

MitoCare 2017

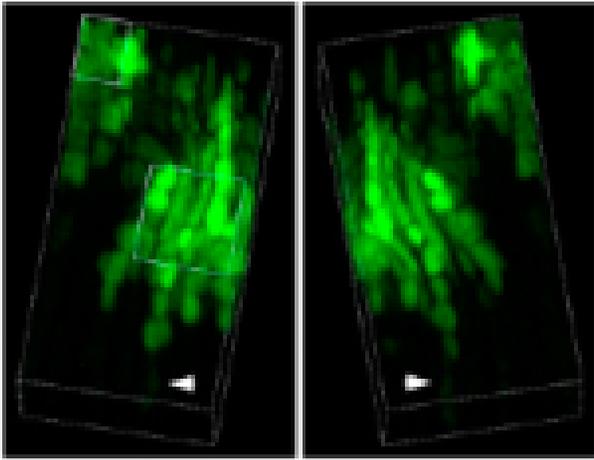


Mito Circle Journal Club Presentations 2017

Jan 9	Steve Hurst	Shanmughapriya et al. 2015 <i>Mol Cell</i> . SPG7 Is an Essential and Conserved Component of the Mitochondrial Permeability Transition Pore.
March 13	Dave Booth	Friedman et al. 2015. MICOS coordinates with respiratory complexes and lipids to establish mitochondrial inner membrane architecture. <i>Elife</i> .
March 27	Mate Katona	Nissim et al. 2017. Mitochondria control store-operated Ca ²⁺ entry through Na ⁺ and redox signals. <i>EMBOJ</i> . PMID: 28219928
Apr 10	Erin Seifert	Marin et al. 2017. AMPK promotes mitochondrial biogenesis and function by phosphorylating the epigenetic factors DNMT1, RBBP7, and HAT1. <i>Sci Signaling</i> .
Apr 24	Gyuri Hajnoczky	Stoica et al. 2016. ALS/FTD-associated FUS activates GSK-3 β to disrupt the VAPB-PTIP51 interaction and ER-mitochondria associations. <i>EMBO Rep</i> .
May 8	Yuenxing Yuan	Konig et al. 2016. The m-AAA Protease Associated with Neurodegeneration Limits MCU Activity in Mitochondria. <i>Mol Cell</i> .
June 5	Rafaela Bagur	Dong et al. 2017. Mitochondrial Ca ²⁺ Uniporter Is a Mitochondrial Luminal Redox Sensor that Augments MCU Channel Activity. <i>Mol Cell</i> .
June 19	Gyuri Csordas	Hung et al. 2017. Proteomic mapping of cytosol-facing outer mitochondrial and ER membranes in living human cells by proximity biotinylation. <i>Elife</i> .
Sep 18	Adam Bartok	Kamer et al. 2017. High-affinity cooperative Ca ²⁺ binding by MICU1-MICU2 serves as an on-off switch for the uniporter. <i>EMBO Rep</i> .
Sep 25	Zuzana Nichtova	Wu et al. 2017. Contacts between the endoplasmic reticulum and other membranes in neurons. <i>PNAS</i> .
Oct. 9	Vale De Battisti	Horn et al. 2017. Mitochondrial redox signaling enables repair of injured skeletal muscle cells. <i>Sci Signal</i> .
Oct 23	Sergio De la Fuente	Arduino et al. 2017. Systematic Identification of MCU Modulators by Orthogonal Interspecies Chemical Screening. <i>Mol Cell</i> .
Nov 6	Marina Balycheva	Franco et al. 2016. Correcting mitochondrial fusion by manipulating mitofusin conformations. <i>Nature</i> . PMID: 27775718
Nov 20	Shi Pan	Morita et al. 2017. mTOR Controls Mitochondrial Dynamics and Cell Survival via MTFP1. <i>Mol Cell</i> .
Dec 4	Shamim Naghdi	Hosoi et al. 2017. The VDAC2-BAK axis regulates peroxisomal membrane permeability. <i>J Cell Biol</i> .

Celebrating Jan's 75th Birthday!!!!





Surprisingly dynamic mitochondria under control by calcium in the heart

[Increased mitochondrial nanotunneling activity, induced by calcium imbalance, affects intermitochondrial matrix exchanges.](#)

Lavorato M, Iyer VR, Dewight W, Cupo RR, Debattisti V, Gomez L, De la Fuente S, Zhao YT, Valdivia HH, Hajnóczky G, Franzini-Armstrong C.

Proc Natl Acad Sci U S A. 2017 Jan 31;114(5):E849-E858. doi: 10.1073/pnas.1617788113. Epub 2017 Jan 17.

PMID: 28096415 [Free PMC Article](#)

[Mitochondrial fusion dynamics is robust in the heart and depends on calcium oscillations and contractile activity.](#)

Eisner V, Cupo RR, Gao E, Csordás G, Slovinsky WS, Paillard M, Cheng L, Ibeti J, Chen SR, Chuprun JK, Hoek JB, Koch WJ, Hajnóczky G.

Proc Natl Acad Sci U S A. 2017 Jan 31;114(5):E859-E868. doi: 10.1073/pnas.1617288114. Epub 2017 Jan 17.

