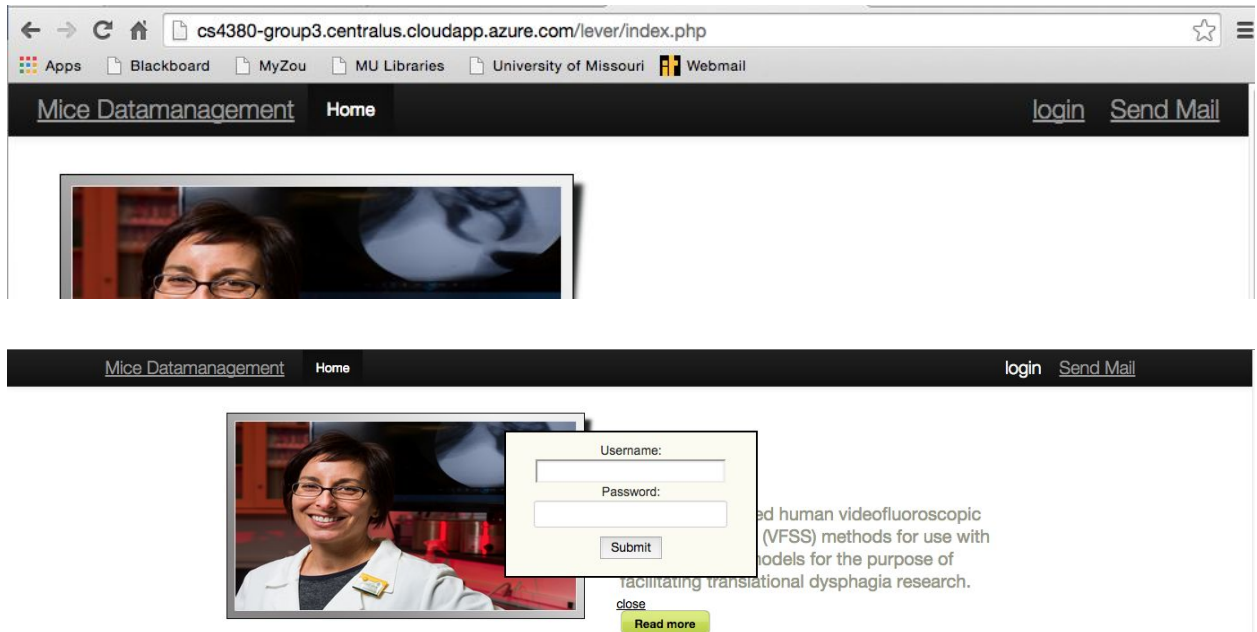


1. Index page and login

URL: cs4380-group3.centralus.cloudapp.azure.com/lever

The index page shows basic information of Lever's lab, latest news and published papers.

By clicking the login button on the top banner, you will see the login window.




Our system allows two types of accounts: supervisor account and student account. Dr. Lever has all privileges. Students (e.g., Peng) only have limited privileges.

2. Home page after login

[Mice Datamanagement](#) [Home](#) [Search](#) [Video Upload](#) [Data Collection](#) [Data Management](#) [Data Analysis](#) [Logout](#) [Send Mail](#)

Mice Data Management

This is the web for data search and collection



This study adapted human videofluoroscopic swallowing study (VFSS) methods for use with murine disease models for the purpose of facilitating translational dysphagia research.

[Read more](#)

Welcome to our WEBSITE!

Our lab investigates dysphagia in amyotrophic lateral sclerosis (ALS), predominantly utilizing the high copy number (HCN) expressing SOD1 -G93A transgenic mouse model. We have previously observed that these mice have dysphagia upon weaning, without other clinical signs of ALS. Therefore, we are investigating the low copy number (LCN) SOD1 -G93A transgenic mouse model that has delayed onset of limb dysfunction and extended survival compared to HCN mice. Furthermore, LCN mice have forelimb and bulbar involvement that more closely resembles human ALS.

Latest News

Mar, 2015

New Paper published
Adapting Human Videofluoroscopic Swallow Study Methods to Detect and Characterize Dysphagia in Murine Disease Models.

