Ohio Physiological Society

33rd Annual Meeting

University of Cincinnati

September 28–29, 2018

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OPS2018 Program

Friday, September 28 *University of Cincinnati, Medical Campus–East* *CARE/Crawley Building and Medical Sciences Building* *Enter from 3230 Eden Avenue (opposite Eden Garage) or 231 Albert Sabin Way*	
2:00–5:00 pm	**Registration** *Atrium, CARE/Crawley Building*
4:00 pm	**Opening Remarks** *Kowalewski Auditorium, Kowalewski Hall, 3255 Eden Avenue* **Opening Remarks** Bryan Mackenzie, PhD *OPS President* **Welcome Address** Melanie Cushion, PhD *Senior Associate Dean, Research* *UC College of Medicine* **OPS2018 Keynote Address** Chair: Sakthivel Sadayappan, PhD MBA **Myocardial regeneration: Uncommon sense for common problems** Mark A Sussman, PhD *San Diego State University*
5:45 pm	**Reception** *Atrium, CARE/Crawley Building*
6:45 pm	**Banquet** *Kaplan Reception Hall, CARE/Crawley Building*

Saturday, September 29

University of Cincinnati, Medical Campus–East
CARE/Crawley Building and Medical Sciences Building
Enter from 3230 Eden Avenue (opposite Eden Garage) or 231 Albert Sabin Way

8:00–9:00 am	**Registration and Continental Breakfast** *Atrium, CARE/Crawley Building*
9:00 am	**Session 1** *Kowalewski Auditorium, Kowalewski Hall, 3255 Eden Avenue* **Welcome Comments** James P Herman, PhD *Chair, Department of Pharmacology & Systems Physiology* *UC College of Medicine* **Cardiovascular Physiology and Translational Science** Chairs: Sakthivel Sadayappan, PhD MBA and Jo El Schultz, PhD 1. Hydrogel mediated delivery of siRNA cocktail results in adult cardiomyocyte cell cycle re-entry and cardiac repair post-myocardial infarction Perwez Alam (*Postdoctoral Fellow*), Rafeeq PH Ahmed, and Onur Kanisicak | *University of Cincinnati* 2. m6A mRNA methylation is a novel regulator of cardiac homeostasis and hypertrophy Lisa E Dorn (*Graduate Student*), Jop H van Berlo, Chuan He, and Federica Accornero | *The Ohio State University* 3. Fibrinogen depletion attenuates angiotensin II-induced abdominal aortic aneurysm Hannah Russell (*Graduate Student*), Keith Saum, Alexandra C Sundermann, Shannon M Jones, Anders Wanhainen, Todd L Edwards, Lori A Holle, Alisa S Wolberg, Matthew J Flick, and A Phillip Owens | *University of Cincinnati* **Student Data Blitz 1** Azucenas, Conrad, Crocker, Emmert, Fershtman, Gawali, Hallak, Hanyu, Ho, Holokai, Hussein, Jahanpanah, Jones, Kim, Lakes, Murdock, Norman, Rakoczy, Ramesh, Rose, Sandella, Stogsdill, Thanekar, Tran
10:30 am	**Refreshments** *Atrium, CARE/Crawley Building*
10:45 am	**Poster Session 1** Presenters: Odd-numbered posters *Atrium, CARE/Crawley Building and Medical Sciences Building (Level E)*
12:00 pm	**Lunch** *Kaplan Reception Hall, CARE/Crawley Building*