PMID: 28096338 [Free PMC Article](#)

MitoCircle Seminar Series

MitoCare Center for Mitochondrial Imaging Research and Diagnostics
Department of Pathology, Anatomy and Cell Biology
Thomas Jefferson University

Seminar Location: Jefferson Alumni Hall Suite 827, 1020 Locust Street
Time: 3:30 – 5:00 PM

Winter/Spring 2017 Speakers

- Thursday, February 16 **Ildona Rigoutsos, Ph.D., Professor and Director of the Computational Medicine Center, Department of Pathology, Anatomy and Cell Biology, Thomas Jefferson University**
Title: "tRNA fragments across different cancers"
- Thursday, April 20 **Robert Balaban, Ph.D., Scientific Director of the Division of Intramural Research and Head of the NHLBI Laboratory of Cardiac Energetics, National Heart, Lung, & Blood Institute, NIH.**
Title: "The Muscle Cell Mitochondria Reticulum"
** Note special time: 11:00 AM **
- Thursday, May 18 **Kathryn Wallon, Ph.D., Assistant Professor, Department of Cancer Biology, University of Pennsylvania**
Title: "Acetyl-CoA at the crossroads of metabolism and epigenetics"
- Thursday, June 7 **David Yale, Ph.D., Professor, Department of Pharmacology and Physiology, University of Rochester Medical Center**
Title: "insight into Inositol 1,4,5 triphosphate receptor function by playing LEGO with the subunits"

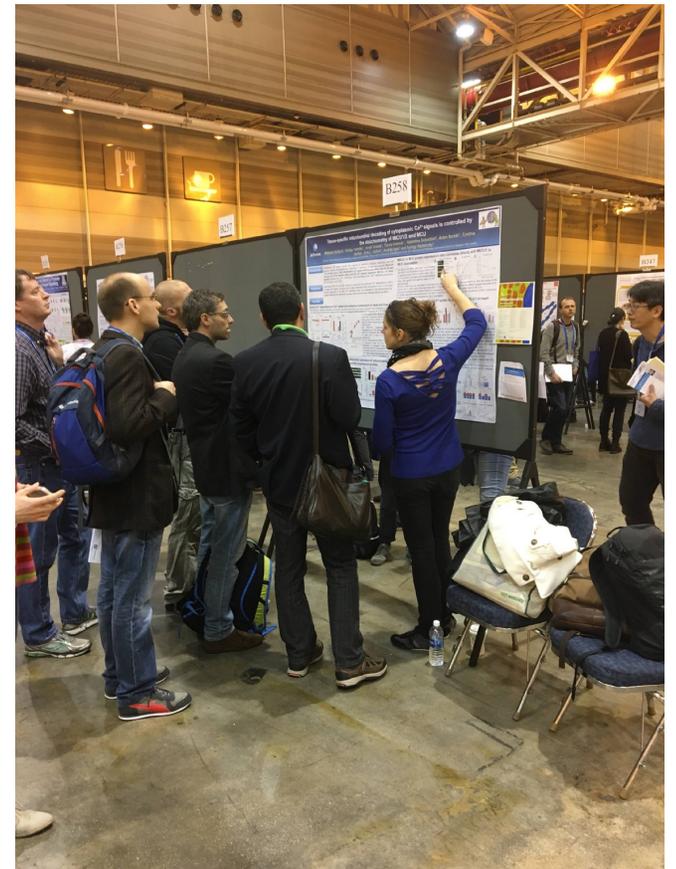
Biophysical Society Meeting in New Orleans



Veronica, Carlos & Melanie with the crew



A sunny lunchbreak next to the Convention Center



Poster session on the last day



Full attention to Arsenic
and the NIEHS R33 grant



DENIED: H1b
Foreign scientists help
make America great!

DONT WAIT
UNTIL SOMEONE
YOU LOVE
GETS CANCER
TO FUND
RESEARCH

We
Are
Part of
the
SOLUTION

Mitigation
Powerhouse

SCIENCE.
BECAUSE YOU
CANT JUST
MAKE SHIT UP

The **WAR**
on **SCIENCE**
IS NOT
HEALTHY

**PROTECT
OUR
PLANET!**

- BREATHE AIR
- DRINK WATER

Elitist?
**No - I just
STUDY**

SCIENCE
is basically
an
INOCULATION
against
CHARLATANS
~Neil deGrasse Tyson

MAKE
AMERICA
SMART

THE GOOD THING
ABOUT SCIENCE
IS THAT ITS TRUE
WHETHER OR NOT
YOU BELIEVE IN IT



Melting Your Energy Needs
Since 2,000,000,000 BC

SCIENCE IS SO
hot: it denatures
my proteins

MitCare

MY IN AN
HUSBAND
IS SAVING
YOUR LIFE

CLIMATE
CHANGE
IS
REAL

MARCH FOR SCIENCE
EARTH DAY
APRIL 22, 2017

CELL
EBRATE
SCIENCE

SCIENCE ASSURES
the FUTURE

SCIENCE SAVES
LIVES

UNITED
by
NATURE
GUIDED
by
SCIENCE

SCIENCE
is NOT a
Liberal
Conspiracy!