3. Search

a. Search by mouse id:

This is the main search page of mice. It will pull out all the information of a mouse, such as the videos, genotype, phenotype, colony, publication and behavior observation consented data. More information will be added such as treatment and surgery.

For example, search mouse 'H601':

By Mice

Search By Test Subject

(eg. 9634 H302 L404)

Video of H601

Test Date

2015-12-12

1234-05-02

Video



Information of H601

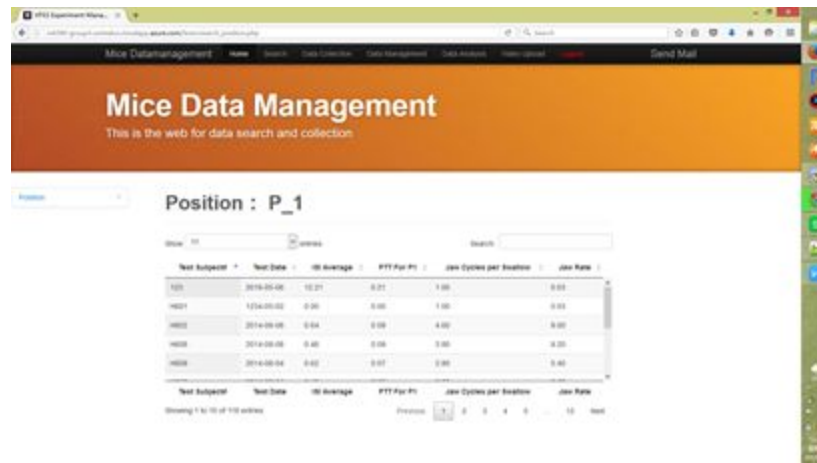
Mouse id	Sex	colony	Phenotype	Genotype	Publication
H601	Male	HCN	HCN_SOD1	Hindlimb only	test_doi
Mouse id	Sex	colony	Phenotype	Genotype	Publication

Behavior of: H601

Mouse id	Age	Age group	Test date	Body weight	Trial	Jaw rate	Jaw cycle	ETT
H601	4	3	1234-09-02	100	1	0.066666666666667	2	-0.96666666
H601	4	3	1234-09-02	100	2	0.066666666666667	2	-0.96666666
H601	4	3	1234-09-02	100	3	0.033333333333333	1	-0.96666666
H601	4	3	1234-09-02	100	4	0.066666666666667	2	-0.96666666

b. Search by position:

Videos were recorded on three positions, the throat, stomach and bolus area. User are allowed to selected an position and view the average record within the position. More information can be found in summary page. Below are an example of the record of mouse throat.

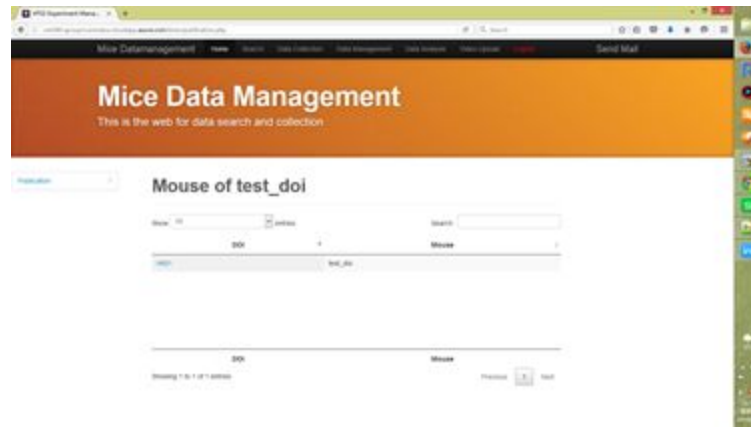


The screenshot shows a web browser displaying the 'Mice Data Management' application. The page has a navigation bar with links like Home, Search, Data Collection, Data Management, Data Analysis, Video Upload, and Send Mail. Below the navigation bar is a header with the title 'Mice Data Management' and the subtitle 'This is the web for data search and collection'. The main content area shows a search result for 'Position : P_1'. There is a search bar with 'P_1' entered and a 'Search' button. Below the search bar is a table with columns: Test Subject, Test Date, 100 Average, PTT Apr P1, Jaw Cycles per Position, and Jaw Rate. The table contains 6 rows of data. At the bottom of the table, it says 'Showing 1 to 6 of 6 entries' and there are pagination controls.

