MMPC Coordinating Center

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Director, Coordinating Unit MMPC
Associate Director, Center for Biotechnology and Genomic Medicine
Regents' Professor
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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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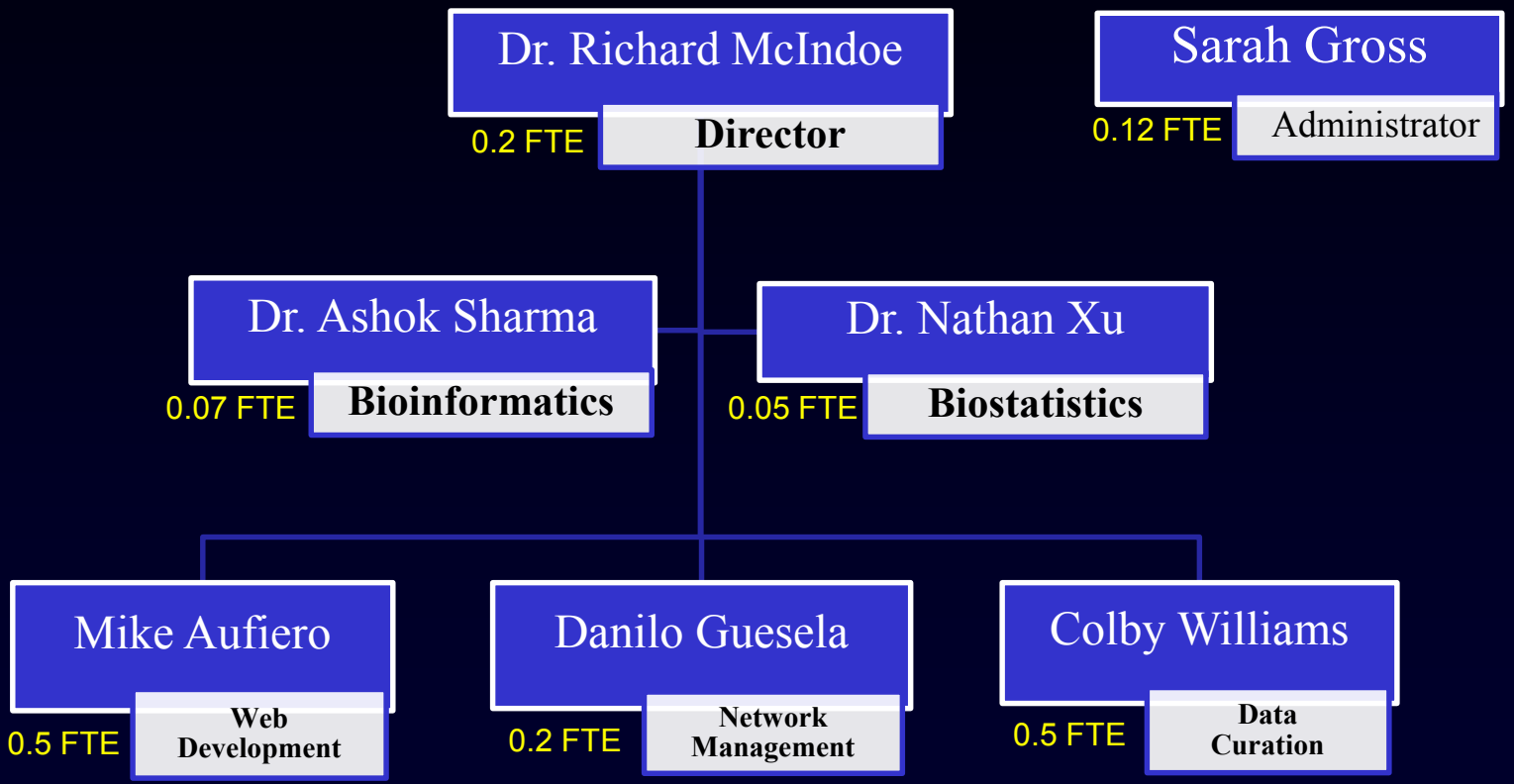
MMPC CU Organization



Total: 1.64 FTE

MMPC 2018 Steering Committee meeting

1) Overview of website activities

2) Website changes/updates

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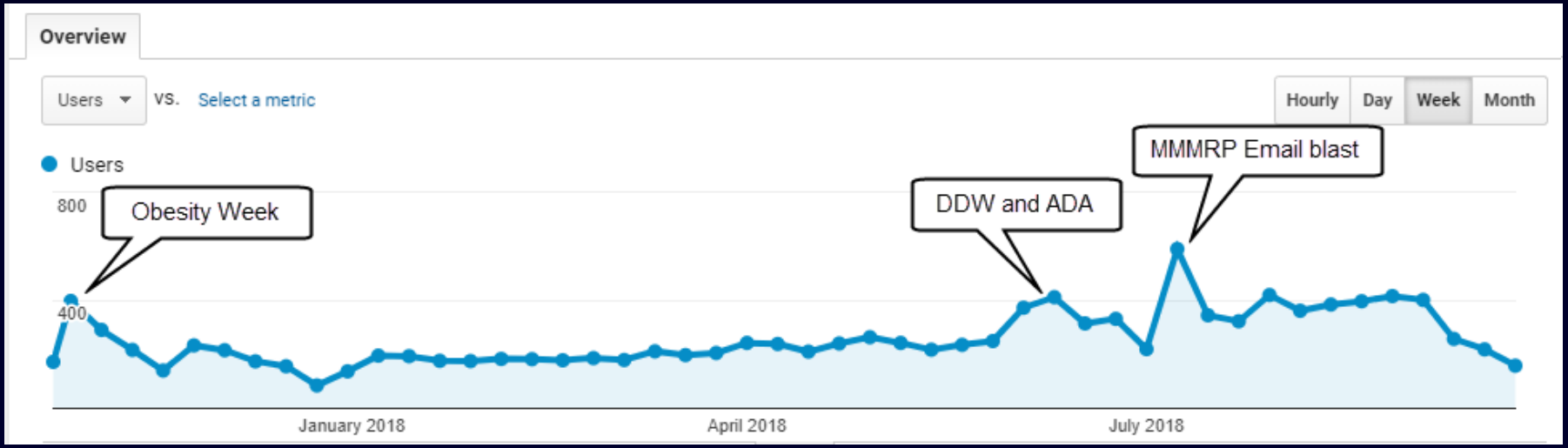
Website Overview (since October 25th, 2017)

Total number of visits: 16,325

Average number of visits: 987 per month
256 per week

Pages/Visit: 3.53

Average Time/Visit: 3:31



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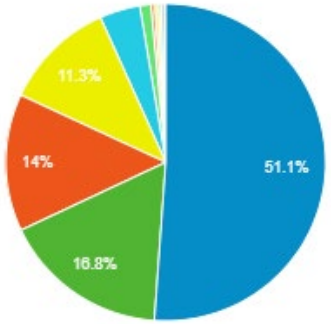
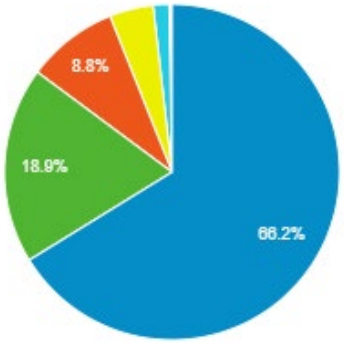
BROWSERS