1:00 pm	**Session 2** *Kowalewski Auditorium, Kowalewski Hall, 3255 Eden Avenue* **Metal Metabolism and Epithelial Transport** Chair: Christopher M Gillen, PhD 4. Zinc deficiency induces hypertension by promoting renal Na^+ reabsorption Clintoria R Williams (*Assistant Professor*), Monisha Mistry, Aswathy M Cheriyan, Jasmine M Williams, Meagan K Naraine, Carla L Ellis, Rickta Mallick, Abinish Mistry, Jennifer L Gooch, Benjamin Ko, and Robert S Hoover | *Wright State University* 5. Ablation of Na^+/H^+ exchanger-3 prevents iron loading in the Hfe mouse model of hereditary hemochromatosis Sydney L Stone (*Undergraduate Student*), T Alex Ruwe, John P Bonamer, Kyle R Vieth, Corbin R Azucenas, Ali Shawki, and Bryan Mackenzie | *University of Cincinnati* **Student Data Blitz 2** Alogaili, Chakraborty, Choi, Danchine, Engevik, Gill, Green, Hosawi, Jay, Jensen, Jiang, Milton, Praljak, Rama, Ruwe, Soska, Soska
2:00 pm	**Refreshments** *Atrium, CARE/Crawley Building*
2:15 pm	**Poster Session 2** Presenters: Even-numbered posters *Atrium, CARE/Crawley Building and Medical Sciences Building (Level E)*
3:30 pm	**Session 3** *Kowalewski Auditorium, Kowalewski Hall, 3255 Eden Avenue* **Physiology from Adaptation to Z-Lines** Chairs: Anil G Menon, PhD and Andrew A Voss, PhD 6. Antarctic notothenioids, *Chaenocephalus aceratus* and *Notothenia coriiceps*, differ in stress signaling associated with acute warming Elizabeth Evans (*Graduate Student*) and Elizabeth Crockett | *Ohio University* 7. Unraveling the complexities of cell cycle dynamics during stem cell differentiation Richard Ballweg (*Graduate Student*), Lee, Suengwon, Xiaonan Han, Philip Maini, Helen Byrne, Christian Hong, and Tongli Zhang | *University of Cincinnati* 8. Selective knockdown of A2AR in CD8+ T cells using CD8-targeting nanoliposomes Hannah S Newton (*Graduate Student*), Michael J Arnold, Ameet Chimote, Trisha Wise-Draper, and Laura Conforti | *University of Cincinnati* 9. Downstream proteins that facilitate sarcolemma membrane repair have potential as therapeutics for Duchenne muscular dystrophy Thomas A Kwiatkowski (*Graduate Student*), Aubrey Rose, Kevin McElhanon, Brian Paleo, Eric X Beck, Sayak Bhattacharya, and Noah Weisleder | *The Ohio State University*
4:30 pm	**Business Meeting and Awards** *Kowalewski Auditorium, Kowalewski Hall, 3255 Eden Avenue*

Please visit the Graduate Programs information table!

OPS2018 Keynote Address

Mark A Sussman, PhD

Distinguished Professor of Biology
San Diego State University
San Diego, California

Myocardial regeneration: Uncommon sense for common problems

Mark Sussman is a distinguished professor of biology at San Diego State University. He graduated from University of California–Davis, received a master's of science degree from California State University–Northridge, and earned PhD in microbiology from the University of Southern California. Dr Sussman received postdoctoral training in cell and molecular biology at the Scripps Research Institute. His research interests include the structural and molecular basis of heart failure and modification of stem cells to enhance myocardial regeneration. Dr Sussman has been the recipient of the Established Investigator Award from the American Heart Association, and FIRST, MERIT, and PPG awards from the National Institutes of Health. He is a member of a Fondation Leducq international network consortium studying cardiovascular signaling, stem cell biology, and myocardial regeneration. Dr Sussman holds two patents for stem cell-based technology to enhance myocardial repair, with two more pending.

Over the years, the Sussman research lab has trained more than 100 young investigators (undergraduate, MS, PhD, and post-docs) including 15 PhDs in molecular and cellular cardiovascular biology. Dr Sussman is currently advisor to four PhD students. Dr Sussman is a member of the following professional organizations: American Physiological Society, American Heart Association, International Society for Heart Research, Heart Failure Society of America. Dr Sussman is a frequent reviewer on NIH study sections and an editorial board member for the following scientific journals: *Circulation Research*, *Circulation*, *American Journal of Physiology*, *Journal of Biological Chemistry*, *Regenerative Medicine*, and *Journal of Molecular and Cellular Cardiology*.

Research interests

1. Cardiovascular signal transduction
2. Genetic engineering mouse models of heart failure and protection from injury
3. Cardiac stem cell biology and myocardial regeneration

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Keynote Address

Myocardial regeneration: Uncommon sense for common problems

Mark A Sussman

San Diego State University, Heart Institute & Biology Department, San Diego, CA

Myocardial regenerative research remains an area of intensive study despite over a decade of frustratingly slow progress and modest clinical efficacy. A fundamental limitation in myocardial regeneration is inherently poor reparative capacity of adult mammalian heart which declines over lifespan. Augmentation of repair requires unnatural solutions to overcome normal adult myocardial biology using Regeneration Associated Cellular Effectors (RACE) to deliver functionally competent therapeutic interventions. The logic and rationale of four distinct RACE conceptual strategies will be presented including CardioEnhancers (genetic engineering), CardioChimeras (cell chimerism), CardioClusters (multi-cell three-dimensional clustering), and CardioEvolvers (increased ploidy). Each RACE approach addresses a distinct biological limitation that impairs current cell-based treatments for myocardial damage, and different RACE approaches can be combined to promote synergism of biological potentiation. These next-generation approaches represent the future of myocardial regenerative research, ultimately translating into novel clinical treatments achieving desperately needed treatment of heart failure.