Test Subject	Test Date	100 Average	PTT Apr P1	Jaw Cycles per Position	Jaw Rate
101	2016-09-06	10.21	0.21	1.00	0.01
H601	1234-09-02	0.00	0.00	1.00	0.00
H602	2014-09-06	0.04	0.09	4.00	0.00
H603	2014-09-06	0.40	0.06	3.00	0.00
H604	2014-09-06	0.02	0.07	0.00	0.40

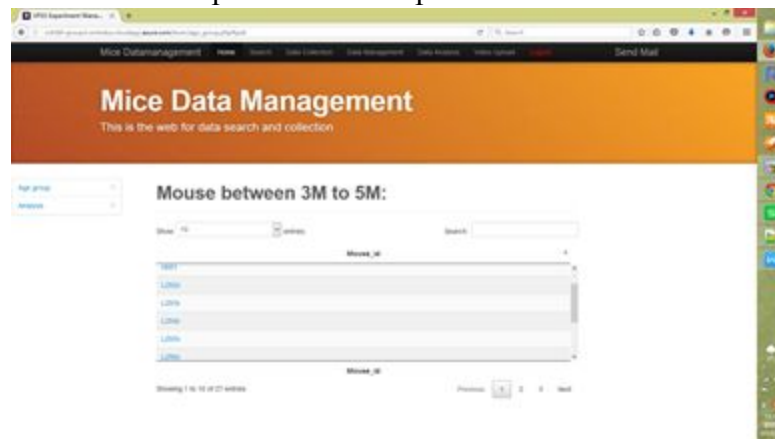
c. Search by publications:

Users will be interested to know which mouse has been cited in which publication and this page will allow user to find those information. The mouse id is hyper-linked to search-by-mouse page.



d. Search by age group:

This page allows users to search mouse information within a selected age group and this will help to detect unexpected death of mouse.



e. Search missing values

This allows to search records with missing values in different tables.

Missing Values

Missing Values

Bolus Area

Search

f. File download

You can use mouse ID, test date or mouse's genotype as search keywords to filter out record and export them in csv format.

File Download

Download Experiment Record

Download

Download Files

Mouse ID: -- Test Subject --

Test Date: -----

Geno Type: -- Geno Type --

submit

Download Files

Mouse ID: H601

Test Date: -----

Geno Type: -- Geno Type --

submit

Download Files

Download Files

Mouse ID: -- Test Subject --

Test Date: -----

Geno Type: -- Geno Type --

submit

Your file is ready. You can download it from [here!](#)

Name	Size	Kind	Date Added
 1462736639H601.csv	666 bytes	comm...values	Today, 2:44 PM

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
	m_id	Jaw_rate	ETT	test_date	bolus_area	EE04secS	bodyweight	Num_Swall	Trial	ISI_P1	PTT_P2	Jaw_cycle	PTT_P1	ISI_P2	Swall_rate	age_month	age_group
1	H601	0.06666667	-0.96666667	1234-05-02	2.66666667	N	100	0	1	0	-61.6666667	2	0	-61.6666667	0	4	3
2	H601	0.06666667	-0.96666667	1234-05-02	2.66666667	N	100	2	2	0	0	2	0	0	2	4	3
3	H601	0.03333333	-0.96666667	1234-05-02	2.66666667		100	1	3	0	0	1	0	-60	1	4	3
4	H601	0.06666667	-0.96666667	1234-05-02	2.66666667	N	100	2	4	7261.03333	0	2	600	0	2	4	3
5	H601	0.06666667	-0.96666667	1234-05-02	2.66666667	N	100	2	5	0	0	2	0	0	2	4	3

4. Video Upload

Our client can upload video files to the server so that they can be reviewed later to extract raw experimental data. Each video is identified by its test date and the ID of the tested mouse.