**BASIC
RESEARCH
IS THE BEST
JOB CREATOR**

My Daughter
No Longer
has Cancer,
Because
SCIENCE!!!
Ellie, Age 8

**SCIENCE
CANNOT BE
SILENCED**

**MY INDIAN
HUSBAND
IS SAVING
YOUR LIFE**

SCIENCE:
FLEATS LIKE A
LEPIDOPTERA
STINGS LIKE A
HYMENOPTERA

...also in Santiago, Chile

**CIENCIA
ES
PROGRESO**

THINK LIKE
A PROTON
STAY POSITIVE

**THANK YOU
SCIENTISTS!**

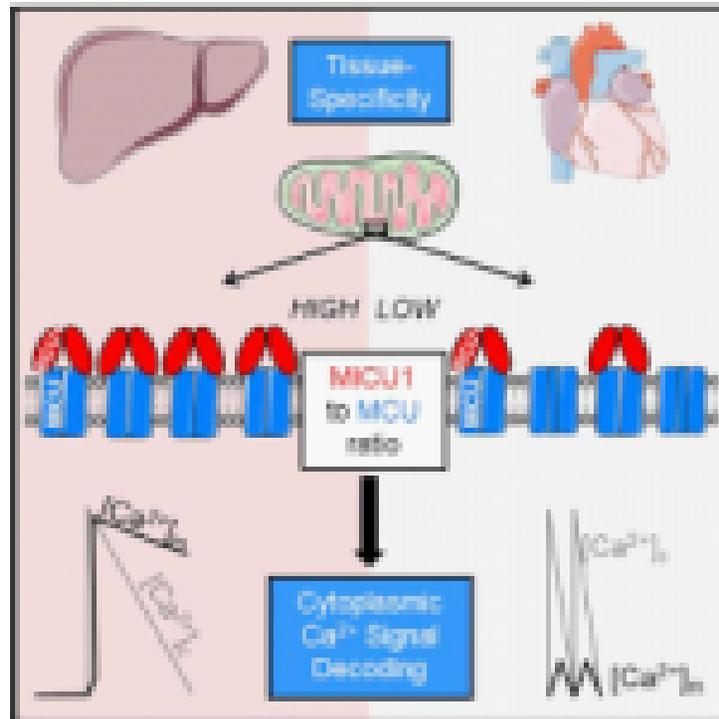
FOOD FOR MEDICINE
BUILDINGS ENERGY TRANSPORTATION
AND EVEN... WINE BEER

Didn't Die
Of an
Infection?
Thank a
Scientist!

Cell Reports

Tissue-Specific Mitochondrial Decoding of Cytoplasmic Ca^{2+} Signals Is Controlled by the Stoichiometry of MICU 1/2 and MCU

Graphical Abstract



Authors

Melanie Pallard, Gyöngy Csordás, Gergő Szondi, ..., Eric L. Sifert, Andrius Spill, Gyöngy Hajnóczky

Correspondence

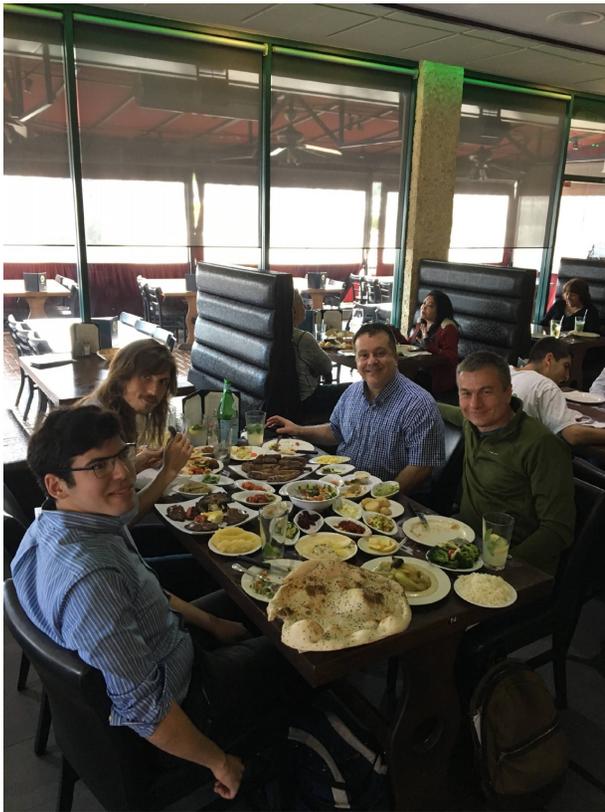
gyorgy.hajnoczky@jefferson.edu

In Brief

Pallard et al. report that the relative abundance of the pore-forming protein of the mitochondrial Ca^{2+} uniporter (MCU) and its Ca^{2+} -sensing regulator (MICU1) define the proportion of MCU complexes with or without MICU1. This ratio is central to programming tissue-specific mitochondrial Ca^{2+} uptake phenotypes in the heart and liver.

Orian with Xingguo and extraordinary food

March



April



June



A statement Erin waited for so long.
And she received 3 like this in 2017!

RESEARCH
Department of Health and Human Services
National Institutes of Health

Notice of Award
Federal Award Date: 06/15/2017

NATIONAL INSTITUTE OF DIABETES AND DIGESTIVE AND KIDNEY DISEASES

Grant Number: 1R01DK109100-01A1
FAIN: R01DK109100

Principal Investigator(s):
Erin Seifert, PHD

Project Title: Regulation of substrate metabolism in skeletal muscle by mitochondrial thioesterases

Ms. Johnston, Jeanmarie
Assistant to the Director
125 South 9th Street
Sheridan Bldg., 2nd Floor
Philadelphia, PA 191075125

Award e-mailed to: resadmin@jefferson.edu

Period Of Performance:
Budget Period: 07/01/2017 – 06/30/2018
Project Period: 07/01/2017 – 06/30/2021

Dear Business Official:

The National Institutes of Health hereby awards a grant in the amount of \$372,223 (see "Award Calculation" in Section I and "Terms and Conditions" in Section III) to THOMAS JEFFERSON UNIVERSITY in support of the above referenced project. This award is pursuant to the authority of 42 USC 241 42 CFR 52 and is subject to the requirements of this statute and regulation and other referenced, incorporated or attached terms and conditions.