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

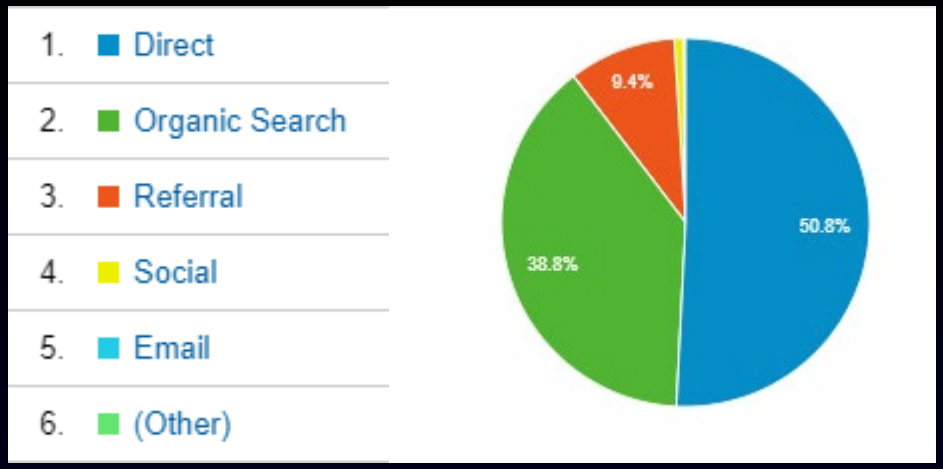


OPERATING SYSTEMS

1. Windows
2. Macintosh
3. iOS
4. Android
5. Linux
6. Chrome OS
7. BlackBerry
8. FreeBSD
9. Windows Phone
10. Firefox OS

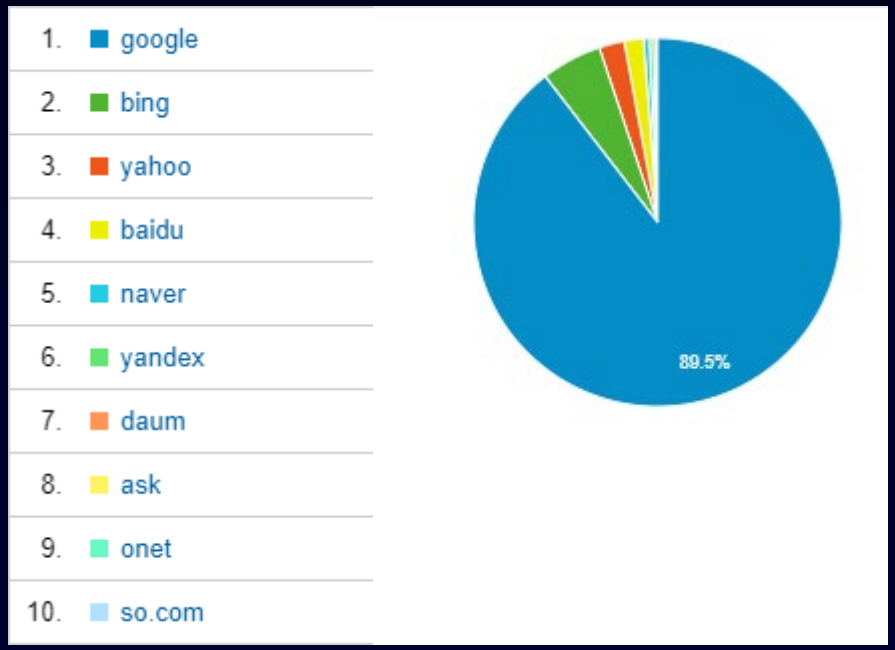


HOW

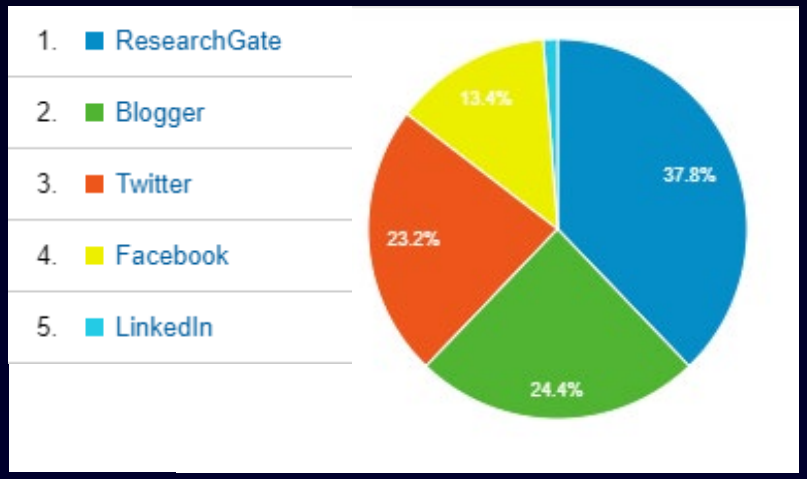


SOURCES

Organic Search



Social Media



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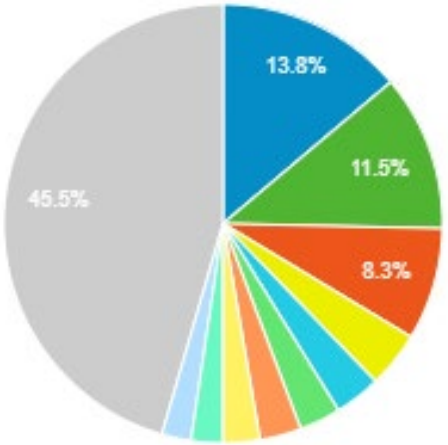
REFERRING SITES

1. labnodes.vanderbilt.edu
2. mmpc.med.umich.edu
3. ncbi.nlm.nih.gov
4. niddk.nih.gov
5. mmpc.ucdavis.edu
6. cn.bing.com
7. duckduckgo.com
8. uc.edu
9. dknet.org
10. calr.bwh.harvard.edu
11. calrapp.org
12. vmmpc.org



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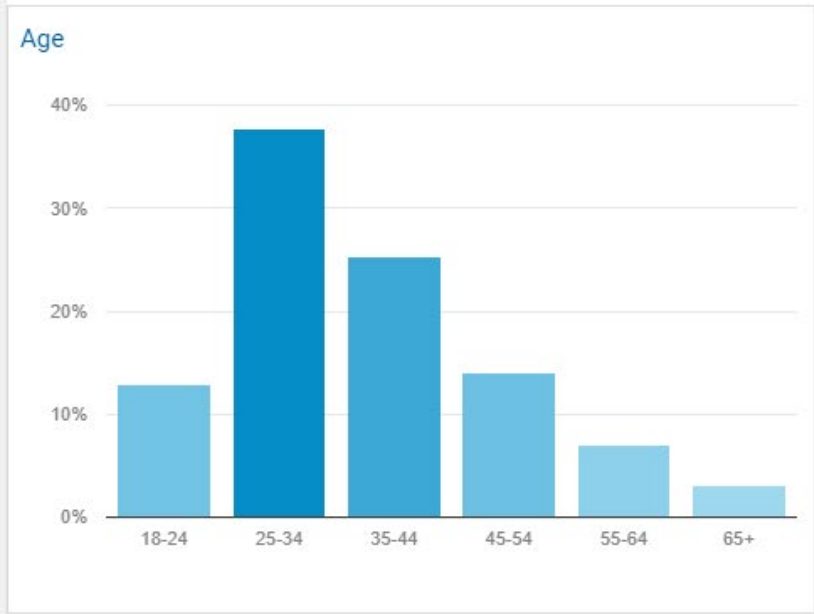
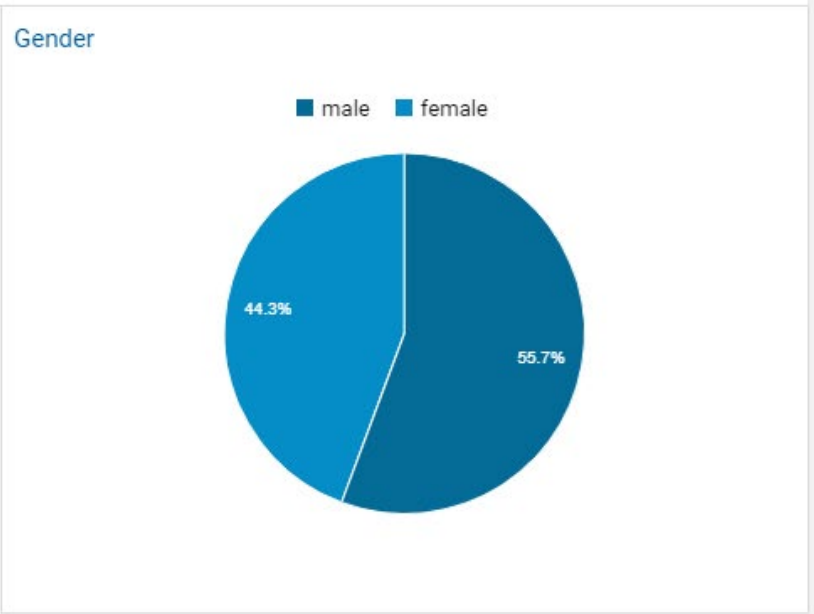
WHO





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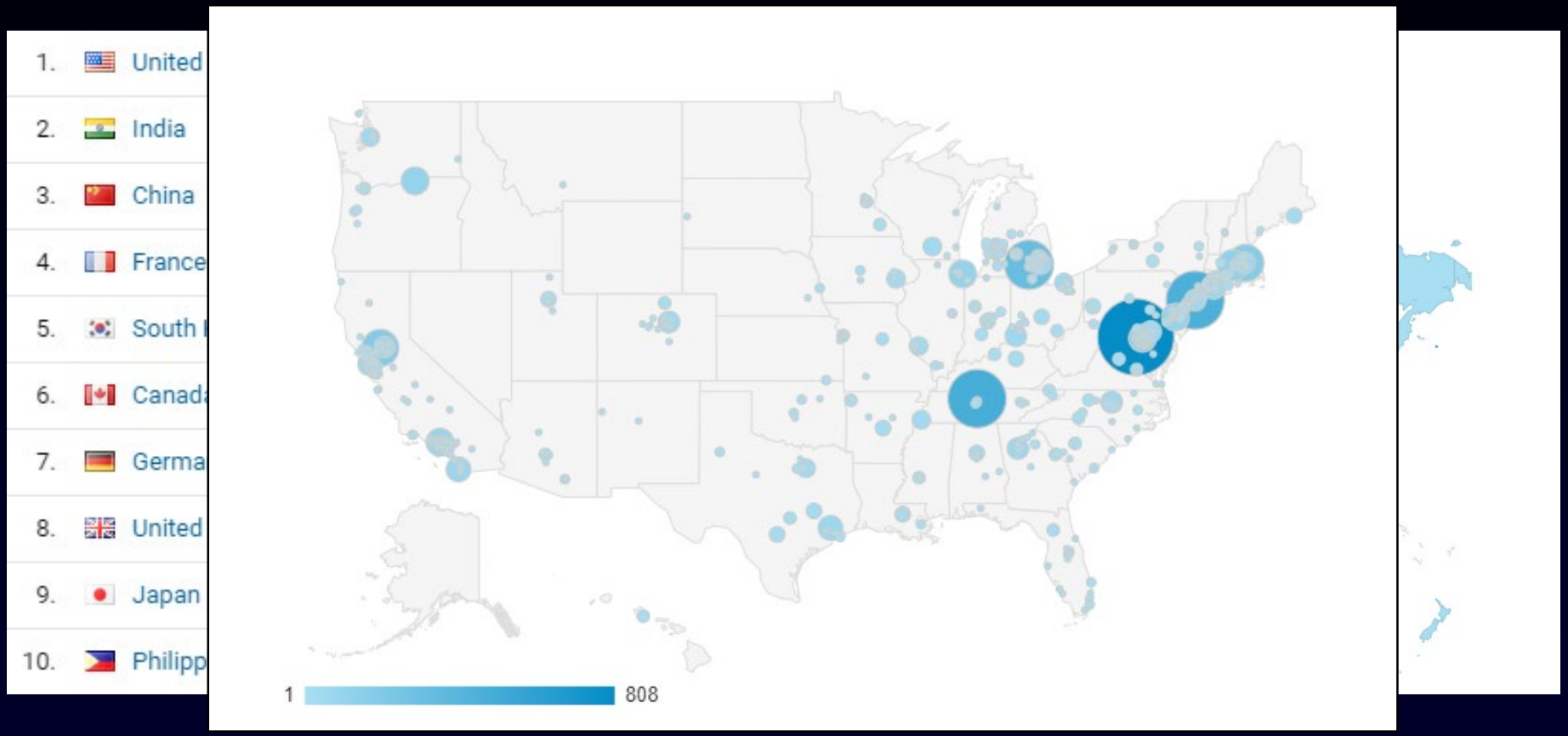
Where are the visitors coming from?



70 % USA

104 Countries/Territories
1638 Cities

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What are the visitors viewing?

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

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Current Year: 363 Orders Entered

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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	9	0	0	0
Endocrinology and Metabolism Core	2	13	9	1	0
Energy Balance, Exercise & Behavior Core	1	8	1	0	0
Microbiome & Host Response Core	1	13	3	0	0
Center: University of Cincinnati Medical Center; Items: 2					
Lipid, Lipoprotein and Glucose Metabolism Core	3	0	16	0	0
Energy Metabolism, Food Intake & Body Weight Regulation Core	3	0	6	0	0
Center: University of Massachusetts Medical School; Items: 5					
Metabolism Core	0	19	13	7	1
Analytical Core	0	10	7	2	2
Animal Care Core	0	4	1	0	0
Islet Core	0	2	1	0	0
Cardiovascular Core	1	7	1	1	1
Center: University of Michigan Medical School; Items: 4					
Animal Care and Germ-Free Mouse Core	4	0	0	0	0
Metabolism, Bariatric Surgery and Behavior Core	76	59	11	0	2
Microvascular Complications Core	1	5	2	0	0
Microbiome Core	2	0	2	0	0
Center: Vanderbilt University School of Medicine; Items: 4					
Metabolic Regulation Core	7	0	3	0	0
Cardiovascular Pathophysiology	4	0	0	0	0
Analytical Resources Core	48	0	2	0	0
Body Weight Regulation Core	8	0	0	0	0

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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
University of Cincinnati Medical Center	6	0	21	0	0	27	12	1184	347	11
Vanderbilt University School of Medicine	59	0	3	0	0	18	57	38352	273	16
University of California Davis	4	32	12	1	0	42	93	81175	859	28
University of Massachusetts Medical School	1	33	19	8	2	43	103	10473	846	34
University of Michigan Medical School	82	64	15	0	2	16	4	600	141	3

