

PEROTIMES



UNIVERSITY OF
SOUTH CAROLINA

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THE NEWSLETTER OF THE PEROMYSCUS GENETIC STOCK CENTER

Editorial

Dear *Peromyscus* users,

Welcome to the latest issue of *Perotimes*, the newsletter of the Peromyscus Genetic Stock Center of the UofSC.

Last year was an exciting year for the Center.

A new 3-year grant from the NSF in 2018 will be supporting the PGSC until 2021. We know that we had strong advocates among our users for the NSF support we received and we thank you all for that!

In addition, with this grant we will be performing genomic analyses to evaluate the genetic diversity of our stocks. We will be also performing some histological analyses to compare different tissues

in the various species we maintain. Results from both studies will be published and communicated to you through our site.

In 2018 we cumulatively provided about 1500 animals. The “best sellers” were *P. leucopus* and *P. maniculatus*, followed by *P. californicus* and *P. polionotus*. Users were primarily academic investigators, as well as government agencies and companies from the private sector. A snapshot of the users’ profile is shown in this Newsletter.

In May 2018 we also hosted the 1st *Peromyscus* Symposium in Columbia SC at UofSC. With this Symposium we tried to bring together *Peromyscus* investigators from different disciplines to enhance *Peromyscus*-associated research and strengthen the ties between the members of the *Peromyscus* community. This was an endeavor that was supported exclusively by the

Center and the participants, without any support from external or internal funds. Yet, it was highly successful and only the lack of manpower from our side to support it will not allow us to organize it every year. We however plan to host it again in 2020 and at that time we will try to secure external support as well. To that end, interested investigators that would like to be involved in its organization should contact us.

From this issue and onwards we decided not to provide recent papers on *Peromyscus* as the list of such papers becomes longer and longer and is readily accessible to interested investigators online.

As always we remain open to your suggestions, feedback and ideas.

Hippokratis Kiaris hk@sc.edu
Professor and PGSC Director



May 2018 Symposium

Peromyscus Genetic Stock Center May 2018 Symposium

Peromyscus Genetic Stock Center



May 2018 Symposium



Peromyscus Genetic Stock Center May 2018 Symposium



Program Wednesday May 30

Venue: Inn at USC, Carolina Room

8:00-9:00 Coffee and Registration

Morning Session I. Moderator H. Kiaris, University of South Carolina, Columbia, SC

9:00-9:10 **Welcome and Introduction**
Hippokratris Kiaris PhD, Director, PGSC, University of South Carolina, Columbia, SC

9:10-9:15 **Welcome note**
Stephen J. Cutler PhD, Dean, College of Pharmacy, University of South Carolina, Columbia, SC

9:15-10:00 **Genomics and global expression profiling of Peromyscus leucopus**
Alan Barbour MD, PhD, University of California at Irvine, CA

10:00-10:30 **Natural host restriction of the tick-borne flaviviruses**
Travis Taylor PhD, University of Toledo College of Medicine and Life Sciences, Toledo, OH

10:30-11:00 **Coffee & Poster Viewing**

Morning Session II. Moderator Alan Barbour MD, PhD, University of California at Irvine, CA

11:00-11:45 **Life history trade-offs within the context of mitochondrial hormesis**
Wendy Hood PhD, Auburn University, Auburn AL

11:45-12:15 **Growth of human breast tumors in Peromyscus**
Ioulia Chatzistamou MD, PhD, University of South Carolina, Columbia, SC

12:15-12:35 **Uncovering UPR-mediated Diseases Using ATAC-seq**
Matthew Lucius, University of South Carolina, Columbia, SC

12:35-12:40 **Dietary stress and mitochondrial performance following reproduction (P)**
Victoria Andreasen, Auburn University, Auburn AL

12:40-14:00 **Lunch (Palmetto Room)**

14:15-15:30 **Visit at the Peromyscus facility**
Vimala Kaza MSc, Colony Manager, PGSC, University of South Carolina, Columbia, SC

Evening Session I. Moderator David Kass PhD, Eastern Michigan University, Ypsilanti, MI

15:45-16:15 **Peromyscus Veterinary Care and Husbandry**
Shayne Barlow DVM, PhD, Attending Veterinarian and Director, Department of Laboratory Animal Resources, University of South Carolina, Columbia, SC

16:15-16:45 **Use of P. maniculatus x P. polionotus hybrids in genetic analysis**
Michael R. Felder, PhD, University of South Carolina, Columbia, SC