Dr Sussman's presentation will highlight current limitations in cell-based treatment for myocardial regeneration and explore novel, unconventional solutions to overcome these obstacles. The overall goal of the talk is to prompt the audience to think about the future of cell-based myocardial regeneration by learning lessons from the past and applying them toward creative answers in the future to enhance myocardial repair.

Posters

Atrium, CARE/Crawley Building and Medical Sciences Building (Level E)

Poster Session 1 | 10:45 am – 12:00 pm | Presenters: Odd-numbered posters

Poster Session 2 | 2:15 – 3:30 pm | Presenters: Even-numbered posters

1	**Pulmonary epithelial knockout of TSC1 results in alveolar simplification in mice** Rahul Sandella[1,2], Nikolaos M Nikolaidis[2], John C Ernst[2], Lori B Pitstick[2], HuiXing Wu[2], John G Noel[2], Jason C Woods[3,4], Jinbang Guo[4], Francis X McCormack[2]
2	**Dimethylarginine dimethylaminohydrolase (DDAH) siRNA knockdown in a human pulmonary vascular co-culture cell model** Avante Milton, Hanadi Almazroue, Leif D Nelin, Jennifer K Trittmann
3	**Role of transcription factor Sox17 in the development of vertebrate digestive and respiratory systems** Melissa MacDonald[1,2], Scott Rankin[2], David Ludeke[2], Aaron Zorn[2]
4	**Intracellular calcium mobilization requires TFF2 activation of CXCR4 and EGFR to promote epithelial repair** Kristen A Engevik, Hikaru Hanyu, Andrea L Matthis, Eitaro Aihara, and Marshall H Montrose
5	**Effect of *Helicobacter pylori* chemotaxis on gastric epithelial repair** Hikaru Hanyu[1], Andrea L Matthis[1], Kristen A Engevik[1], Karen M Otteman[2], Marshall H Montrose[1], Eitaro Aihara[1]
6	**Hedgehog signaling upregulates PD-L1 expression and promotes gastric cancer progression** Jayati Chakrabarti[1], Loryn Holokai[2], LiJyun Syu[6], Nina G Steele[7], Julie Chang[3], Jiang Wang[4], Syed Ahmed[5], Andrzej Dlugosz[6,7], and Yana Zavros[1]
7	**Heterogeneity of cell-cycle times within the intestinal crypts** Yuhui Cao[1,2], Suengwon Lee[1], and Christian I Hong[1,2]
8	**Development of the intestinal circadian clock and its role in the response to *Clostridium difficile* toxin B** Andrew E Rosselot[1], Toru Matsu-ura[1], Taylor R Broda[2], Nambirajan Sundaram[2], Michael A Helmrath[2], James M Wells[2], Sean R Moore[2,3], and Christian I Hong[1,2]
9	**Functional properties of mouse ferroportin, a cellular iron-export protein** Corbin R Azucenas[1,2], John P Bonamer[1,2], T Alex Ruwe[2,3], Kyle R Vieth[3], Bo Qiao[4], Tomas Ganz[4], Elizabeta Nemeth[4], and Bryan Mackenzie[1,2,3]
10	**Hepcidin interaction with ferroportin in the *Xenopus* oocyte expression system** T Alex Ruwe[1,2], Kyle R Vieth[2], Sharraya Aschemeyer[3], Bo Qiao[3], Tomas Ganz[3], Elizabeta Nemeth[3], Bryan Mackenzie[1,2]
11	**Oligomerization of ferroportin and the mechanism of autosomal dominance in ferroportin disease** John P Bonamer[1,2], T Alex Ruwe[1,3], Corbin Azucenas[1,2], Bo Qiao[4], Kyle R Vieth[1], Tomas Ganz[4], Elizabeta Nemeth[4], Bryan Mackenzie[1,2,3]
12	**TRPM7 channel inactivation** Tetyana Zhelay and J Ashot Kozak
13	**TRPP2 (PC2)-dependent channel of renal primary cilia also requires TRPM3** Gillian S Bryant[1], Steven J Kleene[1], Brian J Siroky[2], Julio A Landero-Figueroa[1], Bradley P Dixon[3], Nolan W Pachciarz[2], Lu Lu[2], Nancy K Kleene[1]