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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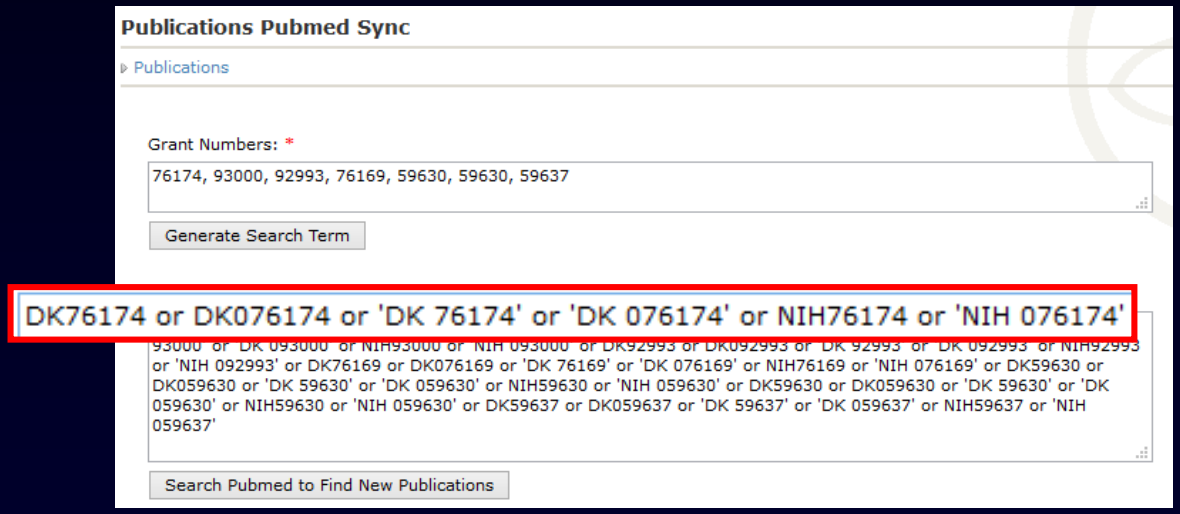
Publications

- 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 2018 to present: 58

Total Publications in system: 1582

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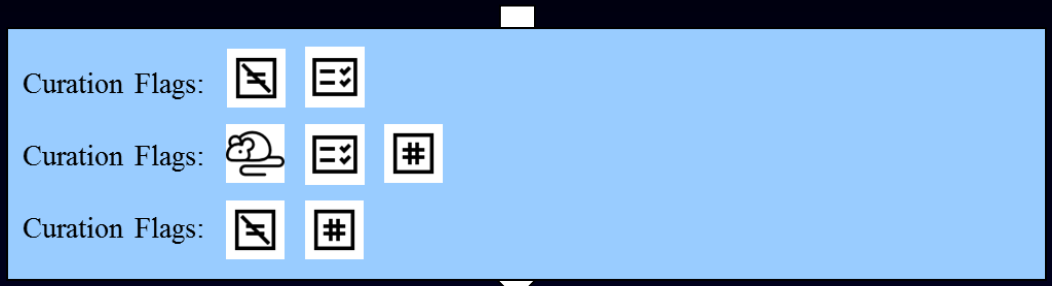
Data Curation Workflow

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	16	14	2
Same Experiment / Control strains	35	33	2
Duplicate metadata	2	2	0
# Animals Different	13	12	1
No Data Uploaded	20	0	20
No Experimental Control Group	0	0	0
Mice / Samples Inconsistent	0	0	0
Drug Administration Inconsistent	3	3	0
Mouse Diet Inconsistent	3	3	0
Experiment Description Blank	46	45	1
Need Experimental Conditions	13	11	2
Strain Nomenclature Discrepancy	5	4	1
Remain	156	127	29

Vanderbilt University School of Medicine	Total	Cleared	Remain
Only Experiment / Control	60	60	0
Same Experiment / Control strains	62	62	0
Duplicate metadata	9	9	0
# Animals Different	56	56	0
No Data Uploaded	11	0	11
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	119	119	0
Need Experimental Conditions	41	41	0
Strain Nomenclature Discrepancy	18	18	0
Remain	376	365	11

University of Michigan Medical School	Total	Cleared	Remain
Only Experiment / Control	6	0	6
Same Experiment / Control strains	7	2	5
Duplicate metadata	6	1	5
# Animals Different	1	0	1
No Data Uploaded	1	0	1
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	3	7
Need Experimental Conditions	12	2	10
Strain Nomenclature Discrepancy	13	1	12
Remain	59	10	49

University of California Davis	Total	Cleared	Remain
Only Experiment / Control	10	10	0
Same Experiment / Control strains	142	142	0
Duplicate metadata	20	20	0
# Animals Different	60	60	0
No Data Uploaded	1	0	1
No Experimental Control Group	7	7	0
Mice / Samples Inconsistent	1	1	0
Drug Administration Inconsistent	2	2	0
Mouse Diet Inconsistent	2	2	0
Experiment Description Blank	65	65	0
Need Experimental Conditions	9	9	0
Strain Nomenclature Discrepancy	2	2	0
Remain	321	320	1

University of Massachusetts Medical School	Total	Cleared	Remain
Only Experiment / Control	65	55	10
Same Experiment / Control strains	204	196	8
Duplicate metadata	87	77	10
# Animals Different	141	138	3
No Data Uploaded	19	9	10
No Experimental Control Group	35	35	0
Mice / Samples Inconsistent	10	9	1
Drug Administration Inconsistent	17	15	2
Mouse Diet Inconsistent	8	7	1
Experiment Description Blank	246	232	14
Need Experimental Conditions	87	74	13
Strain Nomenclature Discrepancy	78	64	14
Remain	997	911	86

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PhenStat:
statistical analysis of phenotypic data
User's Guide

Natalja Kurbatova, Natasha Karp, Jeremy Mason

Last revised: 27th April 2016

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$$depVariable \backsim Genotype + Sex + Genotype * Sex \quad \text{(Eq1)}$$

$$depVariable \backsim Genotype + Sex + Genotype * Sex + Weight \quad \text{(Eq2)}$$

$$depVariable \backsim Genotype + Sex + Genotype * Sex + Batch \quad \text{(Eq3)}$$

$$depVariable \backsim Genotype + Sex + Genotype * Sex + Weight + Batch \quad \text{(Eq4)}$$

The MMPC Data is much more complicated and required us to modify the PhenStat library to accommodate the differences by including more covariates and interactions since they could be potential confounders (e.g. mouse diet, drug dosage, surgical procedure, etc.).

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Experiment status set to "Complete" by Center

Curation Workflow

Curation status set to 'Curation Complete'

MMPC Semi-Automated Interface

Status='Analysis Generated'

Model Outputs Stored:
e.g. effect size

Status='Analysis Complete'

Results reviewed by biostatistician

Status='Analysis Verified'

Mammalian Phenotype (MP) Ontologies Stored

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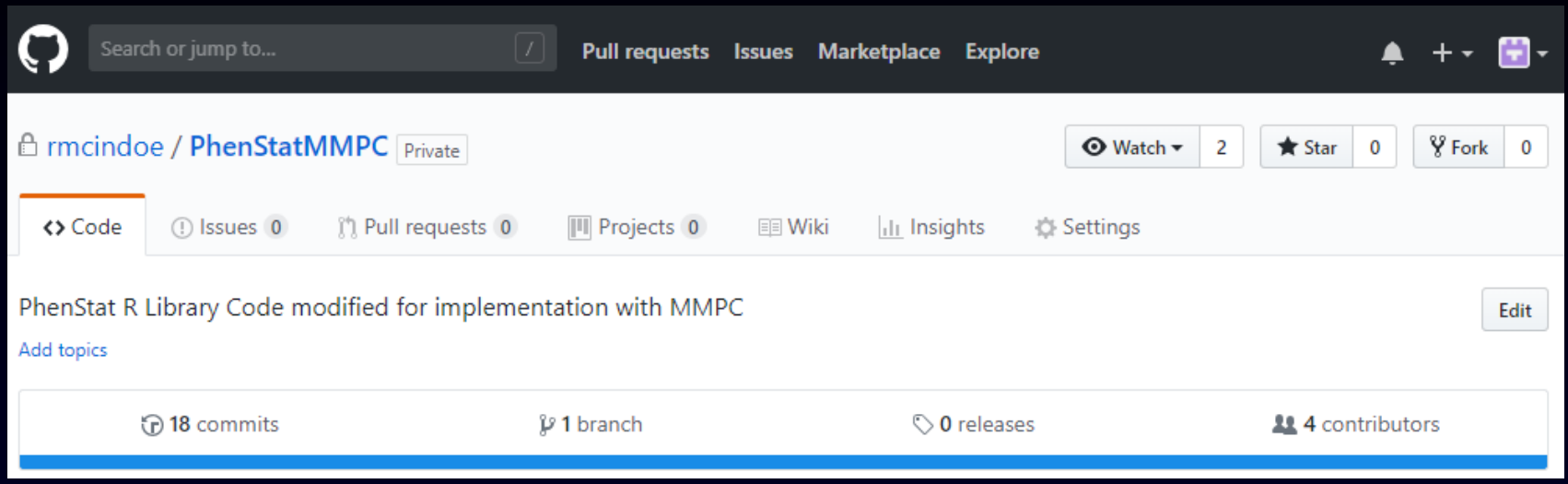
Modified libraries “completed”, will be available via GitHub



Constantly testing PhenStatMMPC on current data sets.

Can successfully analyze >90% of the data sets.

MMPC Data File + PhenStatMMPC Schema file

↓

PhenStatMMPC R Calling Code ⟲ PhenStatMMPC Library

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PhenStatMMPC

1. Handles more than one covariate
2. Handles time course data
3. Handles more than two mouse strains
4. Handles batch effects
5. Confirmed PhenStatMMPC mixed model results using SAS.