Acceptance of this award including the "Terms and Conditions" is acknowledged by the grantee when funds are drawn down or otherwise obtained from the grant payment system.

Each publication, press release, or other document about research supported by an NIH award must include an acknowledgment of NIH award support and a disclaimer such as "Research reported in this publication was supported by the National Institute Of Diabetes And Digestive And Kidney Diseases of the National Institutes of Health under Award Number R01DK109100. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health." Prior to issuing a press release concerning the outcome of this research, please notify the NIH awarding IC in advance to allow for coordination.

Award recipients must promote objectivity in research by establishing standards that provide a reasonable expectation that the design, conduct and reporting of research funded under NIH awards will be free from bias resulting from an Investigator's Financial Conflict of Interest (FCOI), in accordance with the 2011 revised regulation at 42 CFR Part 50 Subpart F. The Institution shall submit all FCOI reports to the NIH through the eRA Commons FCOI Module. The regulation does not apply to Phase I Small Business Innovative Research (SBIR) and Small Business Technology Transfer (STTR) awards. Consult the NIH website <http://grants.nih.gov/grants/acoia/acoia.htm> for a link to the regulation and additional important information.

If you have any questions about this award, please contact the individual(s) referenced in Section IV.

Sincerely yours,

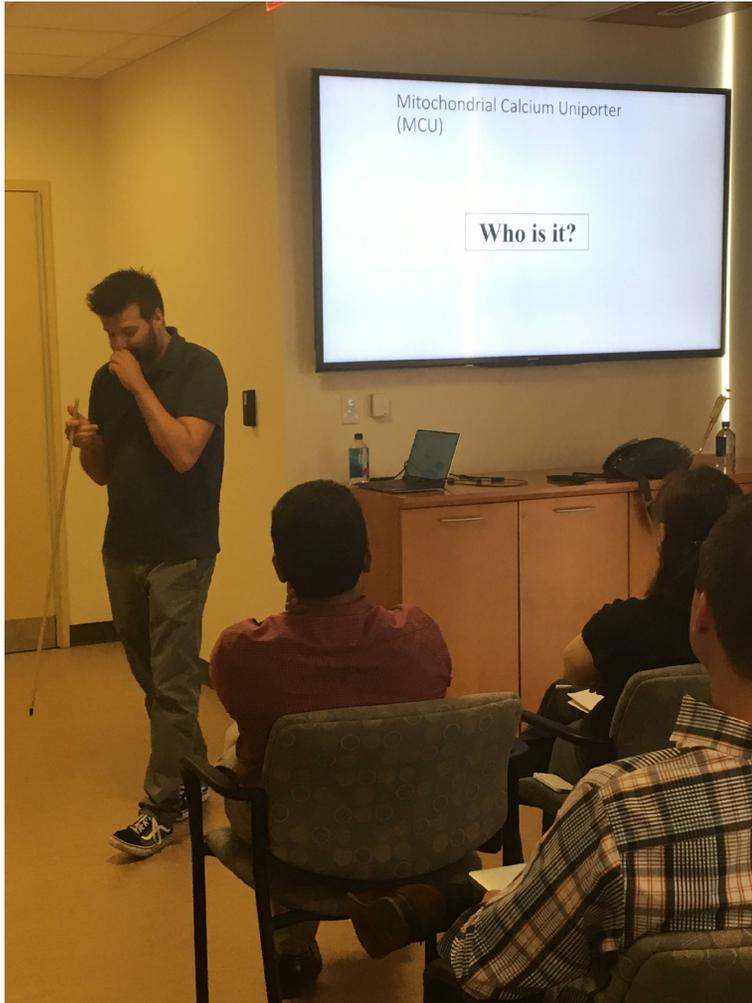
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NIDDK R 1 Form 11 06/2017 01/11/00 Copyright by NIDDK 12/16/11 004

1st NOA!
FROM NIH!

