Tuesday, May 10, 2022

Quarterly update from the DMRC

Colleagues,

Congratulations on making it through a busy spring season. While many of you may still be pushing to meet June deadlines, we invite you to **take a moment to celebrate the successes of 2021-2022**. These include:

- Welcoming **3 new investigators** into our diabetes and metabolism research community: Paul Estabrooks, Jennie Hill, and Shinduk Lee
- Hosting **50 fantastic speakers** (22 external, 28 internal) across the Seminars in Metabolism and Health Behaviors Seminar Series
- **Submitting a revised application** to become an NIH-funded diabetes research center
- Publishing over **400 articles** and receiving over **$80M** in grant funding
- Supporting hundreds of **trainees**

We also would like to extend a warm welcome to **our new Associate Director of the DMRC, Angela Fagerlin**. Angie is Professor and Chair of the University of Utah Intermountain Healthcare Department of Population Health Sciences, and has directed the Driving Out Diabetes Initiative for the last five years. Angie will be directing the Health Behaviors Interest Group and guiding the research strategy endeavors of this group – something she has been doing informally for many years. We are pleased to work with Angie in this capacity!

Finally, we look forward to seeing many of you at the Graduate Student Rising Stars Symposium on Monday, May 16 from 9:00 AM to 5:00 PM. And please save the date for the 2022 Diabetes and Metabolism Fall Retreat on September 15, 2022!

Be Well,
Jared Rutter & Scott Summers, DMRC Co-Directors

GOOD NEWS

Scott Summers, PhD

Scott Summers named Distinguished Professor in the College of Health

Scott Summers, PhD, has been awarded Distinguished Professor by the University's Office of the Sr. Vice President for Academic Affairs. It's the second such award for the College of Health and another milestone in Summers' impressive career.

Angela Fagerlin, PhD

Angie Fagerlin the new Associate Director of the DMRC

Angie Fagerlin will be guiding the research strategy and enrichment activities of the Health Behaviors Interest Group.

Cindy Berg, PhD & JD Smith, PhD

New T32 application on the Role of Families in Diabetes Prevention and Management

Cindy Berg and JD Smith are leading the May submission of a new application for an NIDDK T32 program on the role of families in diabetes prevention and management

---

UPCOMING EVENTS

- **Graduate Student Rising Stars - May 16, 9:00 AM - 5:00 PM**
  - 9:00 AM - 4:00 PM in HSEB 2680
  - 4:00 - 5:00 PM in Skaggs auditorium
  - Download a flyer here
- **Rising Stars Postdoc Symposium – September 29th and 30th**
  - Postdocs with research of interest to the DMRC community will be presenting on **September 29**
  - Download the calendar invite here
- **DRMC Fall Retreat – September 15 – Save the date!**
  - Download the calendar invite here

OPPORTUNITIES

University of Utah - Washington University Diabetes Research Center Collaborative Pilot & Feasibility Awards

- The goal of this program is to develop preliminary data leading to the submission of new applicants for independent (NIH, JDRF, or ADA) research grants.
- Grants up to $40,000 (direct costs) for one year will be awarded.
- An entire copy of the proposal must be submitted via Utah.InfoReady4.com by 5:00 PM on June 30, 2022.
- Download the full RFA here.

Consider hiring a postdoc from the Graduate Student Rising Stars Symposium

- This event will showcase promising trainees from across the country. If someone seems like a good fit for your lab, be sure to introduce yourself and share any opportunities in your research group!

In case you missed it: Collective Day of Action

- If you missed the activities on the Collective Day of Action, you can read overviews of the events here. Some highlights include:
  - How to create a more welcoming environment for new employees
  - Lean into the uncomfortable process of dissecting racism

RESEARCH HIGHLIGHTS

New Potentially Painkilling Compound Found in

Deep-Water Cone Snails

Scientists already know that the venom of cone snails, which prowl the ocean floor for a fish dinner, contains compounds that can be adapted as pharmaceuticals to treat chronic pain, diabetes and other human maladies. But the cone snails' venom has more secrets yet to be revealed. In a new study published in Science Advances, researchers including Helena Safavi-Hemami, PhD, report that a group of cone snails produces a venom compound similar to the hormone somatostatin.

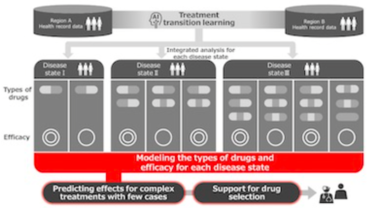
While they continue to learn more about this venom compound and its possible pharmaceutical applications, the results show the wide variety of drug leads that venomous animals produce, designed and refined over millions of years. Read full article here.

Parental Control: How Genes From Mom or Dad Shape Behavior

Parenting is not the only way moms and dads impact the behavior of their offspring. Genes matter, too. And although most of our genes are inherited in pairs—one copy from each parent—moms and dads exert their genetic influence in different ways. According to new research led by scientists here at University of Utah Health, each parent has their own impact on hormones and other chemical messengers that control mood and behavior.