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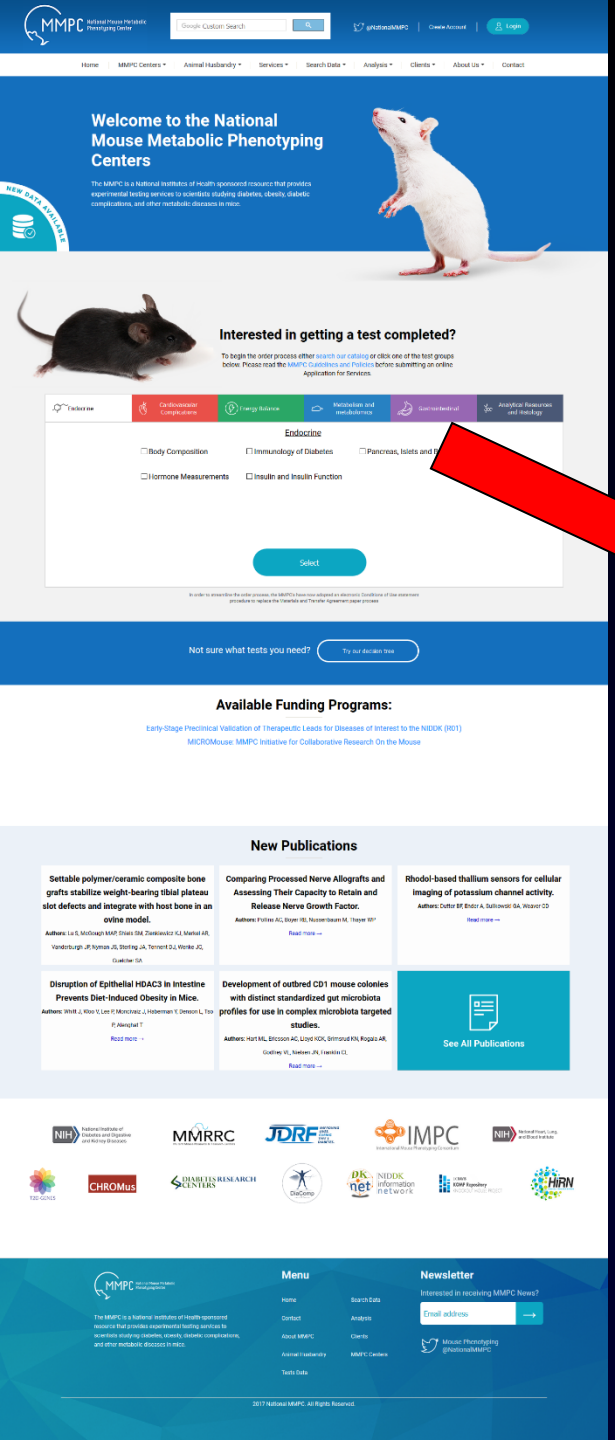
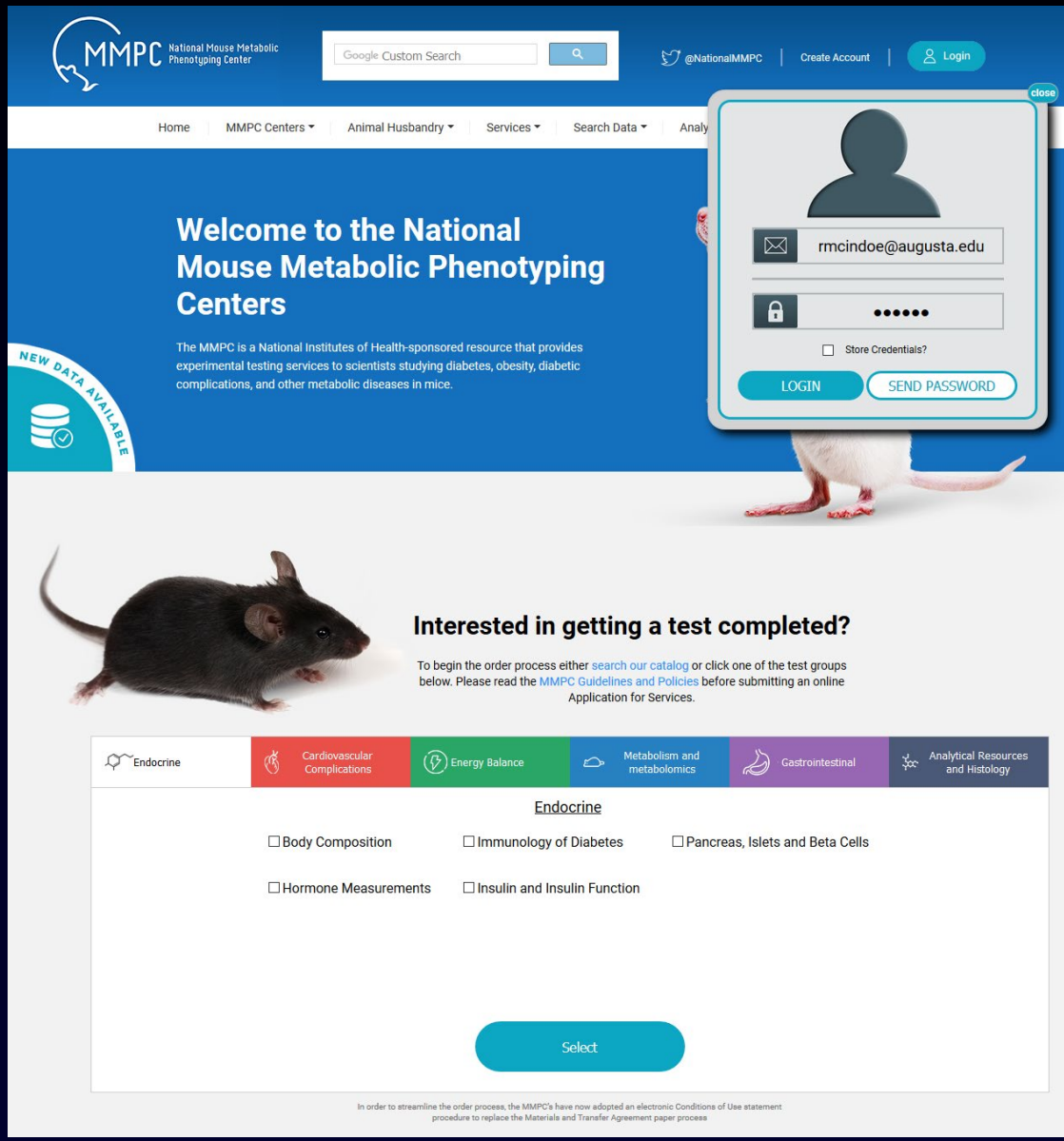

MMPC
Welcome to the National Mouse Metabolic Phenotyping Centers
Interested in getting a test completed?
Endocrine
Body Composition
Immunology of Diabetes
Hormone Measurements
Insulin and Insulin Function
Select
Not sure what tests you need?
Available Funding Programs:
New Publications
See All Publications
Menu
Newsletter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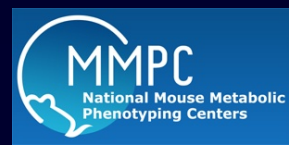
Google Custom Search
@NationalMMPC
Create Account
Login
Home
MMPC Centers
Animal Husbandry
Services
Search Data
Welcome to the National Mouse Metabolic Phenotyping Centers
The MMPC is a National Institutes of Health-sponsored resource that provides experimental testing services to scientists studying 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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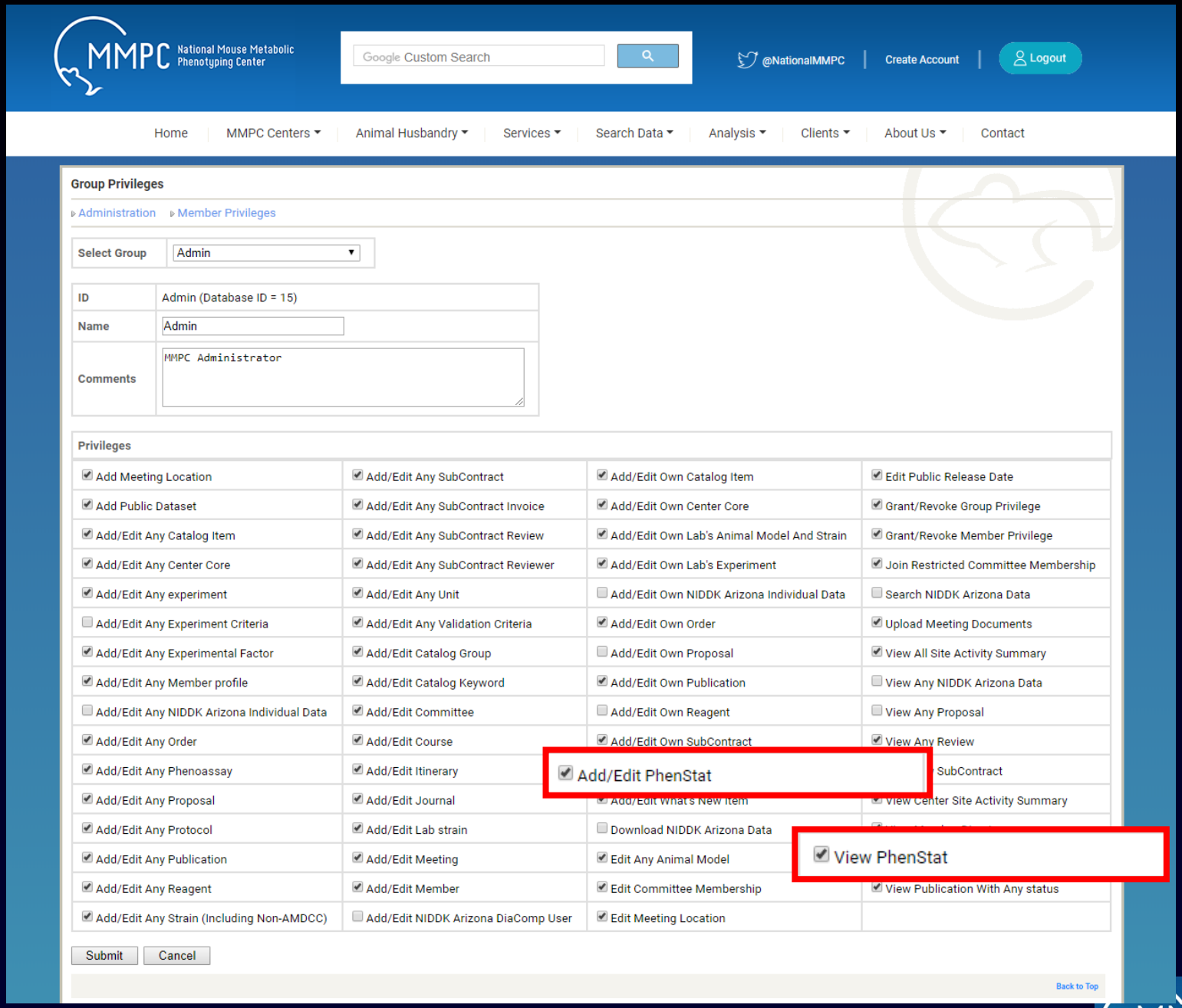
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Google Custom Search
@NationalMMPC
Create Account
Logout
Home
MMPC Centers
Animal Husbandry
Services
Search Data
Analysis
Clients
About Us
Contact
Group Privileges
Administration
Member Privileges
Select Group
Admin
ID
Admin (Database ID = 15)
Name
Admin
Comments
MMPC Administrator
Privileges
Add Meeting Location
Add Public Dataset
Add/Edit Any Catalog Item
Add/Edit Any Center Core
Add/Edit Any experiment
Add/Edit Any Experiment Criteria
Add/Edit Any Experimental Factor
Add/Edit Any Member profile
Add/Edit Any NIDDK Arizona Individual Data
Add/Edit Any Order
Add/Edit Any Phenoassay
Add/Edit Any Proposal
Add/Edit Any Protocol
Add/Edit Any Publication
Add/Edit Any Reagent
Add/Edit Any Strain (Including Non-AMDCC)
Add/Edit Any SubContract
Add/Edit Any SubContract Invoice
Add/Edit Any SubContract Review
Add/Edit Any SubContract Reviewer
Add/Edit Any Unit
Add/Edit Any Validation Criteria
Add/Edit Catalog Group
Add/Edit Catalog Keyword
Add/Edit Committee
Add/Edit Course
Add/Edit Itinerary
Add/Edit Journal
Add/Edit Lab strain
Add/Edit Meeting
Add/Edit Member
Add/Edit NIDDK Arizona DiaComp User
Add/Edit Own Catalog Item
Add/Edit Own Center Core
Add/Edit Own Lab's Animal Model And Strain
Add/Edit Own Lab's Experiment
Add/Edit Own NIDDK Arizona Individual Data
Add/Edit Own Order
Add/Edit Own Proposal
Add/Edit Own Publication
Add/Edit Own Reagent
Add/Edit Own SubContract
Add/Edit PhenStat
Download NIDDK Arizona Data
Edit Any Animal Model
Edit Committee Membership
Edit Meeting Location
Edit Public Release Date
Grant/Revoke Group Privilege
Grant/Revoke Member Privilege
Join Restricted Committee Membership
Search NIDDK Arizona Data
Upload Meeting Documents
View All Site Activity Summary
View Any NIDDK Arizona Data
View Any Proposal
View Any Review
View PhenStat
View Publication With Any status
Submit
Cancel
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Experiment