Upload Files

Test Date:

Mouse ID:

Video Upload: Screen Shot ...57.23 AM.png

cs4380-group3.centralus.cloudapp.azure.com says:

Video Upload Success!

5. Data collection

a. Test list:

The test list summarizes review progresses for all experiments. The underlying “engine” of this list is a view (“review_view”) which extracts information from several record tables.

R1 represents the first reviewer of one video. R2 represents the second reviewer of the same video. Consensus represents whether the review records by R1 and R2 have been consented or not.

There is one button next to “Consensus” called “details”. Please scroll to the end of the table to find it. By clicking “details” button, you can initiate the data collection of the given record.

Test List

Show entries Search:

test_date ▲	Mouse#	DOB	Sex	R1.P1	R1.P2	R1.BA	R2.P1	R2.P2	R2.BA	Consensus
1234-05-02	H601	2014-03-27	Male							NO
2014-01-01	H601	2014-03-27	Male							NO
2014-04-19	H602	2014-03-27	Male		15			22		NO
2014-09-01	L124	2014-04-17	Female							NO
2014-10-05	L124	2014-04-17	Female		3	3				NO
2014-11-02	L124	2014-04-17	Female	3	3	3	4	4	4	NO

Showing 1 to 9 of 9 entries Previous Next

b. For reviewer 1

It can be seen from the following figure that R1.P1 to R2.BA are not filled out. It means this video has not been reviewed yet. The reviewer clicking “Details” for the first time will be labeled as R1.

test_date ▲	Mouse#	DOB	Sex	R1.P1	R1.P2	R1.BA	R2.P1	R2.P2	R2.BA	Consensus
1234-05-02	H601	2014-03-27	Male							NO

Mouse#	DOB	Sex	R1.P1	R1.P2	R1.BA	R2.P1	R2.P2	R2.BA	Consensus	Choose
301	2014-03-27	Male							NO	<button>Details</button>

The video player is pre-loaded with the corresponding video on the server.

The reviewer is required to input some basic information of the experiment. While watch the video, the reviewer can record the raw data for each position and each trial. Click submit button after done.

Basic Information



Reviewer:

Peng Zhao

Review Date:

05/08/2016

Mouse ID:

H601

Cage #:

1234

Test Date:

1234-05-02

Sex:

Female

Colony:

C57_C57

Test Items:

☒Thin Liquid

Food:

☐Food

Position1

Frame	2nd Swallow onset				Jaw cycle per swallow	2sec from swallow onset			Swallow per 2sec	Lick onset Frame			Lick end Frame			Jaw cycle
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	2	2	2	2	2	2	2	2	2	21	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	12	2	2	2	2	2	2	22	2

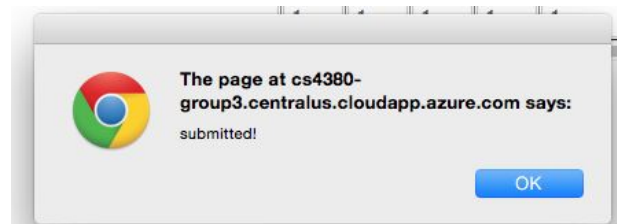
Position 2

T start Frame	PTT end Frame			ETT end Frame			Pharyngeal Residue	Esophageal Residue	2nd Swallow start Frame			Esoph Emptying Prior To 2nd Swallow	Number Of Swallow To Clear Esophagus	Swallow Inhibition
1		1	1	1	1	1	1	1	N	N	1	1	1	N
1	1	1	1	1	1	1	1	1	N	N	1	1	1	N
1	1	1	1	1	1	1	1	1	N	N	1	1	1	N
1	1	1	1	1	1	1	1	1	N	N	1	1	1	N
1	1	1	1	1	1	12	2	2	N	N	2	2	2	N

BolusArea

Bolus Area	File#	Time Of Grabbed			Bolus Area
1	0	2	2	2	0.3
2	2	1	1	1	0.3
3	1	1	1	1	0.2

submit



Then the page will redirect to the test list page. And you will see that the information for this experiment has updated and it shows that P1, P2 and BA's record have been reviewed by a reviewer whose id is 3.