Raji and her husband visit MitoCare

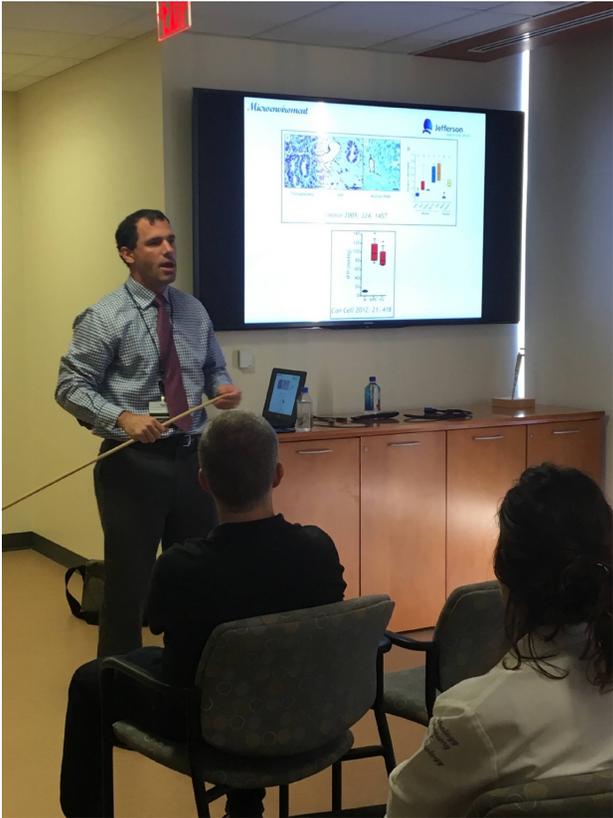




Diego De Stefani stops by at MitoCare

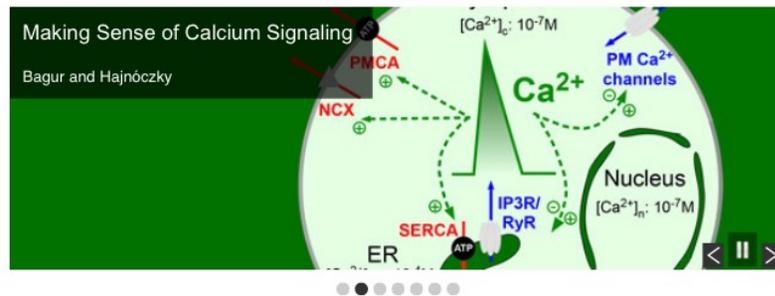


Jordan Winter at MitoCircle and Solar Eclipse



Jordan & Ryan's big moment





Special Review Issue: Mechanisms of Sensing

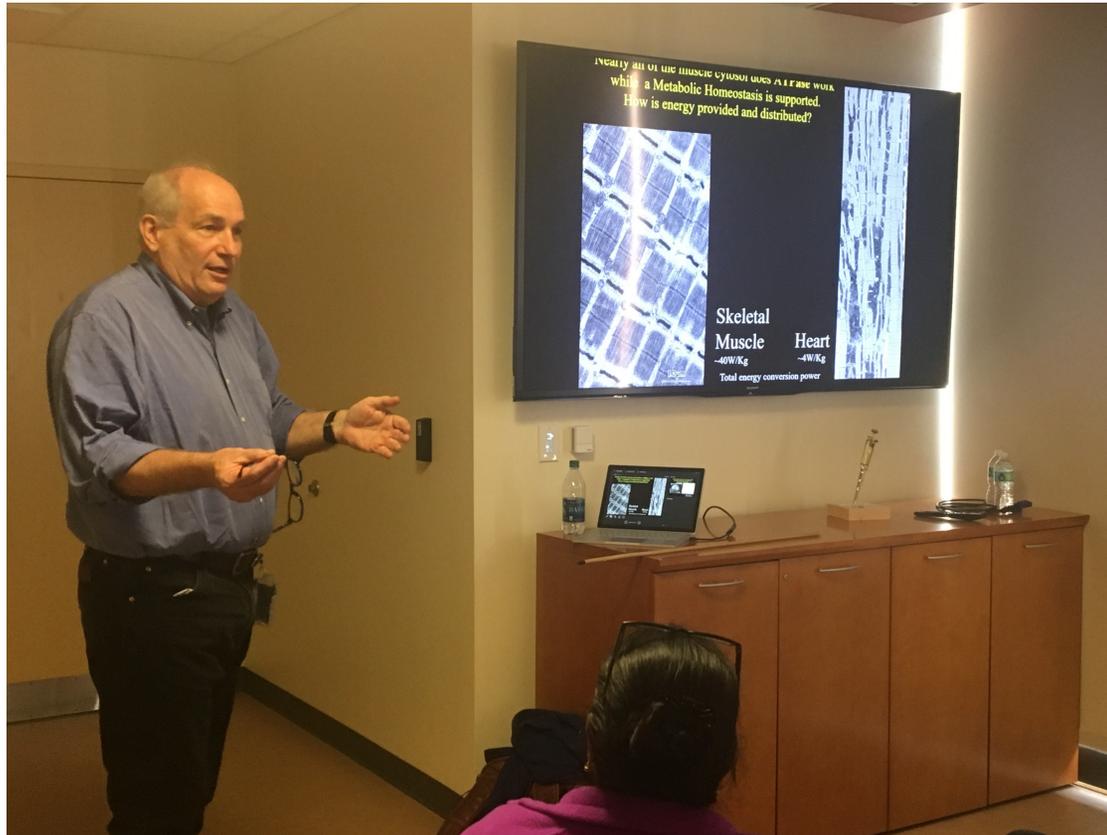
Cells respond in elaborate ways to cellular cues and stresses, and they rely on these responses to survive. But how do they sense those cues? If they are being attacked by microbes, or deprived of oxygen, or even if they're just a little hungry, how do they know? In this issue, we put together a group of articles that explore how cells sense their environment. The articles discuss how cells "see" and what they "say" in response to a variety of different situations. Together, the pieces show that sensing mechanisms are diverse and multi-layered, and that understanding them can provide a path toward treatment of many diseases.