Experiments | Edit Experiment | View Order | Download Template | Upload Data | Browse Data

Energy expenditure in B6;Adipocyte Cre+ IL6f/f & B6;Adipocyte Cre+JNK1f/fJNK2f/f / MRDUMASS1015

SUMMARY	
Investigator	Davis, Roger J.
Description	The role of adipocyte JNK1 and JNK2 on obesity-induced insulin resistance Applicable research area(s): Diabetes
Status	Completed
Public Release	2/15/2018
Animal Age	*Measured In:* week(s) post-natal (w)
Flags	

DATA SUBMISSION CONT

- Add / Edit Animals
- Add / Edit Experimental Cond
- Add / Edit Catalog Items
- Add / Edit Phenotype Assays
- Add / Edit Publications
- Add / Edit Histology
- Download Template
- Upload Data
- Upload Document
- **Delete Measurements**

DATA SUMMARY

Type	Count
Animals	48
Experimental Conditions	2
Catalog Items	3
Curation Info (# flags)	2
Phenotype Assays	4
surements	192
	0
	0
	3

DATA ANALYSIS

- Browse Data
- **DOWNLOAD ALL DATA (.csv)**
- PhenStat

ANIMALS Add / Edit

STRAIN NAME	COMMON NAME	FEMALES	MALES	UNKNOWN
C57BL/6J-Tg(Adipoq-Cre)	C57BL/6J-Tg(Adipoq-Cre)	0	16	0
C57BL/6-Il6^{tm1Rjd} Tg(Adipoq-Cre)	C57BL/6-Il6^{tm1Rjd} Tg(Adipoq-Cre)	0	16	0

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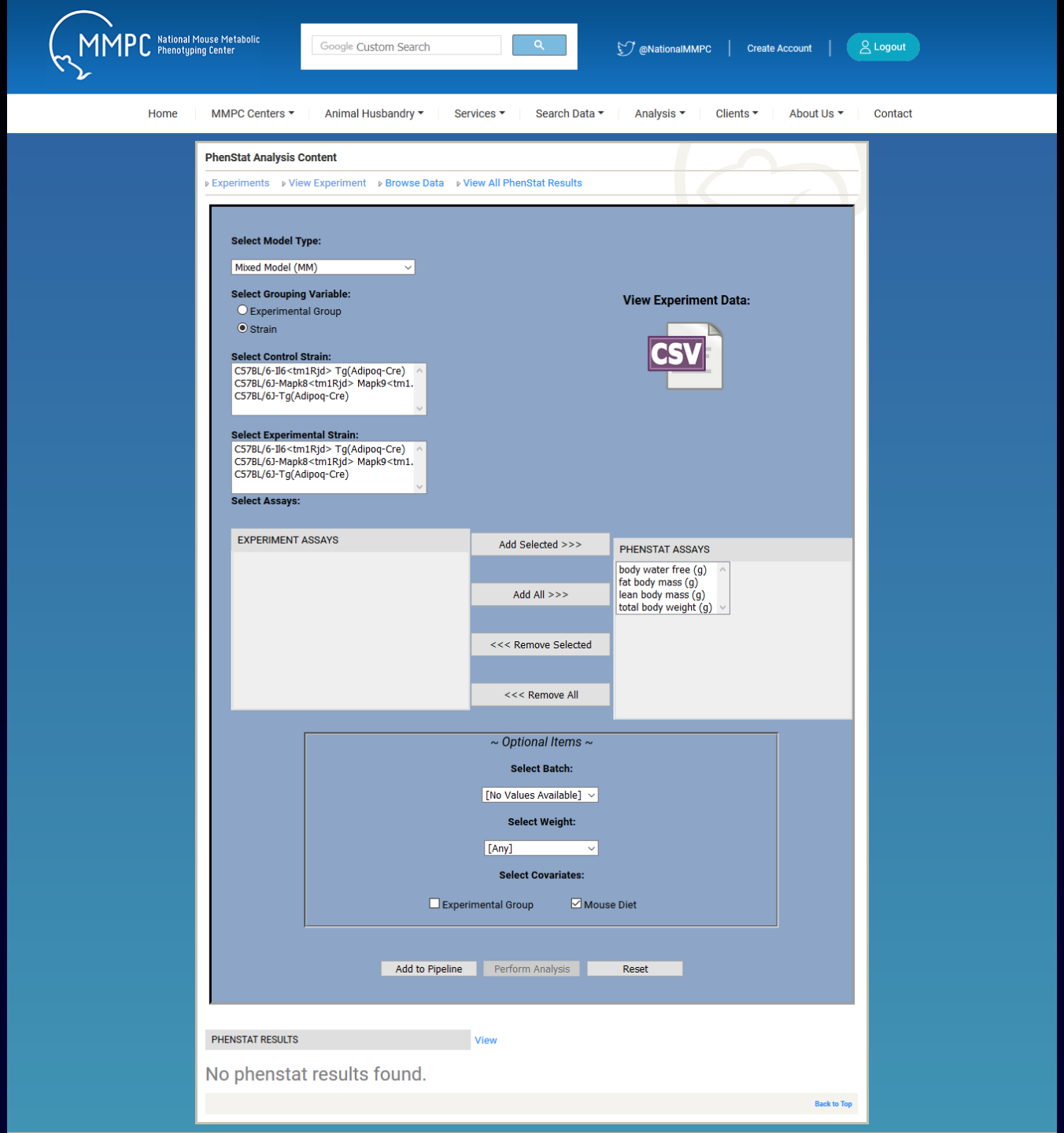
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@NationalMMPC
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Logout
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Animal Husbandry
Services
Search Data
Analysis
Clients
About Us
Contact
PhenStat Analysis Content
Experiments
View Experiment
Browse Data
View All PhenStat Results
Select Model Type:
Mixed Model (MM)
Select Grouping Variable:
Experimental Group
Strain
View Experiment Data:
CSV
Select Control Strain:
C57BL/6-Il6<tm1Rjd> Tg(Adipoq-Cre)
C57BL/6J-Mapk8<tm1Rjd> Mapk9<tm1.
C57BL/6J-Tg(Adipoq-Cre)
Select Experimental Strain:
C57BL/6-Il6<tm1Rjd> Tg(Adipoq-Cre)
C57BL/6J-Mapk8<tm1Rjd> Mapk9<tm1.
C57BL/6J-Tg(Adipoq-Cre)
Select Assays:
EXPERIMENT ASSAYS
Add Selected >>>
Add All >>>
<<< Remove Selected
<<< Remove All
PHENSTAT ASSAYS
body water free (g)
fat body mass (g)
lean body mass (g)
total body weight (g)
~ Optional Items ~
Select Batch:
[No Values Available]
Select Weight:
[Any]
Select Covariates:
Experimental Group
Mouse Diet
Add to Pipeline
Perform Analysis
Reset
PHENSTAT RESULTS
View
No phenstat results found.
Back to Top
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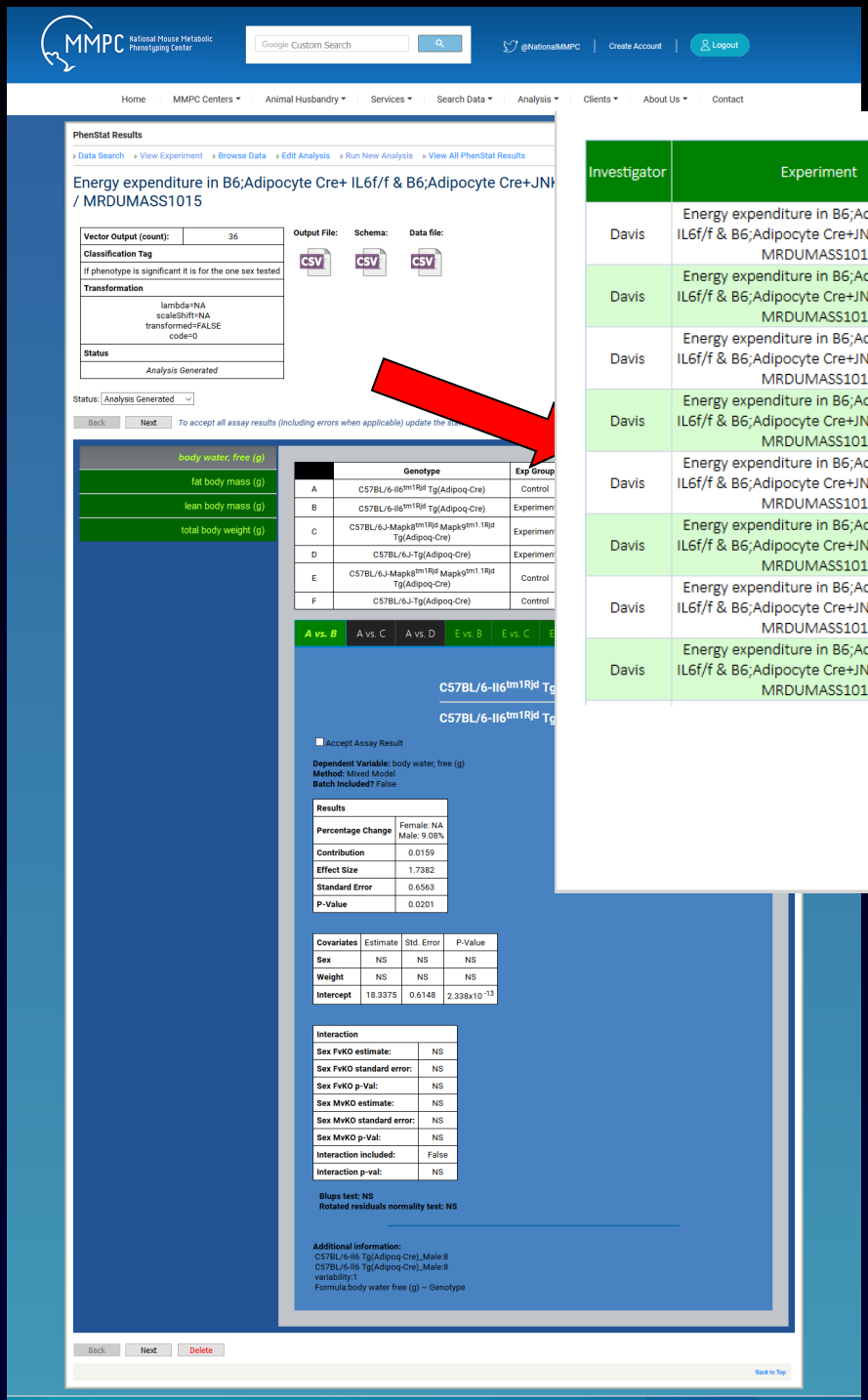