14	**Expression pattern and sequence analysis of *Aedes aegypti* sodium-dependent cation-chloride cotransporters** Christopher M Gillen[1], Grace F Riley[1], John C Crow[1], Adrienne C DeBrosse[1], Mary E Sawyer[1], Megha Kalsi[2], Peter M Piermarini[2]
15	**Acetazolamide inhibits ammoniagenesis and prevents the correction of metabolic acidosis in rat** Perwez Alam, Sihame Amlal and Hassane Amlal
16	**High-protein diet and potassium depletion exacerbate ammonia synthesis and renal hypertrophy in rats with type I diabetes** Sihame Amlal[1,2], Perwez Alam[2] and Hassane Amlal[2]
17	**Disparate effects of antibiotics on hypertension** Sarah Galla[1], Saroj Chakraborty[1], Xi Cheng[1], Jiyoun Yeo[1], Blair Mell[1], Helen Zhang[1], Anna V Mathew[2], Matam Vijay-Kumar[1], and Bina Joe[1]
18	**Salt-responsive metabolite, β-hydroxybutyrate, attenuates hypertension** Saroj Chakraborty[1], Sarah Galla[1], Xi Cheng[1], Jiyoun Yeo[1], Blair Mell[1], V Singh[1], BS Yeoh[1], P Saha[1], Anna V Mathew[2], Matam Vijay-Kumar[1], Bina Joe[1]
19	**Effect of osmotic mini-pump implantation on hypertension induced by chronic intermittent hypoxia** Kajal Kamra[1], Ryan J Rakoczy[1], Richard JA Wilson[2], and Christopher N Wyatt[1]
20	**Effect of AT1 receptor on renal and urinary biomarkers of acute kidney injury in 2K1C model of renovascular hypertension** Sanjeev Dhakal, Anhar Hosawi, Laale F Alawi, Nadja Grobe, Khalid M Elased
21	**Effect of sodium glucose co-transporter 2 (SGLT-2) inhibitor on the urinary shedding of ACE2 and neprilysin (NEP) in db/db diabetic mice** Unmesha Thanekar, Rupinder Gill, Sanjeev Dhakal, Anhar Hosawi, and Khalid M Elased
22	**Effect of insulin on renal and urinary shedding of biomarkers of diabetic kidney disease** Rupinder K Gill, Esam Salem, Nadja Grobe, and Khalid M Elased
23	**Circadian rhythm regimen combats type 2 diabetes in 2 subjects: Could disease progression be caused by a positive feedback loop?** Kathleen Broomall[1], Avi Milgrom[2]
24	**Hepatic HAX-1 inactivation improves insulin sensitivity and mitochondrial energetics in mice** Fawzi C Alogaili[1], Sivaprakasam Chinnarasu[2], Anja Jaeschke[2], Evangelia G Kranias[1], and David Y Hui[2]
25	**Global dysfunction of low-density lipoprotein receptor related protein-1 (LRP1) exacerbates diet-induced obesity and insulin resistance in mice** Emily M Igel[1] and David Y Hui[2]
26	**Apolipoprotein E receptor-2 deficiency impairs dendritic cell migration and efferocytosis** Patrick Wolfkiel[1], Anja Jaeschke[2], Yan Ma[2], and David Y Hui[2]
27	**Human antigen R (HuR) regulates brown adipose tissue function** Sarah R Anthony[1], Lindsey Lanzillotta[1], McKenzie Crist[1], Adrienne Guarnieri[1], Lisa Green[1], Sam Slone[1], Shannon Jones[1], Robert N Helsley[1], Jonathan M Brown[2], Mete Civelek[3], A Phillip Owens[1], and Michael Tranter[1]
28	**Effects of omega-3 and omega-6 fatty acids on NO and IL-6 cytokine concentrations in murine macrophages** Veronika Danchine and Cristina Caldari-Torres

