and FFA relea
d progression of insulin resistance.
Adipocyte metabolism and hormone secretion are determinants of wh
in action. Adipocytes will be
isolated by collagenase digestion according to the method of Rodbell
ogy, 1998). Adipocytes will be
maintained in culture for 96 h to assess metabolism and hormone secr
Create Order
$53.73 / $71.84 (Internal University of California Fee / All Other Institutions)
SELECT THIS TEST
MMPC National Mouse Metabolic Phenotyping Centers

Rigor and Reproducibility portal



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What's next?

1. Continue development of Rigor/Reproducibility web portal
   - Requires creation of Certificate/Course framework
   - Develop 'Ask an Expert' portal

2. Major project for next year will be to develop iOS and Android apps for MMPC

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If you have any problems, questions or concerns don't hesitate to email us.
Use any of the following addresses:

Web portal / Database:
miaufiero@augusta.edu (Michael Aufiero)

Network administration:
dguesela@augusta.edu (Danilo Guesela)

Bioinformatics:
assharma@augusta.edu (Ashok Sharma, Ph.D.)

Biostatistician:
hxu@augusta.edu (Nathan Xu, Ph.D.)

Data Curation
cwilliams11@augusta.edu (Colby Williams, M.S.)

Administration
sagross@augusta.edu (Sarah Gross)

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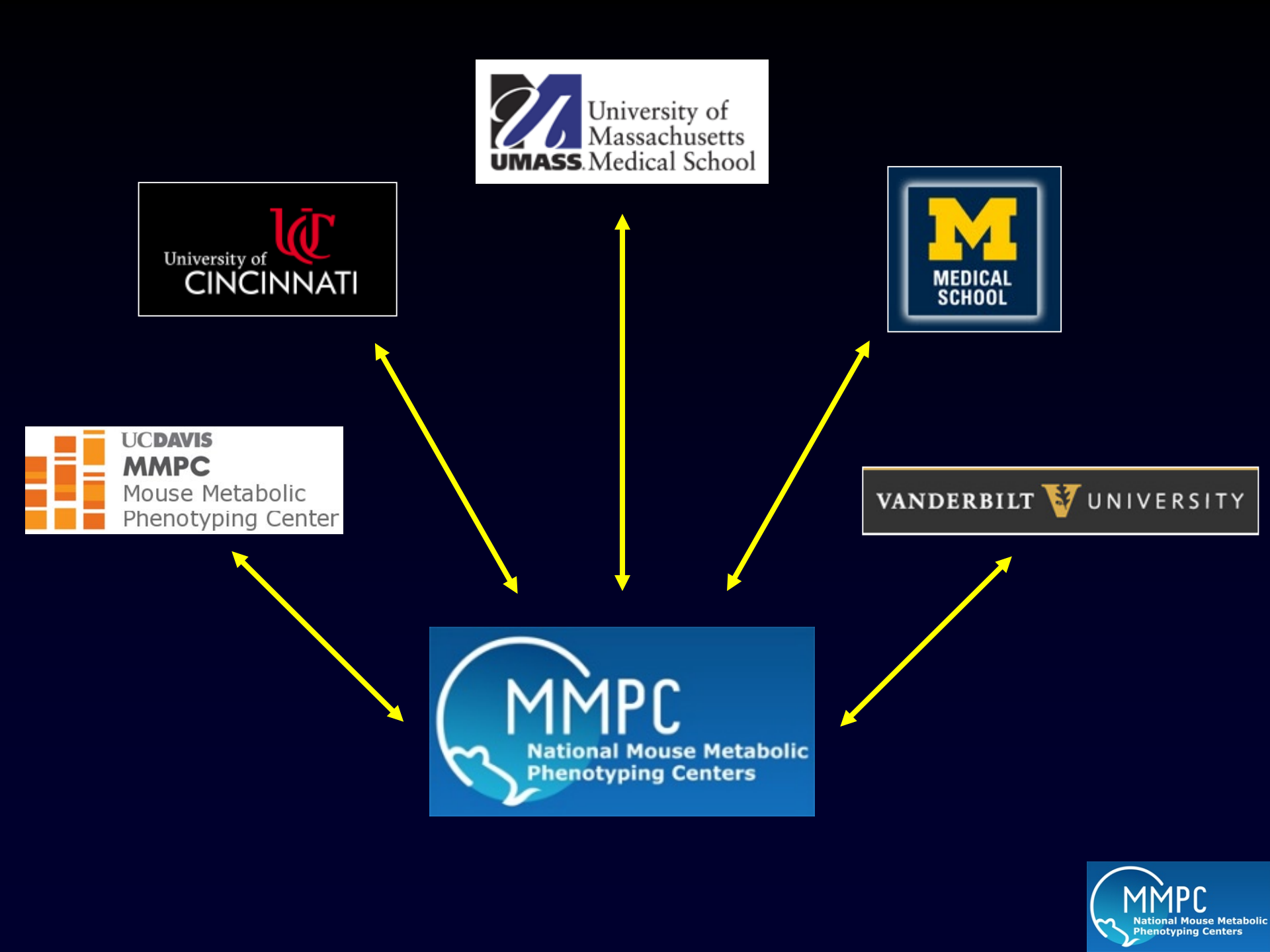
University of Massachusetts Medical School
UMASS
University of CINCINNATI
MEDICAL SCHOOL
UCDAVIS
MMPC
Mouse Metabolic Phenotyping Center
VANDERBILT UNIVERSITY
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