Investigator	Experiment	Animal	Strain	Sex	Age (week(s) post-natal)	Mouse Diet	Experimental Group	fat body mass (g)	body water free (g)	lean body mass (g)	total body weight (g)
Davis	Energy expenditure in B6;Adipocyte Cre+ IL6f/f & B6;Adipocyte Cre+JNK1f/fJNK2f/f / MRDUMASS1015	FVB624	C57BL/6J-Tg(Adipoq-Cre)	M	8	LabDiet 5P75/5P76	Control	1.275	18.53	20.535	23.6
Davis	Energy expenditure in B6;Adipocyte Cre+ IL6f/f & B6;Adipocyte Cre+JNK1f/fJNK2f/f / MRDUMASS1015	FVB621	C57BL/6J-Tg(Adipoq-Cre)	M	8	LabDiet 5P75/5P76	Control	0.995	16.15	17.89	20.4
Davis	Energy expenditure in B6;Adipocyte Cre+ IL6f/f & B6;Adipocyte Cre+JNK1f/fJNK2f/f / MRDUMASS1015	FVB620	C57BL/6J-Tg(Adipoq-Cre)	M	8	LabDiet 5P75/5P76	Control	0.96	16.965	18.825	21.3
Davis	Energy expenditure in B6;Adipocyte Cre+ IL6f/f & B6;Adipocyte Cre+JNK1f/fJNK2f/f / MRDUMASS1015	FVB623	C57BL/6J-Tg(Adipoq-Cre)	M	8	LabDiet 5P75/5P76	Control	1.61	16.94	18.74	20
Davis	Energy expenditure in B6;Adipocyte Cre+ IL6f/f & B6;Adipocyte Cre+JNK1f/fJNK2f/f / MRDUMASS1015	No tag	C57BL/6J-Tg(Adipoq-Cre)	M	8	LabDiet 5P75/5P76	Control	0.975	16.015	17.725	22.1
Davis	Energy expenditure in B6;Adipocyte Cre+ IL6f/f & B6;Adipocyte Cre+JNK1f/fJNK2f/f / MRDUMASS1015	FVB669	C57BL/6J-Tg(Adipoq-Cre)	M	8	LabDiet 5P75/5P76	Control	0.24	16.545	18.345	20.2
Davis	Energy expenditure in B6;Adipocyte Cre+ IL6f/f & B6;Adipocyte Cre+JNK1f/fJNK2f/f / MRDUMASS1015	FVB664	C57BL/6J-Tg(Adipoq-Cre)	M	8	LabDiet 5P75/5P76	Control	0.595	18.11	20.105	22.3
Davis	Energy expenditure in B6;Adipocyte Cre+ IL6f/f & B6;Adipocyte Cre+JNK1f/fJNK2f/f / MRDUMASS1015	FVB667	C57BL/6J-Tg(Adipoq-Cre)	M	8	LabDiet 5P75/5P76	Control	0.795	18.055	20.025	22.4

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CSV

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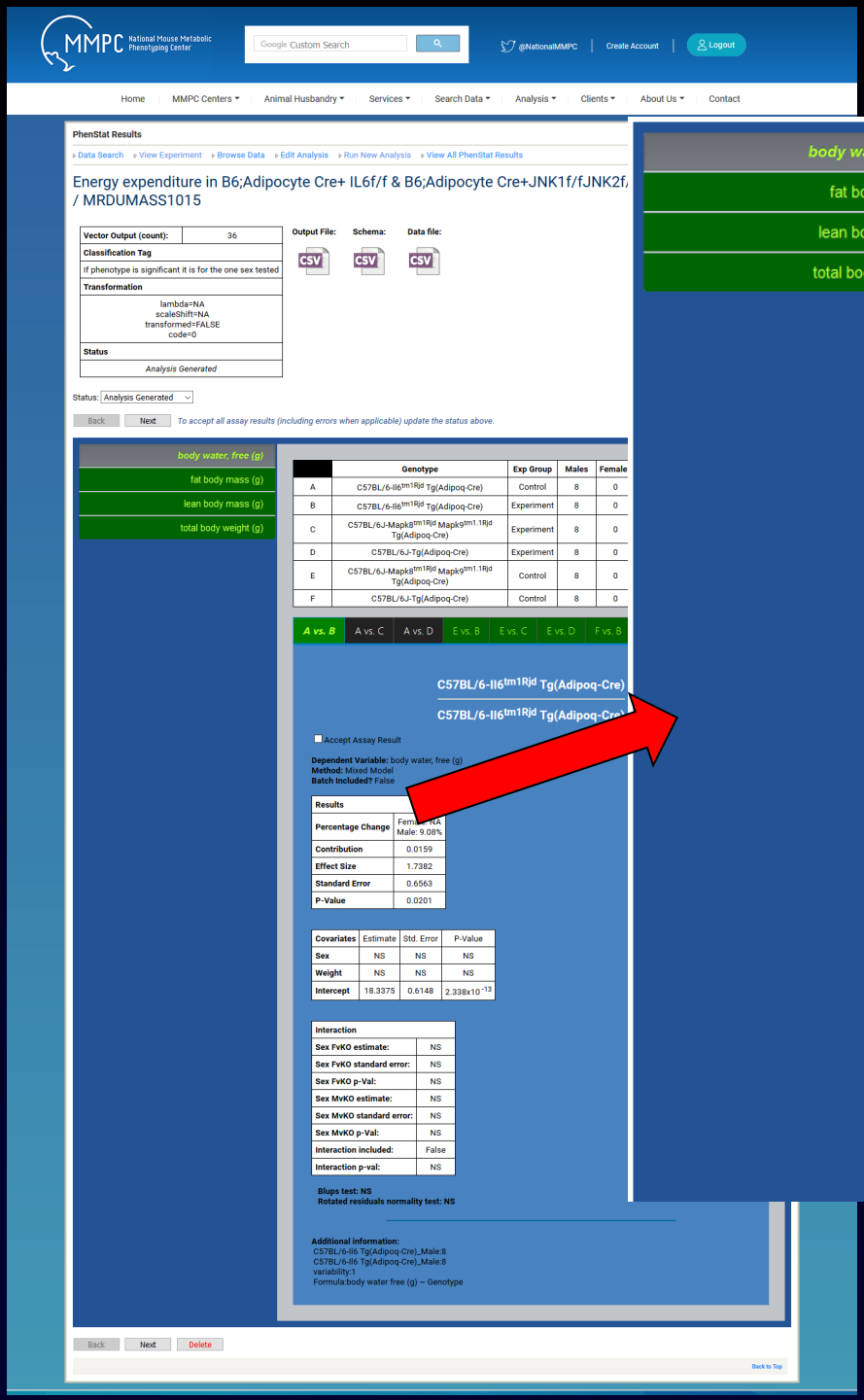

	Genotype	Exp Group	Males	Females	Unknown	Total	Mean (SD)
A	C57BL/6-Il6^{tm1Rjd} Tg(Adipoq-Cre)	Control	8	0	0	8	18.34 (1.74)
B	C57BL/6-Il6^{tm1Rjd} Tg(Adipoq-Cre)	Experiment	8	0	0	8	20.08 (0.61)
C	C57BL/6J-Mapk8^{tm1Rjd} Mapk9$^{tm1.1Rjd}$ Tg(Adipoq-Cre)	Experiment	8	0	0	8	18.97 (0.57)
D	C57BL/6J-Tg(Adipoq-Cre)	Experiment	8	0	0	8	19.74 (1.47)
E	C57BL/6J-Mapk8^{tm1Rjd} Mapk9$^{tm1.1Rjd}$ Tg(Adipoq-Cre)	Control	8	0	0	8	16.63 (0.7)
F	C57BL/6J-Tg(Adipoq-Cre)	Control	8	0	0	8	17.16 (0.95)

A vs. B | A vs. C | A vs. D | E vs. B | E vs. C | E vs. D | F vs. B | F vs. C | F vs. D

C57BL/6-Il6^{tm1Rjd} Tg(Adipoq-Cre)

C57BL/6-Il6^{tm1Rjd} Tg(Adipoq-Cre)

☐ Accept Assay Result

Dependent Variable: body water, free (g)
Method: Mixed Model
Batch Included? False

Results	
Percentage Change	Female: NA Male: 9.08%
Contribution	0.0159
Effect Size	1.7382
Standard Error	0.6563
P-Value	0.0201

Covariates	Estimate	Std. Error	P-Value
Sex	NS	NS	NS
Weight	NS	NS	NS
Intercept	18.3375	0.6148	2.338x10^{-13}

Interaction	
Sex FvKO estimate:	NS
Sex FvKO standard error:	NS
Sex FvKO p-Val:	NS

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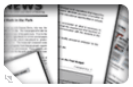

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Experiment status set to "Complete" by Center

Curation Workflow

Curation status set to 'Curation Complete'

MMPC Semi-Automated Interface

Status='Analysis Generated'

Model Outputs Stored:
e.g. effect size

Status='Analysis Complete'

Results reviewed by biostatistician

Status='Analysis Verified'