29	**Developing a method of co-incubation of macrophages and adipocytes to evaluate cellular communication** Jordan Beck and Cristina Caldari-Torres
30	**A novel compound, D-CYSee, reverses the deleterious effects of opioids** Monica Ghosh, Derek Damron
31	**Synergistic depression of breathing due to concurrent ethanol and opioid use is centrally mediated** Kajal Kamra, Yoon-Jae Yi, Christopher N Wyatt, Ryan J Rakoczy
32	**Increasing or decreasing the excitability of V2a neurons activates accessory respiratory muscles** Victoria N Jensen[1], Kari Seedle[4], Sarah M Turner[4], Steven A Crone[2,3,4]
33	**Role of afferent innervation in neuromuscular contractures** Brendan Ho[1,2], Sia Nikolau[2], Liangjun Hu[2], and Roger Cornwall[2]
34	**Sialic acid therapy and gene therapy in a GNE myopathy model: Visualizing the endpoints** Kelly E Hardin[1,4] and Paul T Martin[2,3]
35	**Mechanisms of muscle stem cell fusion in muscular dystrophy** Michael J Petrany[1,2], Douglas P Millay[2]
36	**Survival of satellite cells underlies dystrophic skeletal muscle remodeling in the mouse** Sarah S Han[1,2], Justin G Boyer[2,3], Jeffery D Molkentin[2,3]
37	**Effects of altering plasma membrane lipid composition through dietary approaches on muscle membrane repair capacity** Diana Hallak, Thomas A Bodnar Kwiatkowski, Kevin McElhanon, Brian Paleo, Eric X Beck, and Noah Weisleder
38	**Membrane repair defects in the pathogenesis of myositis** Kevin E McElhanon[1], Nicholas Young[2], Jeffrey Hampton[2], Eric X Beck[1], Zarife Sahenk[3], Rohit Aggarwal[4], Chester V Oddis[4], Wael N Jarjour[2], Noah Weisleder[1]
39	**Specific poloxamers increase membrane repair in dystrophic muscle fibers in a cell type dependent manner** Aubrey L Rose, Thomas A Bodnar, Sayak Bhattacharya, Kevin McElhanon, Brian Paleo, Ana Capati, Eric X Beck, and Noah Weisleder
40	**Dissecting the critical role of slow skeletal myosin binding protein-C in striated muscle function** James W McNamara, Taejeong Song, Jennifer Schwanekamp, John N Lorenz, and Sakthivel Sadayappan
41	**K^+ and Rb^+ affinities of the Na,K-ATPase α1 and α2 isozymes: An application of ICP–MS for quantification of Na^+ pump kinetics in myofibers** Natalie J Norman[1,2], Hesamadin HakimJavadi[1,2], Cory A Stiner[4,5], Tatiana L Radzyukevich[1], Jerry B Lingrel[3], Julio A Landero Figueroa[1,4,5], Judith A Heiny[1,2]
42	**Characterization of postnatal cardiomyocyte maturation and proliferation in pigs** Nivedhitha Velayutham, Christina M Alfieri, Emma J Agnew, Kyle W Riggs, R Scott Baker, Farhan Zafar, and Katherine E Yutzey
43	**Classifying of arrhythmogenic cardiomyopathy-linked desmoplakin variants through molecular mechanisms of pathogenicity** Tyler L Stevens[1], Heather Manring[1], Taylor Albertelli[2], Nathan T Wright[2], and Maegen Ackermann[1]