16:45-16:50 **Life-history trade-offs and ROS and ER stress interaction in the brain (P)**
Hallie Taylor, Auburn University, Auburn AL

18:30 **Dinner**

Thursday May 31

8:00-9:00 **Coffee**

Morning Session III. Moderator David Threadgill, PhD, Texas A&M University, College Station, TX

9:00-9:45 **Comprehensive Analysis of Peromyscus Retrotransposons**
David Kass PhD, Eastern Michigan University, Ypsilanti, MI

9:45-10:15 **Characterization of the Peromyscus maniculatus mutation Dominant Spot**
Shannon Davis, PhD, University of South Carolina, Columbia, SC

10:15-10:35 **Polymorphism analysis of promoter regions of UPR-associated genes in P. maniculatus**
Elena Farmaki PhD, University of South Carolina, Columbia, SC

10:35-10:40 **Measuring reproductive performance in Peromyscus in a natural context (P)**
Shelby Zikeli, Auburn University, Auburn AL

10:40-11:30 **Coffee break and Poster Viewing**

Morning Session IV. Moderator Matina Kalcounis-Rueppell, PhD, Univ. of North Carolina at Greensboro, Greensboro, NC

11:30-12:00 **UPR Profiles in Deer Mice and Correlation with Disease**
Amanda Havighorst MSc, University of South Carolina, Columbia, SC

12:00-12:05 **Coordination of the Unfolded Protein Response in P. maniculatus (P)**
Youwen Zhang, University of South Carolina, Columbia, SC

12:05-12:10 **ER stress and cold adaptation (P)**
Elham Soltanmohamadi, University of South Carolina, Columbia, SC

12:10-12:40 **Obesogen-Driven Metabolic Disorders Necessitate Peromyscus Model Study**
Demetri Spyropoulos PhD, Medical University of South Carolina, Charleston, SC

12:40-14:00 **Lunch (Palmetto Room)**

Evening Session II. Moderator Wendy Hood PhD, Auburn University, Auburn AL

14:00-14:30 **Peromyscus as a Model for the Study of Acoustic Communication**
Matina Kalcounis-Rueppell, PhD, Univ. of North Carolina at Greensboro, Greensboro, NC

14:30-15:00 **Genetically engineering P. maniculatus: development of induced pluripotent stem cells**
David Threadgill, PhD, Texas A&M University, College Station, TX

15:00-15:20 **Identify the stress threshold from adaption to apoptosis of ER-UPR**
Yifeng Du, PhD, Auburn University, Auburn AL

15:20-15:30 **Concluding Remarks**
Hippokratris Kiaris PhD, University of South Carolina, Columbia, SC

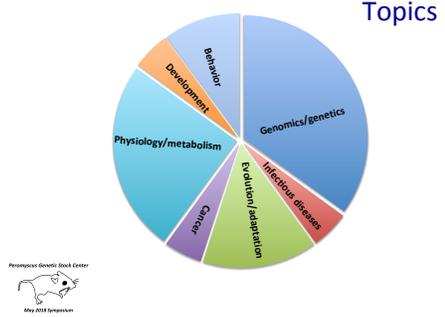
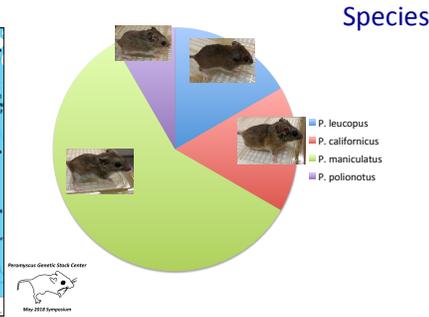
2nd Peromyscus Symposium

The 2nd Peromyscus Symposium in Columbia SC at the PGSC is planned for 2020.

Investigators interested in participating in its organization should contact us.

An Aspire grant on Peromyscus

Clin. Asst. Prof. **Ioulia Chatzistamou**, the Center's Pathologist was awarded an ASPIRE grant from the UofSC Office of Research to **study the anticancer activity of P. leucopus serum**. The study is based on results published recently in *Disease Models & Mechanisms* 2018 11: dmm031302 doi: 10.1242/dmm.031302