Mammalian Phenotype (MP) Ontologies Stored

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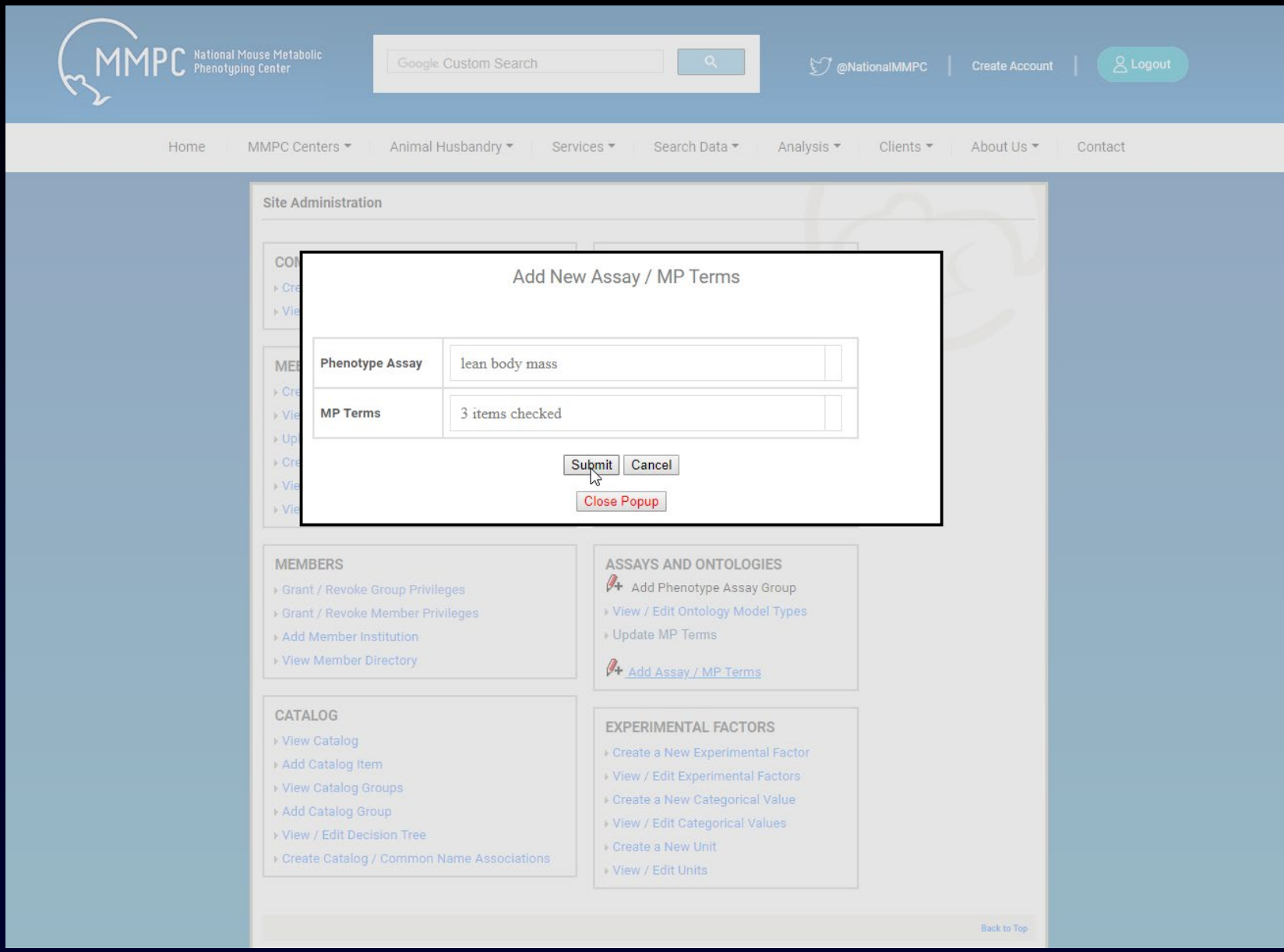
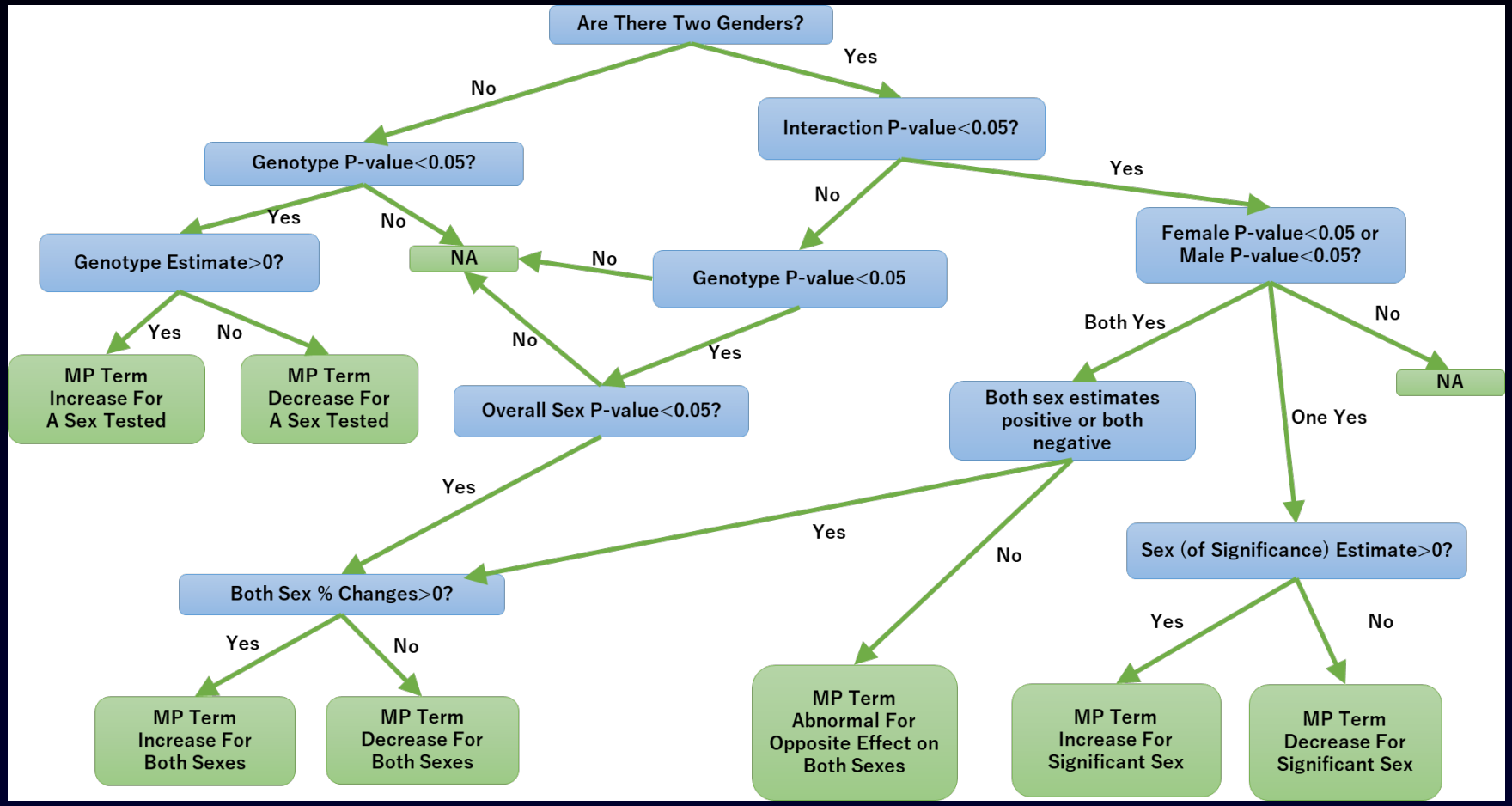


MP Term Assignment Based on PhenStatMMPC analysis.



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Data Search

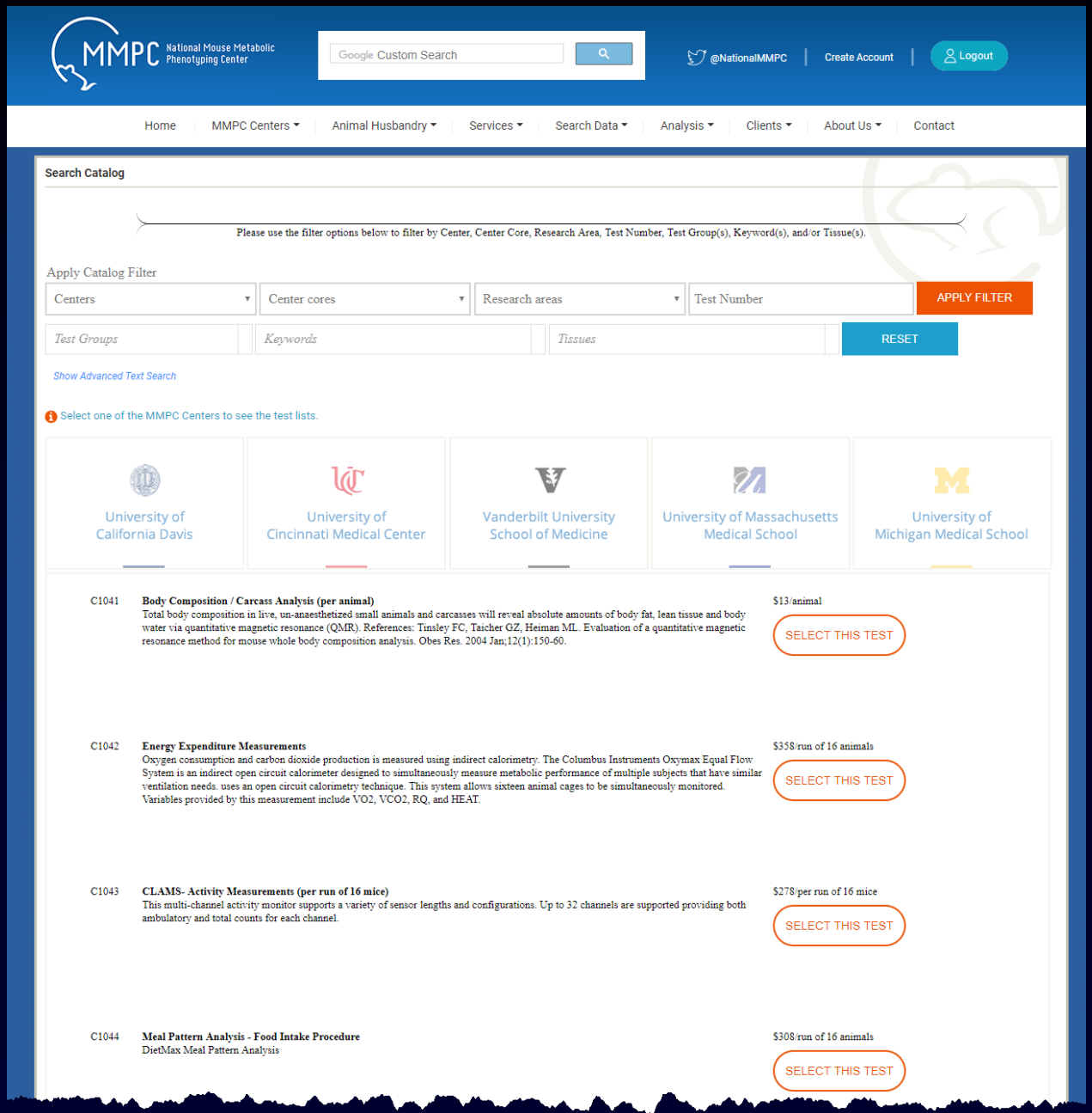
Catalog Item

D4008: Energy Expenditure (CLAMS, Indirect Calorimeti

SEARCH RESET

Strains		Phenotype Assay	Values		Links	
Genotype 1	Genotype 2	Name	P-Value	Effect Size	View PhenStat	View Experiment
Experiment Name: Effect of conditionally targeted (Sim1-cre or SF1-cre) knockout of Rai1 on energy expenditure and meal patterns						
B6.129-Rai1^{tm1Luo}	B6;129-Rai1^{tm1Luo} Tg(Nr5a1-cre)7Lowl	body mass	1.754x10^{-5}	8.3375	PhenStat	Experiment
B6.129-Rai1^{tm1Luo}	B6;129-Rai1^{tm1Luo} Tg(Nr5a1-cre)7Lowl	bone mineral content	.049	.0754	PhenStat	Experiment
B6.129-Rai1^{tm1Luo}	B6;129-Rai1^{tm1Luo} Tg(Nr5a1-cre)7Lowl	carbon dioxide production	.025	-4.101x10^{2}	PhenStat	Experiment
B6.129-Rai1^{tm1Luo}	B6;129-Rai1^{tm1Luo} Tg(Nr5a1-cre)7Lowl	carbon dioxide production Dark Period	.0445	-4.129x10^{2}	PhenStat	Experiment
B6.129-Rai1^{tm1Luo}	B6;129-Rai1^{tm1Luo} Tg(Nr5a1-cre)7Lowl	carbon dioxide production Light Period	.0222	-4.067x10^{2}	PhenStat	Experiment
B6.129-Rai1^{tm1Luo}	B6;129-Rai1^{tm1Luo} Tg(Nr5a1-cre)7Lowl	fat body mass	4.314x10^{-7}	3.9101	PhenStat	Experiment
B6.129-Rai1^{tm1Luo}	B6;129-Rai1^{tm1Luo} Tg(Nr5a1-cre)7Lowl	fat tissue, %	9.966x10^{-6}	7.0913	PhenStat	Experiment
B6.129-Rai1^{tm1Luo}	B6;129-Rai1^{tm1Luo} Tg(Nr5a1-cre)7Lowl	heat	.0002	.069	PhenStat	Experiment