44	**Inhibition of the RNA binding protein HuR reduces cardiac cell death following ischemia/reperfusion injury** Samuel Slone[1,2], Sarah R Anthony[1], Lisa Green[1,2], Michelle L Nieman[2], John N Lorenz[2], and Michael Tranter[1]
45	**Zebrafish Stx4 is crucial to the regulation of cardiac conduction during normal embryonic development and is an effective model of human disease** Eliyahu Perl[1,2,3], Padmapriyadarshini Ravisankar[3], T LeighAnn VanDyke[3], Carlos E Prada[5,6,7], and Joshua S Waxman[3,4,5]
46	**Nr2f1a is required to repress sinoatrial node identity within atrial cardiomyocytes in zebrafish** Kendall E Martin[1,2], Padmapriyadarshini Ravisankar[2], and Joshua S Waxman[2]
47	**Sectm1a deficiency aggravates endotoxin-induced inflammation and myocardial dysfunction** Yutian Li[1], Shan Deng[1, 5], Xiaohong Wang[1], Nathan Robbins[2], Xingjiang Mu[1], Kobina Essandoh[1], Tianqing Peng[4], Jack Rubinstein[2], David E Adams[3], and Guo-Chang Fan[1]
48	**Magnesium metal electrospun with polycaprolactone into nanofibrous fabrics has tissue reparative effects in vivo** Xiaoxian An[1], Udhab Adhikari[5], Tracy M Hopkins[2], Kevin J Little[2,4], David B Hom[2], William R Heineman[3], Narayan Bhattarai[5], Sarah K Pixley[2]
49	**Chronic vagus nerve stimulation prevents sudden cardiac death in failing hearts** Jeffrey S Crocker[1,2,3,4], Daiana Vieira[3,4], Kenneth G Parks[3,4], Deeptankar DeMazumder[1,3,4]
50	**Heart repair by CRISPR-induced cardiovascular progenitor cells** Lin Jiang, Jialiang Liang, Wei Huang, Wenfeng Cai, Christian Paul, and Yigang Wang
51	**Cardiac fibroblasts play a critical role during both fibrosis and reverse remodeling** Shannon Jones[1], Hadi Khalil[2], Zhenling Liu[1], Yanli Zhao[1], Jeffery Molkentin[2,3], and Onur Kanisicak[1]
52	**Pharmacological inhibition of human antigen R (HuR) blunts fibroblast activation and cardiac fibrosis** Lisa C Green[1,2], Sarah R Anthony[1], Samuel Slone[1,2], Lindsey Lanzillotta[1], John N Lorenz[2], Liang Xu[3], and Michael Tranter[1]
53	**PKA-phosphorylation of Hsp20 is associated with detrimental cardiac remodeling and early death** George Gardner, Yutian Li, Guan-Sheng Liu, J Qian, Min Jiang, Wen-Femg Cai, Michael Tranter, Guo-Chang Fan, Jack Rubinstein, Evangelia Kranias
54	**Tumor susceptibility gene 101 promotes physiological cardiac growth and attenuates pathological cardiac remodeling** Kobina Essandoh[1], Xiaohong Wang[1], Shan Deng[1], Nathan Robbins[2], Wei Huang[3], Xingjiang Mu[1], Jiangtong Peng[1], Yutian Li[1], Yigang Wang[3], Jack Rubinstein[2], Guo-Chang Fan[1]
55	**MicroRNA-33a/b inhibition attenuates microvesicle and monocyte tissue factor activity in the plasma of atherosclerotic non-human primates** Bailey Stone[1], Adrien Mann[1], Sierra Paxton[2], Ryan E Temel[2], and A Phillip Owens[1]
56	**Thrombin activation of platelet protease-activated receptor-4 (PAR4) augments atherosclerosis** Megan S Jay[1], Shannon M Jones[1], Hannah M Russell[1], Adrien Mann[1], Nathan Robbins[1], Deborah A Howatt[2], Alan Daugherty[2], and A Phillip Owens[1]
57	**Gut microbiota and circulating trimethylamine N-oxide (TMAO) are associated with aortic aneurysm formation** Kelsey A Conrad[1], Shannon M Jones[1], Robert N Helsley[2,3], Rebecca C Schugar[2,3], Zeneng Wang[2,3], Stanley L Hazen[2,3], J Mark Brown[2,3], and A Phillip Owens[1]

58	**Metabolism of mTORC1-inhibited vascular endothelial cells** Alyssa Solano[1,2], Yoshi Odaka[2], and Richard Lang[2.3]
59	**In vitro and in vivo strategies to develop targeted therapies for capillary lymphatic venous malformations** Nora Lakes[1,2], Jillian Goines[2], Patricia Pastura[3], Timothy Le Cras[3], and Elisa Boscolo[2]
60	**Analysis of pulsatile flow through an elastic tube using computational methods** Niksa Praljak[1] and Andrew Resnick[1,2]
61	**Inhibition of UBE2N as a therapeutic approach in myelodysplastic syndromes (MDS) and acute myeloid leukemia (AML)** Vighnesh Ramesh[1,2], Avery M Sampson[2], Laura Barreyro[2], Lyndsey C Bolanos[2], William L Seibel[3], Daniel T Starczynowski[2,4]
62	**FOXM1 inhibitor RCM-1 decreases carcinogenesis and nuclear β-catenin** Nihar Rama, Samriddhi Shukla, David Milewski, and Tanya Kalin
63	**Myeloid-derived suppressor cell mediated evasion of immune surveillance in pancreatic ductal adenocarcinoma** Loryn Holokai[1], Jayati Chakrabarti[2], Jiang Wang[3], Marina Pasca di Magliano[5], Timothy Frankel[5], Nina Steele[5], Syed Ahmad[4], and Yana Zavros[2]
64	**Myeloid-derived suppressor cells in pancreatic cancer: Implications in novel therapeutic approaches** Mamdouh Salman A Alshehri, Anita Thyagarajan, and Ravi P Sahu
65	**KRAS murine models in pancreatic cancer therapies** Shorooq Khader, Anita Thyagarajan, and Ravi P Sahu
66	**Ca^{2+} fluxes in PD1 positive exhausted T cells in head and neck cancer** Martina Chirra[1,2], Vaibhavkumar S. Gawali[1], Hannah Newton[1], Ameet Chimote[1], Trisha Wise-Draper[2], and Laura Conforti[1]
67	**PD1 signaling alters store-operated Ca^{2+} entry in cytotoxic T cells of head and neck cancer patients** Vaibhavkumar S Gawali[1], Ameet Chimote[1], Martina Chirra[1,2], Trisha Wise-Draper[2], and Laura Conforti[1]
68	**Failure to upregulate calmodulin underlies the suppressed KCa3.1 function and enhanced sensitivity to adenosine in $CD8^+$ T cells of head and neck cancer patients** Ameet A Chimote[1], Vaibhavkumar S Gawali[1], Trisha Wise-Draper[2], and Laura Conforti[1]
69	**T-cell activation hinders therapeutic benefits of IFNγ blockade in hemophagocytic lymphohistiocytosis** Amy Tran[1,2], Nathaniel Evan Fox[2], Micah Evan Morris[2], Natalie Castillo[2], Vandana Chaturvedi[2], and Michael Jordan[2]
70	**Role of protein kinase-c and rho kinase in the cytotoxic effects of bitter melon extract on metastatic breast cancer cells** Heeyun Choi and Bhupal P Bhetwal
71	**Epstein–Barr virus nuclear antigen-2 (EBNA2) is altering host gene regulatory network by extensively rewiring chromatin landscape** Ted Hong[1,2], Mario Pujato[3], Xiaoting Chen[3], Daniel Miller[3], Leah Kottyan[3], John Harley[3], and Matthew Weirauch[3]