(PS. Since the test list is based on a view that joins lots of table, when new information is input into database, it will need some time to update the test list. So please be patient and wait until the page redirects to the test list page.)

test_date	Mouse#	DOB	Sex	R1.P1	R1.P2	R1.BA	R2.P1	R2.P2	R2.BA	Consensus
1234-05-02	H601	2014-03-27	Male	3	3	3				NO

c. For reviewer 2

If another reviewer reviews the same video, a label of "R2" will be assigned to this reviewer. Again, by clicking the "Details" button, the reviewer can go to the data collection page. The second reviewer can not see the first reviewer's record except for the file number for the experiment that the first reviewer has already written. This design helps to reduce bias.

Mouse#	DOB	Sex	R1.P1	R1.P2	R1.BA	R2.P1	R2.P2	R2.BA	Consensus	Choose
301	2014-03-27	Male	3	3	3				NO	Details

This time, the reviewer only needs to choose their name and review date in the basic information part.

Basic Information



Test Date: 1234-05-02
Test Mouse: H601
Reviewer: -- Observer --
Review Date: mm/dd/yyyy

Position1

Frame	2nd Swallow onset				Jaw cycle per swallow	2sec from swallow onset				Swallow per 2sec	Lick onset Frame				Lick end Frame	Jaw cycle
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Position 2

T start Frame	PTT end Frame				ETT end Frame	Pharyngeal Residue	Esophageal Residue	2nd Swallow start Frame				Esoph Emptying Prior To 2nd Swallow	Number Of Swallow To Clear Esophagus	Swallow Inhibition
1	1	1	1	1	1	N	N	1	1	1	1	N	1	N
1	1	1	1	1	1	N	N	1	1	1	1	N	1	N
1	1	1	1	1	1	N	N	1	1	1	1	N	1	N
1	1	1	1	1	1	N	N	1	1	1	1	N	1	N

BolusArea

Boulus Area	File#	Time Of Grabbed				Bolus Area
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	1	1	1	1	1	1

submit



The page at cs4380-group3.centralus.cloudapp.azure.com says:
submitted!

OK

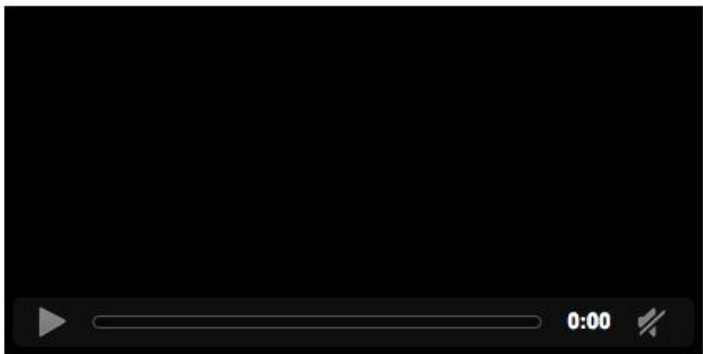
After the second reviewer has viewed the video and has submitted the recorded raw data, the page will redirect to the test list again. The information of R2 will update accordingly. The second reviewer's id shown on the check list.

test_date ▲	Mouse# ▼	DOB ▼	Sex ▼	R1.P1 ▼	R1.P2 ▼	R1.BA ▼	R2.P1 ▼	R2.P2 ▼	R2.BA ▼	Consensus
1234-05-02	H601	2014-03-27	Male	3	3	3	4	4	4	NO

d. For consensus member

Consensus members are different from student reviewers. Consensus member need to input some basic information of the experiment.

Basic Information



Test Date: 1234-05-02

Test Mouse: H601

Consensus Member: Teresa Lever ▼

Review Date: 05/10/2016

Mouse Weight: 234

Mouse Age: 324

The consensus member can see the first and second reviewers' records. If there is large discrepancy between them, the consensus field will be empty and the consensus member will need to re-record the data. If the records are equal, the consensus field will be filled with the same value and the consensus member does not need to do further changes.