Updated Catalog Search Interface



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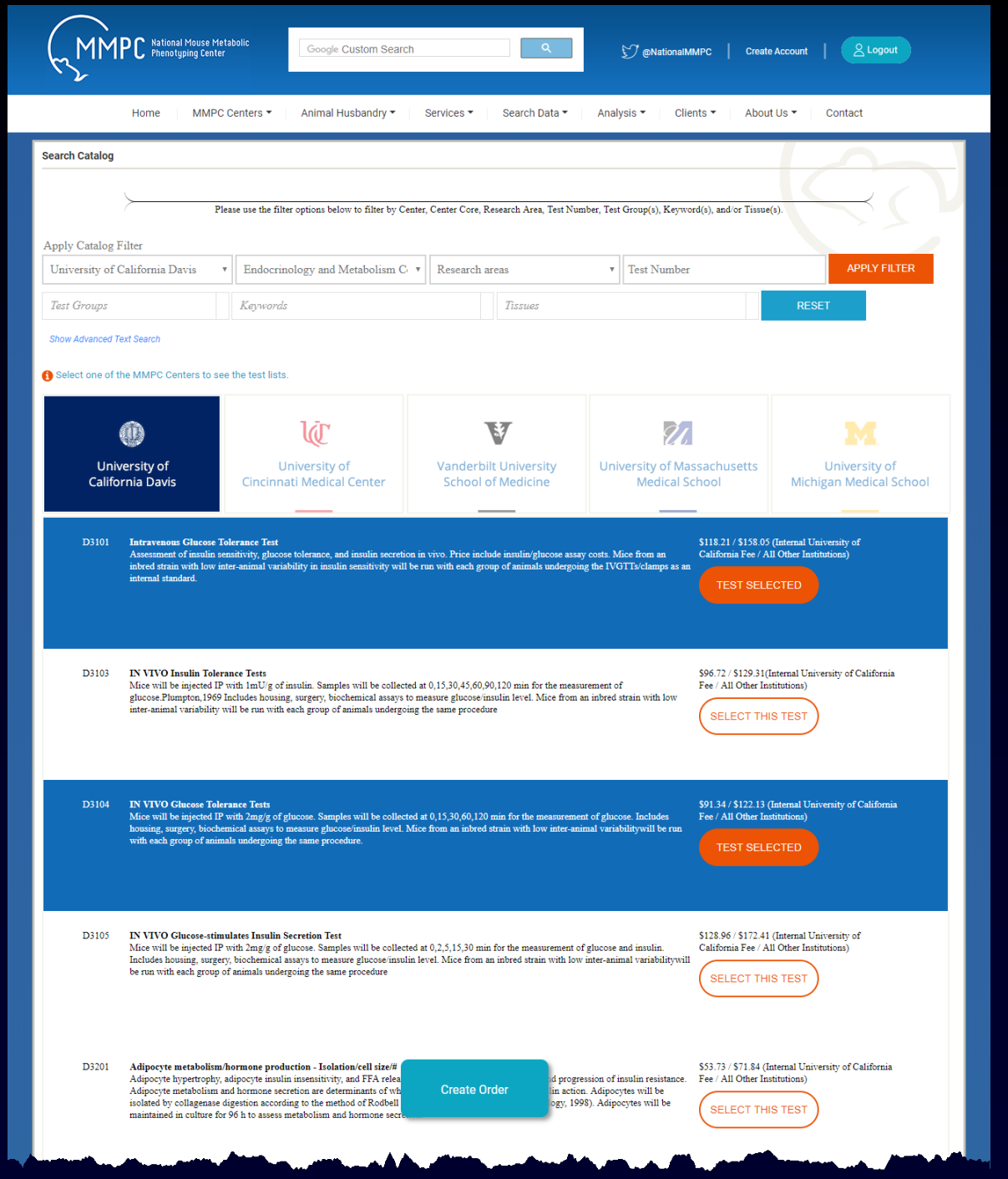
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University of Cincinnati Medical Center
Vanderbilt University School of Medicine
University of Massachusetts Medical School
University of Michigan Medical School
D3101
Intravenous Glucose Tolerance Test
Assessment of insulin sensitivity, glucose tolerance, 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)
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Any combination of the following fields can be used to search the available catalog items. The example provided demonstrates a search for tests with text including "human islets" but excluding "glucose tolerance" or "genetic ablation" and also including other terms hyperglycemic or insulin but further excluding retinopathy. (Search is case insensitive)

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Any of these terms		*Ex. hyperglycemic or insulin*
Exclude these words		*Ex. "glucose tolerance" or "genetic ablation" (Specify quotations for phrases)*

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University of California Davis | University of Cincinnati Medical Center | Vanderbilt University School of Medicine | University of Massachusetts Medical School | University of Michigan Medical School

C1041	**Body Composition / Carcass Analysis (per animal)** Total body composition in live, un-anaesthetized small animals and carcasses will reveal absolute amounts of body fat, lean tissue and body water via quantitative magnetic resonance (QMR). References: Tinsley FC, Taicher GZ, Heiman ML. Evaluation of a quantitative magnetic resonance method for mouse whole body composition analysis. Obes Res. 2004 Jan;12(1):150-60.	$13/animal SELECT THIS TEST
C1042	**Energy Expenditure Measurements** Oxygen consumption and carbon dioxide production is measured using indirect calorimetry. The Columbus Instruments Oxymax Equal Flow System is an indirect open circuit calorimeter designed to simultaneously measure metabolic performance of multiple subjects that have similar ventilation needs. uses an open circuit calorimetry technique. This system allows sixteen animal cages to be simultaneously monitored. Variables provided by this measurement include VO2, VCO2, RQ, and HEAT.	$358/run of 16 animals SELECT THIS TEST
C1043	**CLAMS- Activity Measurements (per run of 16 mice)** This multi-channel activity monitor supports a variety of sensor lengths and configurations. Up to 32 channels are supported providing both ambulatory and total counts for each channel.	$278/per run of 16 mice SELECT THIS TEST
C1044	**Meal Pattern Analysis - Food Intake Procedure** DietMax Meal Pattern Analysis	$308/run of 16 animals SELECT THIS TEST

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What's next?

1. Deploy production version of new MMPC website on November 1st
2. Run PhenStatMMPC on ALL current datasets entered in the system
3. Finish assigning Mammalian Phenotype Terms to MMPC Assays
4. 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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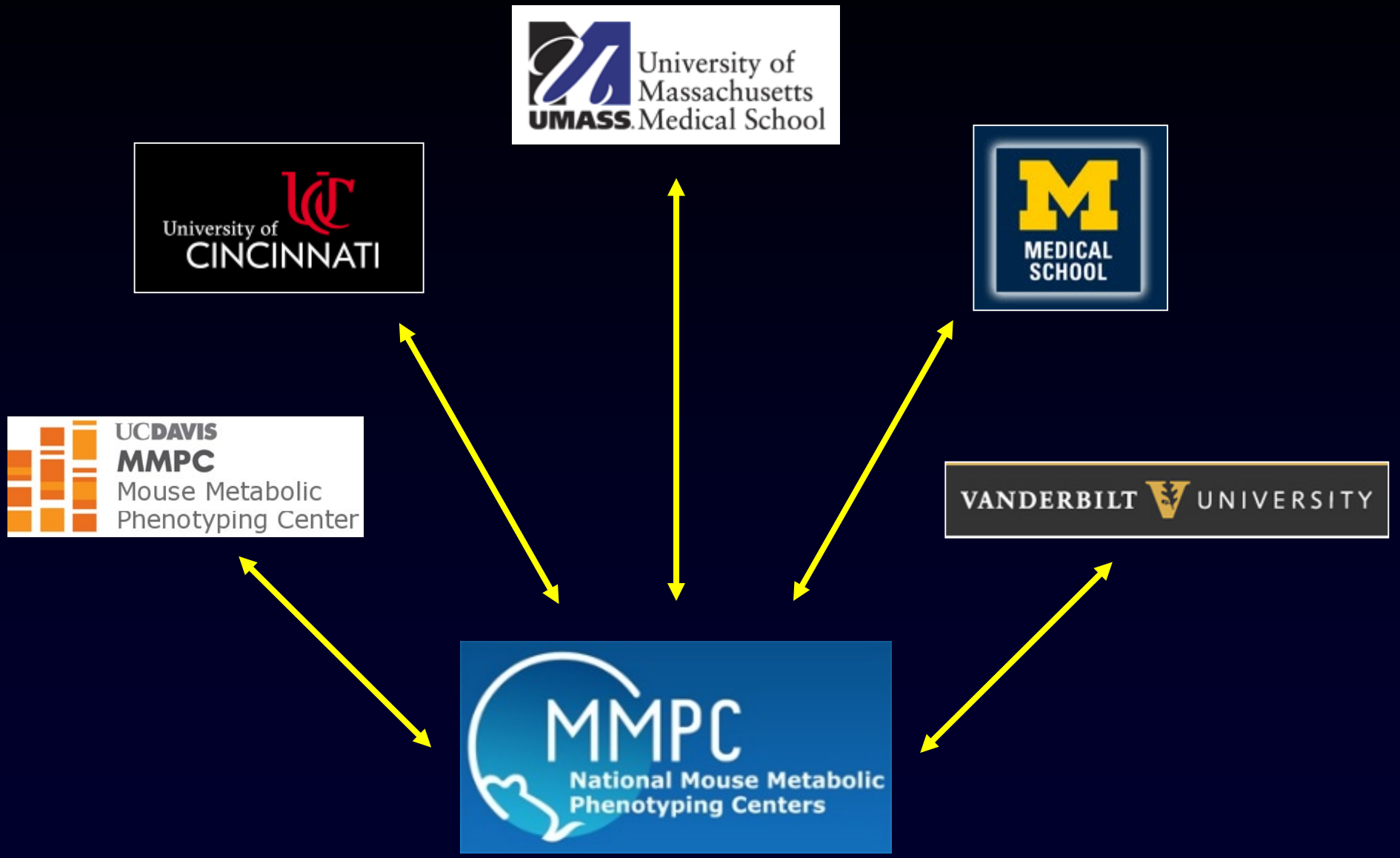

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