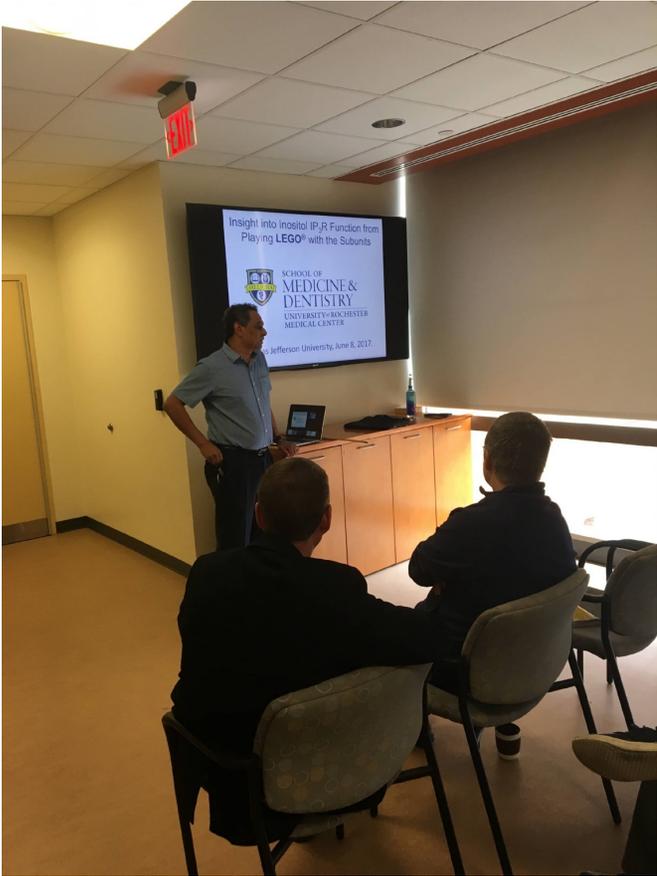
Stay Co



Bob Balaban & Tom Schwarz present at MitoCircle



David Yule presents at MitoCircle and also talks collaboration



Postdoctoral Research Conference

Adam and Dave B. earn award



The First MitoCare NIH program project submission



MSTO1 in papers and in the news



Semmelweis University

[Home](#) > [News](#) > New gene affecting the development of a rare disease identified

New gene affecting the development of a rare disease identified

Posted on December 4, 2017

A breakthrough has been made in a two-year research period by the identification of a gene responsible for the development of a rare neurological disease. Based on the paper published in **EMBO Molecular Medicine** Dr. Mária Judt Molnár, Director of the Department of Genomic Medicine and Rare Diseases and project leader said that the disease causes diverse neurological symptoms and its genetic background has not been revealed yet.



"The research operating within the framework of the National Brain Research Programme involved a mother and her two children. We discovered that the symptoms were caused by the defect of the MSTO1 gene which causes the developmental disorder of the central nervous system and muscular atrophy.", she said.

[MSTO1 is a cytoplasmic pro-mitochondrial fusion protein, whose mutation induces myopathy and ataxia in humans.](#)

Gal A, Balicza P, Weaver D, Naghdi S, Joseph SK, Várnai P, Gyuris T, Horváth A, Nagy L, Seifert EL, Molnar MJ, Hajnóczky G.

EMBO Mol Med. 2017 Jul;9(7):967-984. doi: 10.15252/emmm.201607058.

PMID: 28554942 [Free PMC Article](#)

[Recessive mutations in MSTO1 cause mitochondrial dynamics impairment, leading to myopathy and ataxia.](#)

Nasca A, Scotton C, Zaharieva I, Neri M, Selvatici R, Magnusson OT, Gal A, Weaver D, Rossi R, Armaroli A, Pane M, Phadke R, Sarkozy A, Muntoni F, Hughes I, Cecconi A, Hajnóczky G, Donati A, Mercuri E, Zeviani M, Ferlini A, Ghezzi D.

Hum Mutat. 2017 Aug;38(8):970-977. doi: 10.1002/humu.23262. Epub 2017 Jun 6.

PMID: 28544275 [Free PMC Article](#)

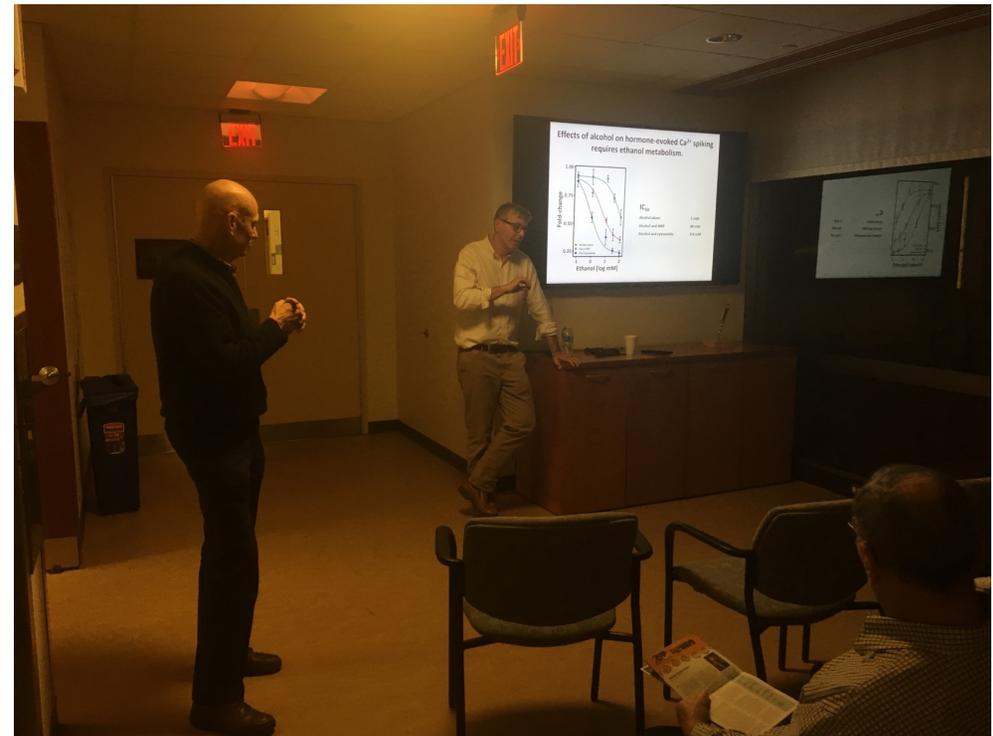


Melanie & Ludo in their new office in Lyon, France



Xingguo at a Cold Spring Harbor conference in Suzhou, China

Anthony Letai and Larry Gaspers recall their Philly roots at MitoCircle



Halloween





Ethan de la
Fuente
Miguel
starts early
with
mitochondria

The Wall



Pipette calibration time





MitCare

MitoCircle

MitCare Center for Mitochondrial Imaging Research and Diagnostics
 Department of Pathology, Anatomy and Cell Biology
 Thomas Jefferson University