For bolus area, consensus member can see the average bolus area recorded by the first and second reviewers.

Position1

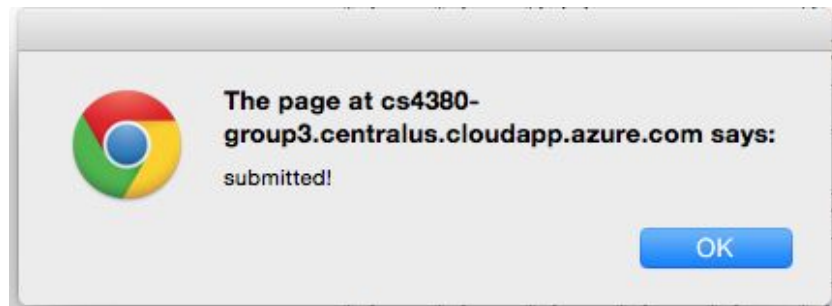
Trail#	Reviewer	Swallow onset Frame	PTT end Frame	2nd Swallow onset	Jaw cycle per swallow	2sec from swallow onset	Swallow per 2sec	Lick onset Frame
1	R1	1:1.1	1:1.1	1:1.1	1	1:1.1	1	1:1.1
1	R2	1:1.1	1:1.1	1:1.1	1	1:1.1	1	1:1.1
1	C	1:1.1	1:1.1	1:1.1	1	1:1.1	1	1:1.1
2	R1	1:1.1	1:1.1	2:2.2	2	2:2.2	2	2:21.1
2	R2	1:1.1	1:1.1	1:1.1	1	1:1.1	1	1:1.1
2	C	1:1.1	1:1.1					
3	R1	1:1.1	1:1.1	2:2.2	2	2:2.2	2	2:21.1
3	R2	1:1.1	1:1.1	1:1.1	1	1:1.1	1	1:1.1
3	C	1:1.1	1:1.1					
4	R1	1:1.1	1:1.1	1:1.1	1	1:1.1	1	1:1.1
4	R2	1:1.1	1:1.1	1:1.1	1	1:1.1	1	1:1.1
4	C	1:1.1		1:1.1	1	1:1.1	1	1:1.1
5	R1	1:1.1	1:1.1	1:1.1	1	1:1.12	2	2:2.2
5	R2	1:1.1	1:1.1	1:1.1	1	1:1.1	1	1:1.1
5	C	1:1.1	1:1.1	1:1.1	1			

Position1

Frame	2nd Swallow onset	Jaw cycle per swallow	2sec from swallow onset	Swallow per 2sec	Lick onset Frame	Lick end Frame	Jaw cycle
	1:1.1	1	1:1.1	1	1:1.1	1:1.1	1
	1:1.1	1	1:1.1	1	1:1.1	1:1.1	1
	1:1.1	1	1:1.1	1	1:1.1	1:1.1	1
	2:2.2	2	2:2.2	2	2:21.1	1:1.1	1
	1:1.1	1	1:1.1	1	1:1.1	1:1.1	1
	1 1 1	1	1 1 1	1	1 1 1	1:1.1	1
	2:2.2	2	2:2.2	2	2:21.1	1:1.1	1
	1:1.1	1	1:1.1	1	1:1.1	1:1.1	1
	1 1 1	1	1 1 1	1	1 1 1	1:1.1	1
	1:1.1	1	1:1.1	1	1:1.1	1:1.1	1
	1:1.1	1	1:1.1	1	1:1.1	1:1.1	1
1	1:1.1	1	1:1.1	1	1:1.1	1:1.1	1
	1:1.1	1	1:1.12	2	2:2.2	2:2.22	2
	1:1.1	1	1:1.1	1	1:1.1	1:1.1	1
	1:1.1	1	1 1 1	1	1 1 1	1 1 1	1