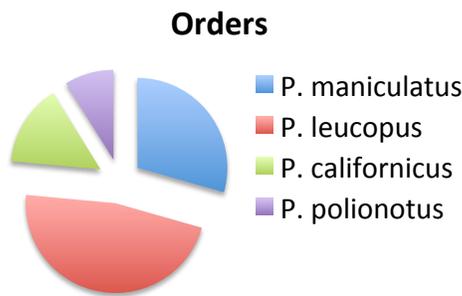
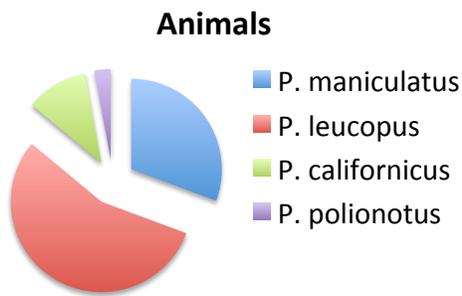
An opinion article in Trends in Genetics

The Director of the PGSC published recently a short article in Trends in Genetics on the unique aspects that characterize the operation of mammalian stock Centers. The abstract and title of this article are the following:

Support for Living Stock Collections: A Mammalian Stock Center Perspective

The living stock collections represent an indispensable resource for life scientists. Their uninterrupted operation should combine high quality standards, cost-effectiveness, wide accessibility, and sustainability. Mammalian stock collections, especially those involving diversified animals, face some unique challenges that may disrupt their smooth operation if not addressed.

Peromyscus utilization 2018

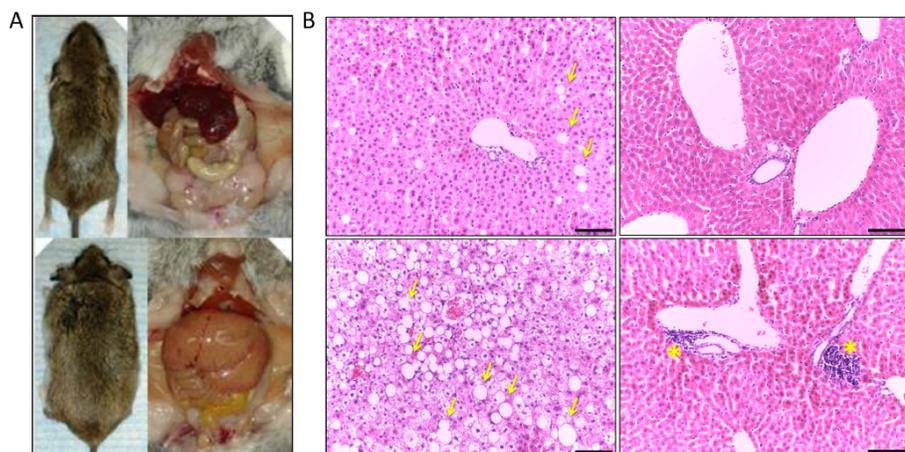


UofSC Discovery Day 2019



Hippokratis with graduate students (from left) Eliie, Amanda and Youwen presenting research on *Peromyscus* in UofSC Discovery Day 2019

Fatty liver disease and hepatic steatosis in *P. maniculatus*



From *Disease Models & Mechanisms* (2019) 12, dmm037242. doi:10.1242/dmm.037242

Aged *Peromyscus*

Occasionally we have available aged animals (retired breeders) from all stocks we maintain. If you want access to these animals contact us.

Peromyscus Genetic Stock Center

Hippokratis Kiaris PhD Director
Shayne Barlow DVM, PhD,
DACLAM
Director of Animal Resources and
Attending Veterinarian
Ioulia Chatzistamou MD, PhD,
Pathologist, Director of
Histopathology Service
Vimala Kaza MSc, Colony Manager

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State University
Lisa Krugner-Higby, University of
Wisconsin – Madison
David W. Threadgill, Texas A&M
University
S. Randal Voss, University of
Kentucky

Why *Peromyscus* from PGSC

PGSC is the only *Peromyscus* Center in the US and indeed the in world

PGSC maintains and can supply truly outbred animals from a number of different species reflecting naturally occurring wild type populations

All animals are pedigreed and can be traced back to the time that the populations had been established in captivity

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NEWS AND NOTES

NOTICE

Perotimes, the PGSC newsletter is not a formal scientific publication. Therefore, information and data should not be cited or used without permission of the contributor.

PERO-RESEARCHERS

PIs are welcome to indicate postdocs and graduate students that recently published on *Peromyscus* or defended a Thesis, in order to promote their work in *Perotimes*.

Grant applications

The PGSC will be happy to assist you in your grant proposals by providing quotes that will help you justify your budget as well as letters for the availability of specific stocks.

e-mailing list

If you want to be included in our email list and receive future *Perotimes* editions, email Vimala Kaza at Kaza@mailbox.sc.edu