72	**Establishing new organ on a chip Pharmaceutical Proof of Concept Center (PPOCC)** Nazar J Hussein[1,2,8], Charles Thodeti[3], Moses Oyewumi[4], Fayez F Safadi[1,2,4,5,6], Elliot Reed[7,8]
73	**A novel regulatory role of trafficking protein particle complex-9 (TRAPPC9) in osteoarthritis** Nazar J Hussein[1,2], Fayez F Safadi[1,2,3,4,5]
74	***Slco1b2*-genotype affects methotrexate pharmacokinetics and therapeutic response in a murine model of arthritis** Zachary L Taylor, Heather Bear, Tomoyuki Mizuno, Alexander A Vinks, and Laura B Ramsey
75	**Understanding the structure and basic function of small basic protein in biofilms** Andrea L Ori[1,3], Alexander E Yarawsky[2,3], Andrew B Herr[3,4]
76	**Effect of acoustic shadowing on oxygen scavenging from sono-sensitive perfluorocarbon droplets** Rohan Srivastava[1], Haili Su[2], Karla P Mercado-Shekhar[2], Christy K Holland[2,3], Kevin J Haworth[1,2,3]
77	**Ascertaining the relationship between acoustic droplet vaporization and hemolysis** Newsha Jahanpanah[1], Sneha Sherma[2], Karla P Mercado-Shekhar[2], Haili Su[2], Hunter Palcich[3], Austin Wanek[3], Kevin Haworth[1,2,3]
78	**Increasing microfluidic flow rates decreases the size of microdroplet diameters** Rachel Benton[1], Haili Su[2], Rohan Srivastava[2], Kevin J Haworth[2,3]
79	**Dehydration prompts physiological and behavioral alterations in mosquitoes that likely contribute to increased West Nile virus transmission** Chris J Holmes[1], Richard W Hagan[1], Elise M Szuter[1], Andrew E Rosselet[1], Samantha C Siler[1], Andrew J Rosendale[1], Jacob M Hendershot[1], Kiaira SB Elliot[1], Emily C Jennings[1], Alex E Rizlallah[1], Yanyu Xiao[2], Jason L Rasgon[3], Miki Watanabe[4], Lindsey E Romick-Rosendale[4], and Joshua B Benoit[1]
80	**Midgut microbiome establishment in the northern house mosquito, *Culex pipiens*, is critical for dormancy preparation** Elise M Didion[1], Zakee L Sabree[2], and Joshua B Benoit[1]
81	**Are cryoprotective responses the same in different muscles? A dehydration and freezing study in Cope's gray treefrog (*Dryophytes chrysoscelis*)** Briana Goines, Zachary Tegge, Spencer Dufresne, Michael Spikes, Clara do Amaral
82	**Does mild dehydration trigger cryoprotective responses in the liver and heart of Cope's gray treefrog (*Dryophytes chrysoscelis*)?** Spencer Dufresne, Zachary Tegge, Briana Goines, Michael Spikes, Clara do Amaral
83	**Glycosylation of aquaporins lowers water and glycerol permeability in erythrocyte ghosts** Brian Stogsdill, Jim Frisbie, and David Goldstein
84	**Early signaling pathway of live yeast cell derivative in THP-1 monocytes** Mridula Bethi, Donna J Schlemm, Stephen J Keller, Eric I Gruenstein
85	**Withdrawn: ~~Sectm1a is critical for macrophage phagocytosis during polymicrobial sepsis in mice~~** ~~Xingjiang Mu[1], Xiaohong Wang[1], Hongkuan Fan[2], Yutian Li[1], Shan Deng[1], Kobina Essandoh[1], Guo-Chang Fan[1]~~
85A	**Late addition: Time-dependent differential splicing in mammalian tissues** Krithika R Subramanian, Christian I Hong, Nathan Salomonis
86	**Efficacy of mullein smoke in treating respiratory infections** Cole Pelger, Linda Young, Kelly Hall, Chris Bowers, and Vicki Motz