"We're really intrigued that there is this untapped area of biology that controls our decisions," says Christopher Gregg, PhD, principal investigator. Gaining a clearer picture of the genetic factors that shape behavior is a crucial step toward developing better diagnoses and treatments for psychiatric disorders, he says. Read the full article here.

Innovative AI Technology Aids Personalized Care for Diabetes Patients Needing Complex Drug Treatment



Hitachi, Ltd. (TSE: 6501, Hitachi), University of Utah Health (U of U Health), and Regenstrief Institute, Inc. (Regenstrief) today announced the development of an AI method to improve care for patients with type 2 diabetes mellitus who need complex treatment. One in 10 adults worldwide have been diagnosed with type 2 diabetes, but a smaller number require multiple medications to control blood glucose levels and avoid serious complications, such as loss of vision and kidney disease. Read the full article here.

Some of the results of this study are published in the peer-reviewed medical journal, Journal of Biomedical Informatics, in the article, "Predicting

pharmacotherapeutic outcomes for type 2 diabetes: An evaluation of three approaches to leveraging electronic health record data from multiple sources".

Marine Snail Inspires Fast-Acting Injectable Insulin for Better Diabetes Control

For millions of people with diabetes, insulin is essential medicine. But for some ocean-dwelling predators, insulin is a weapon. With a burst of venom, a fish-hunting cone snail can drop the blood sugar of its prey so precipitously that it quickly becomes paralyzed and defenseless. That remarkable phenomenon has inspired a team of scientists to make better, fast-acting injectable insulins for people with diabetes.

"What's really beautiful about this study is the way it spans a wide range of science, starting with the investigation of a fascinating question in animal behavior and leading to the multidisciplinary, collaborative development of a potential therapeutic," says Chris Hill, D Phil (Biochemistry). He co-led the study with Danny Chou (Stanford) and Helen Safavi (University of Copenhagen) who are continuing a long-term collaboration after first becoming involved with this research when they were at the U. Read the full article here.

PUBLICATION HIGHLIGHTS

Allen NA, Litchman ML, Chamberlain J, Grigorian EG, Iacob E, Berg CA. Continuous Glucose Monitoring Data Sharing in Older Adults With Type 1 Diabetes: Pilot Intervention Study. JMIR Diabetes. 2022 Mar 16;7(1):e35687. doi: 10.2196/35687.

Blanchette JE, Allen NA, Litchman ML. The Feasibility and Acceptability of a Community-Developed Health Insurance and Financial Toolkit for Emerging Adults With Type 1 Diabetes Sci Diabetes Self Manag Care. 2022 Mar 15:26350106221087474. doi: 10.1177/26350106221087474. Online ahead of print.

Blanchette JE, Tran MJ, Grigorian EG, Iacob E, Edelman LS, Oser TK, Litchman ML. GoFundMe as a Medical Plan: Ecological Study of Crowdfunding Insulin Success. JMIR Diabetes. 2022 Apr 15;7(2):e33205. doi: 10.2196/33205.

Cheng TD, Ilozumba MN, Balavarca Y, Neuhouser ML, Miller JW, Beresford SAA, Zheng Y, Song X, Duggan DJ, Toriola AT, Bailey LB, Green R, Caudill MA, Ulrich CM. Associations between Genetic Variants and Blood Biomarkers of One-Carbon Metabolism in Postmenopausal Women from the Women's Health Initiative Observational Study. J Nutr. 2022 Apr 1;152(4):1099-1106. doi: 10.1093/jn/nxab444.

Cho JM, Park SK, Kwon OS, La Salle DT, Cerbie J, Fermoyle CC, Morgan D, Nelson A, Bledsoe A, Bharath LP, Tandar M, Kunapuli SP, Richardson RS, Anandh Babu PV, Mookherjee S, Kishore BK, Wang F, Yang T, Boudina S, Trinity JD, Symons JD. Activating P2Y1 receptors improves function in arteries with repressed autophagy. Cardiovasc Res. 2022 Apr 14:cvac061. doi: 10.1093/cvr/cvac061. Online ahead of print.

Eberhardt DR, Lee SH, Yin X, Balynas AM, Rekate EC, Kraiss JN, Lang MJ, Walsh MA, Streiff ME, Corbin AC, Li Y, Funai K, Sachse FB, Chaudhuri D. EFHD1 ablation inhibits cardiac mitoflash activation and protects cardiomyocytes from ischemia. J Mol Cell Cardiol. 2022 Mar 16;167:1-14. doi: 10.1016/j.yjmcc.2022.03.002. Online ahead of print.

Gibson B, Simonsen S, Jensen JD, Yingling L, Schaefer J, Sundaresh V, Zhang Y, Altizer R. Mobile Virtual Reality Versus Mobile 360° Video to Promote Enrollment in the Diabetes Prevention Program Among Hispanic Adults: Pilot Study. JMIR Diabetes. 2022 Mar 17;7(1):e26013. doi: 10.2196/26013.

Groot HJ, Broxterman RM, Gifford JR, Garten RS, Rossman MJ, Jarrett CL, Kwon OS, Hydren JR, Richardson RS. Reliability of the passive leg movement assessment of vascular function in men. Exp Physiol. 2022 May;107(5):541-552. doi: 10.1113/EP090312. Epub 2022 Apr 5.