Seminar Location: Jefferson Alumni Hall Suite 527, 1020 Locust Street

Autumn 2017 Speakers

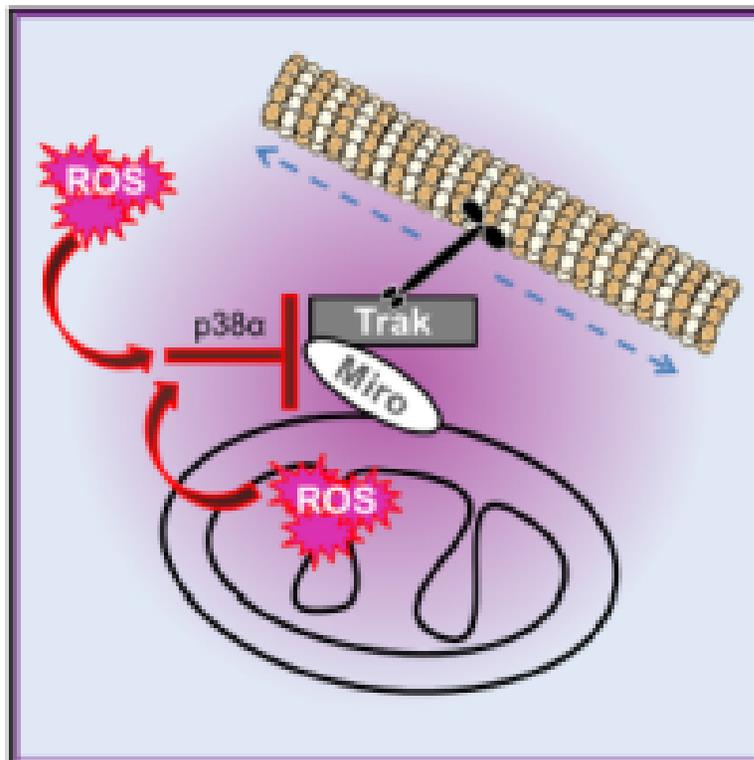
- Thursday, Aug. 10 Jordan Winer, M.D., Associate Professor, Dept. Surgery,
 Thomas Jefferson University
Title: "Does the RNA binding protein, HuR, regulate mitochondrial
 structure and function?"
 Time: 10:30 AM
- Monday, Aug. 14 Diego De Stefani, Ph.D., Assistant Professor, Dept. Biological
 Sciences, University of Padova, Italy
Title: "Calcium and Beyond: cation channels in the inner
 mitochondrial membrane"
 Time: 11:00 AM
- Thursday, Nov. 2 Anthony Letai, M.D., Ph.D. Professor, Dana Farber Cancer
 Institute, Harvard University
Title: "Mitochondria: windows on the soul of cancer"
 Time: 9:30 AM
- Monday, Nov. 27 Jared Rutter, Ph.D., Professor, Dept. of Biochemistry, University
 of Utah, and HHMI Investigator
Title: "Mitochondria, metabolism and cellular decisions: Entwined in
 health and disease"
 Time: 1:30 PM
- Monday, Dec. 4 Jennifer Lippincott-Schwartz, Ph.D., Group Leader, HHMI,
 Janelia Campus
Title: "Unraveling the spatial and temporal dynamics of subcellular
 organelles"
 Time: 4:00 PM

Contact: Erin Seifert, Ph.D.: Erin.Seifert@Jefferson.edu

Cell Reports

ROS Control Mitochondrial Motility through p38 and the Motor Adaptor Miro/Trak

Graphical Abstract



Authors

Valentina DeBattisti, Akos A. Gerencsér, Masao Saitome, Sudipto Das, György Hajnóczky