87	**Nasopharyngeal colonization by potentially pathogenic bacteria in pneumonia patients and effects of antibiotic therapy** Hannah Kim, Alexis Juergensen, Cristina Garcia-Maurino, Samantha Sharpe, Jessica Estep, Sara Mertz, Rebecca Wallihan, Asuncion Mejias, Octavio Ramilo
88	**Cardyscope, a low-cost, fixed-stage microscope for neuroscience research** Mallory Soska and David C Sheridan
89	**Analysis of early DTI-associated axonal histopathology in the corpus callosum of a novel rat model of X-linked hydrocephalus** A Scott Emmert[1,2], Shawn M Vuong[2], Crystal Shula[2], Diana Lindquist[3], Weihong Yuan[3], June Goto[2], and Francesco T Mangano[2]
90	**ROR1 and ROR2 attenuate Schwann cell tumorigenesis** Craig S Thomson[1,2,3], Katherine E Chaney[3], David A Largaespada[4], and Nancy Ratner[1,3]
91	**Identifying a novel role for the retrosplenial cortex in Alzheimer's disease** Din Selmanovic, Elizabeth Nguyen, Nik Balmer, Valentina Ghisays, and Matia B Solomon
92	**Effects of repeated rotenone treatment on bioenergetics in SY5Y cells** Isabella Ramicone[1,2], Marla Perna[2], and Matthew Skelton[2]
93	**Contextual inquiry of the research data flow of the Greater Cincinnati/Northern Kentucky Stroke Study** Paul Murdock[1,2], Brett Harnett[2], Kathleen Alwell[3], Dawn Kleindorfer[3], Brett Kissela[3], Danny TY Wu[2]
94	**Exercise as rehabilitation for adolescents with post concussive symptoms** Fadhil Hussain[1], Megan Narad[2], Jennifer Taylor[2], Catherine Quatman-Yates[6], Jason Hugentobler[3], Paul J Gubanich[3], Shari L Wade[2,4], Brad G Kurowski[2,4,5]
95	**Sleep restriction worsens daily life executive functioning in adolescents with ADHD** Chaya Fershtman, Delna K Kapadia, and Stephen P Becker
96	**Pharmacogenetic associations between CYP2C19 phenotype and sertraline efficacy and tolerability in youth with anxiety and depression** Ethan Poweleit[1], Stacey Aldrich[2], Lisa Martin[2], Jeffery Strawn[3], Laura Ramsey[1,4]
97	**Effect of puberty on pain in adolescents** Benjamin M Hunter[1,2], Hadas Nahman-Averbuch[2], Eric Leon[2], Christopher D King[2], Frank Biro[2], Robert C Coghill[2]
98	**Eplerenone combined with currently used epidural steroid injection cause more significant and sustained pain relief than the steroid alone in a rat model of inflammatory low back pain** Shaimaa Ibrahim, Wenrui Xie, Judith A Strong, Jun-Ming Zhang
99	**Targeting glucocorticoid receptor deletion to Dlx5/6 interneurons results in impulsive behavior and higher peak corticosterone release in female, but not male, mice** Jessie R Scheimann[1,2], Parinaz Mahbod[1], Rachel L Morano[1], Ben Packard[1], Kenneth Campbell[3], and James P Herman[1]
100	**Genomic insertion of human corticotropin-releasing hormone delays mouse parturition** Shivani Tumukuntala[1,2], Caitlin Dunn-Fletcher[2], Lisa Muglia[2], Louis Muglia[2]