Grube D, Wei G, Boucher R, Abraham N, Zhou N, Gonce V, Carle J, Simmons DL, Beddhu S. Insulin use in chronic kidney disease and the risk of hypoglycemic events. BMC Nephrol. 2022 Feb 21;23(1):73. doi: 10.1186/s12882-022-02687-w.

Hackett PT, Jia X, Li L, Ward DM. Posttranslational Regulation of Mitochondrial Frataxin and Identification of Compounds that Increase Frataxin Levels in Friedreich's Ataxia. J Biol Chem. 2022 Apr 23:101982. doi: 10.1016/j.jbc.2022.101982. Online ahead of print.

Jacobs A, Martinez P, Morrow E, Ibele A. The impact of patient-reported outcomes on loss to follow-up care after bariatric surgery. Surg Endosc. 2022 Feb;36(2):936-940. doi: 10.1007/s00464-021-08352-x. Epub 2021 Feb 23.

Knapp AA, Carroll AJ, Mohanty N, Fu E, Powell BJ, Hamilton A, Burton ND, Coldren E, Hossain T, Limaye DP, Mendoza D, Sethi M, Padilla R, Price HE, Villamar JA, Jordan N, Langman CB, Smith JD. A stakeholder-driven method for selecting implementation strategies: a case example of pediatric hypertension clinical practice guideline implementation. Implement Sci Commun. 2022 Mar 7;3(1):25. doi: 10.1186/s43058-022-00276-4.

Li Y, Nicholson RJ, Summers SA. Ceramide signaling in the gut. Mol Cell Endocrinol. 2022 Mar 15;544:111554. doi: 10.1016/j.mce.2022.111554. Epub 2022 Jan 5.

Machin DR, Clifton HL, Wray DW, Frech TM, Donato AJ. Tetrahydrobiopterin Administration Augments Exercise-Induced Hyperemia and Endothelial Function in Patients With Systemic Sclerosis. Front Med (Lausanne). 2022 Jan 10;8:791689. doi: 10.3389/fmed.2021.791689. eCollection 2021.

McKenzie AI, Mahmassani ZS, Petrocelli JJ, de Hart NMMP, Fix DK, Ferrara PJ, LaStayo PC, Marcus RL, Rondina MT, Summers SA, Johnson JM, Trinity JD, Funai K, Drummond MJ. Short-term exposure to a clinical dose of metformin increases skeletal muscle mitochondrial H(2)O(2) emission and production in healthy, older adults: A randomized controlled trial. Exp Gerontol. 2022 Jun 15;163:111804. doi: 10.1016/j.exger.2022.111804. Epub 2022 Apr 9.

Michaud TL, Hill JL, Heelan KA, Bartee RT, Abbey BM, Malmkar A, Masker J, Golden C, Porter G, Glasgow RE, Estabrooks PA. Understanding implementation costs of a pediatric weight management intervention: an economic evaluation protocol. Implement Sci Commun. 2022 Apr 5;3(1):37. doi: 10.1186/s43058-022-00287-1.

Nahum-Shani I, Dziak JJ, Wetter DW. MCMTC: A Pragmatic Framework for Selecting an Experimental Design to Inform the Development of Digital Interventions. Front Digit Health. 2022 Mar 9;4:798025. doi: 10.3389/fdgth.2022.798025. eCollection 2022.

Schellinger JN, Sun Q, Pleinis JM, An SW, Hu J, Mercenne G, Titos I, Huang CL, Rothenfluh A, Rodan AR. Chloride oscillation in pacemaker neurons regulates circadian rhythms through a chloride-sensing WNK kinase signaling cascade. Curr Biol. 2022 Mar 28;32(6):1429-1438.e6. doi: 10.1016/j.cub.2022.03.017. Epub 2022 Mar 17.

Shimura D, Shaw RM. GJA1-20k and Mitochondrial Dynamics. Front Physiol. 2022 Mar 23;13:867358. doi: 10.3389/fphys.2022.867358. eCollection 2022.

Tarumi S, Takeuchi W, Qi R, Ning X, Ruppert L, Ban H, Robertson DH, Schleyer T, Kawamoto K. Predicting pharmacotherapeutic outcomes for type 2 diabetes: An evaluation of three approaches to leveraging electronic health record data from multiple sources. J Biomed Inform. 2022 Jan 29:104001. doi: 10.1016/j.jbi.2022.104001. Online ahead of print.

Trinity JD, Drummond MJ, Fermoyle CC, McKenzie AI, Supiano MA, Richardson RS. Cardiovasomobility: an integrative understanding of how disuse impacts cardiovascular and skeletal muscle health. J Appl Physiol (1985). 2022 Mar 1;132(3):835-861. doi: 10.1152/japplphysiol.00607.2021. Epub 2022 Feb 3.

STAY IN THE KNOW

Subscribe to:

- The DMRC listserv
- The Seminars in Metabolism (SIM) listserv
- The Health Behaviors Seminar Series (HBSS) listserv

Follow us on Twitter

For questions, contact Sara.Salmon@hsc.utah.edu