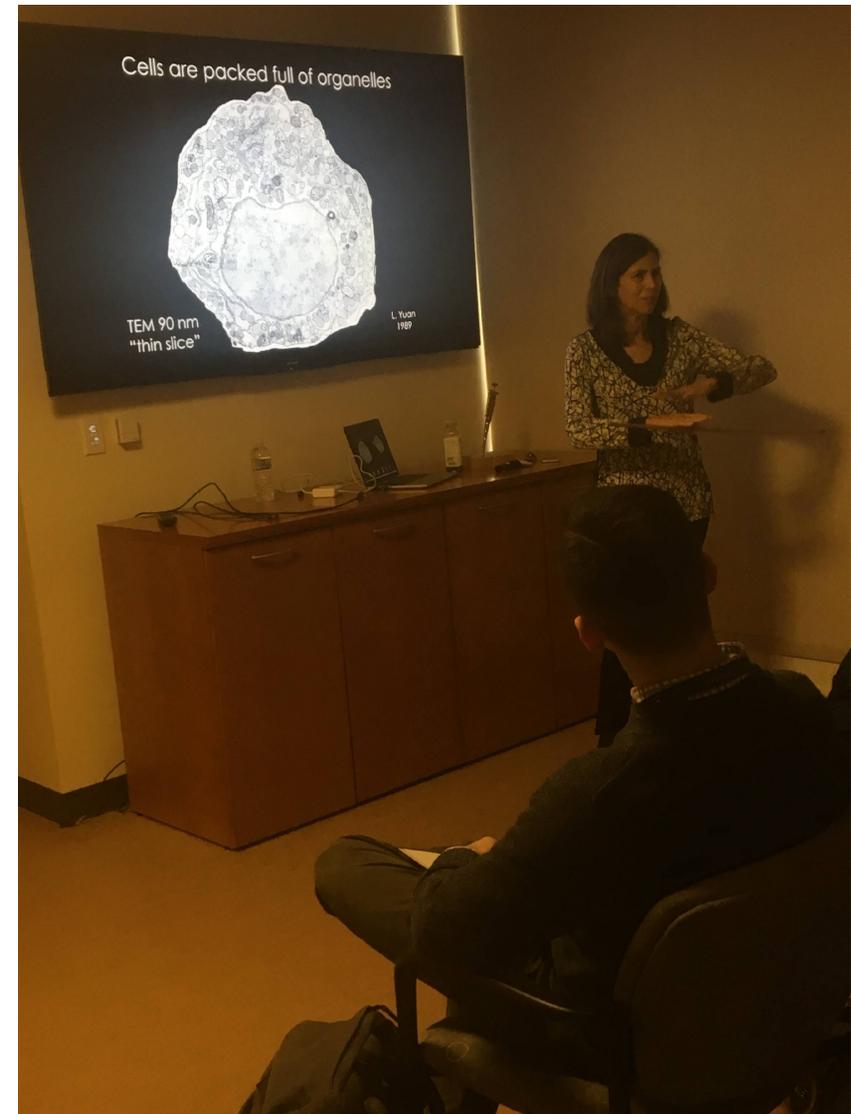
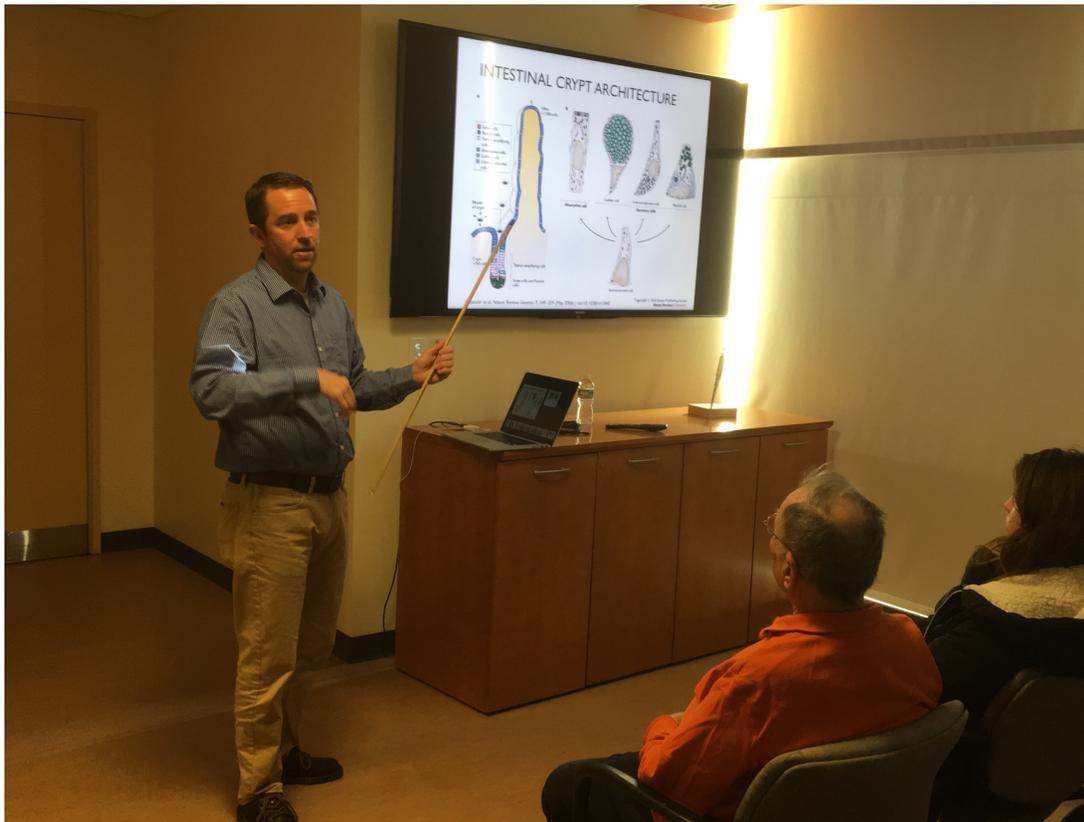
Correspondence

gyorgy.hajnoczky@jefferson.edu

In Brief

DeBattisti et al. examine how reactive oxygen species induce dose-dependent and reversible arrest of mitochondrial motility independently of $[Ca^{2+}]_i$ in two different mammalian models. The authors argue that ROS target the adaptor complex through p38 α to decrease mitochondrial movements.

MitoCircle: Jared Rutter & Jennifer Lippincott-Schwartz



Holiday Mystery



Holiday Party 2017



Happy and prosperous 2018 to All!