BolusArea

Trail#	Reviewer	Time Of Grabbed	Bolus Area
1	R1	2:2.2	0.3
1	R2	1:1.1	1
Trail1 Average			0.65
2	R1	1:1.1	0.3
2	R2	1:1.1	0.3
Trail2 Average			0.3
3	R1	1:1.1	0.2
3	R2	1:1.1	1
Trail3 Average			0.6
Bolus Area Average			0.516666666666667

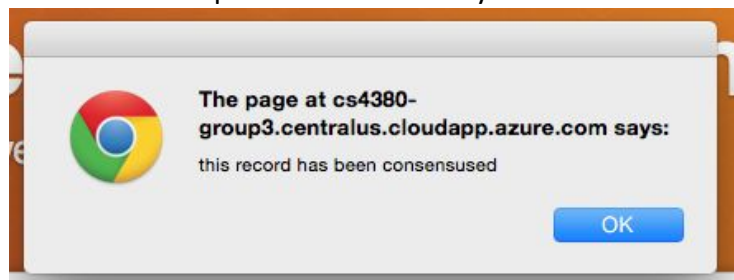


After clicking submit button, you will be redirected to test list page and see the consensus has become into 'YES'.

Mouse#	DOB	Sex	R1.P1	R1.P2	R1.BA	R2.P1	R2.P2	R2.BA	Consensus	Choose
301	2014-03-27	Male	3	3	3	4	4	4	YES	<button>Details</button>

- e. For experiments that have already be consented

If the "consensus" has the value of 'YES' and you click the details button, it will alert that the experiment has already been consented.



6. Data Management

This page is for experiment settings management.

Dr. Lever and Kate have privileges to add genotype, phenotype, colony, mouse information, treatment, surgery, supervisor and student information.

Other users can only see the experiment settings but cannot make any changes.

- The following screenshot is captured under Dr. Lever's account. Note that she can add, edit and delete information.

▼ Experiment Detail Information

In this page, you can check all the information related to our research.

In addition, you can add new experiment information if needed for future research.

From this page, you can check the genotype, phenotype,colony,tester(students and supervisors)

Also, if new test subjects introduced into the lab, please add information below in 'Mouse' menue

Genotype information:

Phenotype information:

Colony information:

Test subject information:

▶ Genotype

▶ Phenotype

▶ Colony

▶ Mouse

▶ Treatment

▶ Surgery

▶ Tester-supervisor

▶ Tester-student

Genotype					
ID	Name	Description	Action		Delete
1	C57	C57	Edit	Save	Delete
2	HCN_SOD1	HCN_SOD1	Edit	Save	Delete
3	Serotonin	Serotonin	Edit	Save	Delete
4	LCN_SOD1	LCN_SOD1	Edit	Save	Delete
5	Control_HCN	Control_HCN	Edit	Save	Delete
6	Control_LCN	Control_LCN	Edit	Save	Delete
Add New Genotype					

Genotype Name:

Genotype Description:

- The following screenshot is captured under Peng's account (student account). Note that he can view the information.

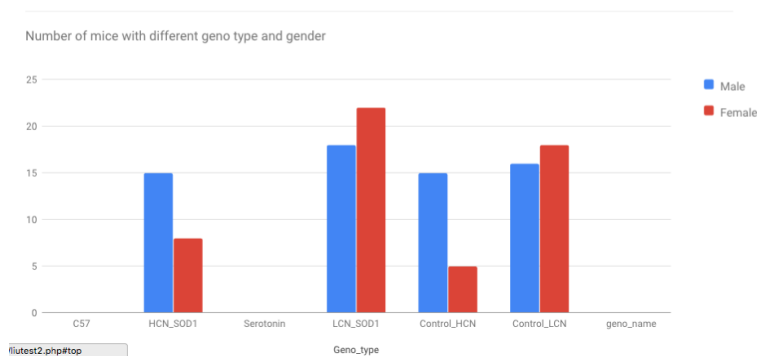
Experiment Detail Information		
Genotype		
ID	Name	Description
1	C57	C57
2	HCN_SOD1	HCN_SOD1
3	Serotonin	Serotonin
4	LCN_SOD1	LCN_SOD1
5	Control_HCN	Control_HCN
6	Control_LCN	Control_LCN

7. Data Analytics

We support five types of data analytics for the experiment.

- For each genotype, compare the number of male and female subjects:

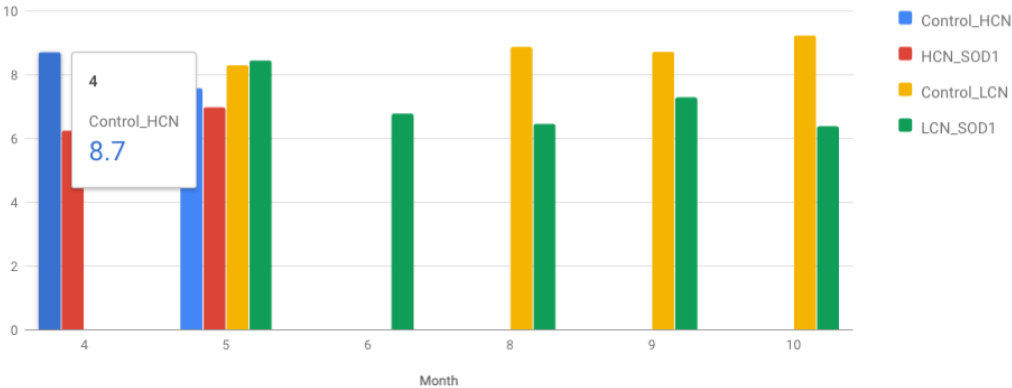
Analysis



- Average jaw rate of mice with different genotype and age

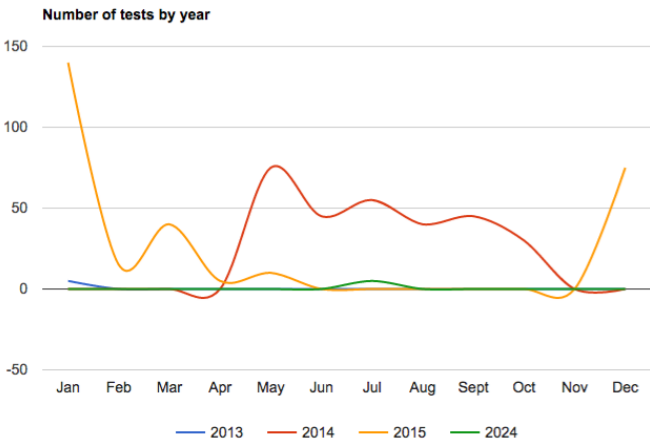
Analysis

Average Jawrate of mice with different geno type and age



- Time series analysis: number of tests by year and month

Analysis

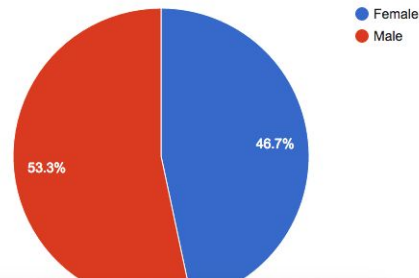


- Gender distribution

Analysis

Female	Gender	56	Count
Male	Gender	64	Count

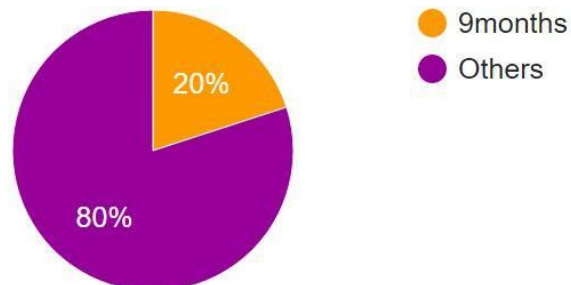
Gender Distribution



- Number of mice tested in different periods

Analysis

How Much Mice have tested in different periods



All visualizations are interactive.

8. Logout and contact

User can logout by clicking the logout button on upper right of the top banner. By clicking the send email button, you can send an email to Dr. Lever.

[Logout](#) [User Manual](#)

School of Medicine--Otolaryngology
Teresa Lever, PhD Assistant Professor

[Send Mail](#)