



## **2018 Annual Report**

### ***Division of Endocrinology and Diabetes***

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#### **DIVISION DESCRIPTION**

The Division of Endocrinology and Diabetes provides state-of-the-art medical care through seven multidisciplinary clinics: Diabetes, Endocrinology, Polycystic Ovarian syndrome, Turner syndrome, Pediatric and Adolescent Transgender Health, Metabolic Syndrome, and Pediatric Fitness Clinics.

Our research aims to improve the health and quality of life of children with diabetes and endocrine disorders, to understand the development and health effects of adipose tissue from infancy through adolescence, and to prevent childhood obesity and its consequences.

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#### **2018 HIGHLIGHTS**

- **David B. Allen, MD**, was awarded the 2018 American Academy of Pediatrics/Pediatric Endocrine Society Kaplowitz Endowed Lectureship for Quality Care. This national award is given annually to recognize career contributions to quality and cost-effective care in pediatric endocrinology. Dr. Allen presented his Kaplowitz Lecture, “Growth-Promoting Treatment: Discretion is the Better Part of Value,” at the Pediatric Academic Societies annual meeting in May 2018.

Dr. Allen was also honored by the Children’s Hospital of Philadelphia and the University of Pennsylvania School of Medicine with the Thomas Moshang Jr. MD Memorial Lectureship. He presented, “The Human Growth Hormone Era: a Paradigm of Expansive Biotechnology,” in November 2018.

- **Ellen Connor, MD**, began her one-year term as president of the North American Society for Pediatric and Adolescent Gynecology (NASPAG) at the Society’s annual clinical research meeting in April 2018.
- Fellows **Lauren Kanner, MD**; **Yashoda (Mita) Naik, MD**; and **Elizabeth Mann, MD**, each received \$400 awards from the Pediatric Endocrine Society (PES) to support their travel costs to the PES Annual Meeting in Toronto, Canada.

Dr. Naik also received a \$1,000 Fellows Research Grant from the North American Society for Pediatric and Adolescent Gynecology (NASPAG). Her one-year pilot grant, “Effect of sex hormones on ectopic fat deposition in overweight/obese pubertal children” (mentor: **Jennifer Rehm, MD**), will inform the longitudinal study of the effects of sex hormones on differential adipose tissue distribution in children undergoing hormonal manipulation.

- Graduate student Laura Tetri, PhD (mentors **Jennifer Rehm, MD**, and **Aaron Carrel, MD**), received a one-year, \$10,000 UW Institute for Clinical and Translational Research-Medical Scientist Training Program (ICTR-MSTP) Pilot Award for the project, "Linking Sex and Fitness with Metabolic Disease in Obese Children." This project aims to understand the role of cardiovascular fitness in indices of metabolic disease and provide a modifiable variable in children's lives that could reduce the negative effects of obesity.
- **Jennifer Rehm, MD**, along with Brittany Allen, MD, Jay Botsford, the Transgender Youth Resource Network and the Wisconsin Transgender Health Coalition teamed up to author a first-of-its-kind [statewide survey of transgender, nonbinary and gender expansive/nonconforming \(TNG\) youth](#). The study showed a lack of access to TNG-centered health care and insurance in Wisconsin, and made recommendations for improvements.
- **Ei Terasawa, PhD**, received a five-year, \$2 million grant from the National Institutes of Health, Eunice Kennedy Shriver National Institute of Child Health & Human Development (NIH/NICHHD) for her project, "Role of Neuroestradiol in Regulation of the GnRH Surge." This project will investigate the regulation of gonadotropin-releasing hormone (GnRH) neurons in the non-human primate, providing a basis for the development of new tools for the clinical management of infertility and leading to a new target for the development of new contraceptive drugs.

Dr. Terasawa also received a one-year, \$43,994 Fall Competition grant from the UW-Madison Office of the Vice Chancellor for Research and Graduate Education for the project, "Role of Neuroestradiol in the Preovulatory GnRH Surge."

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## RECENT PUBLICATIONS

**Allen DB.** Cost-conscious growth-promoting treatment: when discretion is the better part of value. *Horm Res Paediatr.* 2018;90(3):145-150. doi: 10.1159/000493397. Epub 2018 Sep 28. Review. PubMed PMID: 30269127.

Garcia JP, Keen KL, Kenealy BP, Seminara SB, **Terasawa E.** Role of Kisspeptin and Neurokinin B signaling in male rhesus monkey puberty. *Endocrinology.* 2018 Aug 1;159(8):3048-3060. doi: 10.1210/en.2018-00443. PubMed PMID: 29982393.

Horne VE, Sandberg DE, Gardner M, Lantos JD, **Allen DB.** Growth hormone therapy for a child with severe cognitive impairment. *Pediatrics.* 2018 Oct;142(4). pii: e20173938. doi: 10.1542/peds.2017-3938. PubMed PMID: 30237229.

Kaluarachchi DC, **Allen DB**, Eickhoff JC, Dawe SJ, Baker MW. Increased congenital hypothyroidism detection in preterm infants with serial newborn screening. *J Pediatr.* 2018 Dec 20. pii: S0022-3476(18)31691-3. doi: 10.1016/j.jpeds.2018.11.044. [Epub ahead of print] PubMed PMID: 30579585. \*

Kaplowitz PB, Backeljauw PF, **Allen DB.** Toward more targeted and cost-effective gonadotropin-releasing hormone analog treatment in girls with central precocious puberty. *Horm Res Paediatr.* 2018;90(1):1-7. doi: 10.1159/000491103. Epub 2018 Jul 26. Review. PubMed PMID: 30048994.

Lehman MN, Coolen LM, Steiner RA, Neal-Perry G, Wang L, Moenter SM, Moore AM, Goodman RL, Hwa-Yeo S, Padilla SL, Kauffman AS, Garcia J, Kelly MJ, Clarkson J, Radovick S, Babwah AV, Leon S, Tena-Sempere M, Comninou A, Seminara S, Dhillon WS, Levine J, **Terasawa E**, Negron A, Herbison AE. The 3(rd) World Conference on Kisspeptin, "Kisspeptin 2017: Brain and Beyond": Unresolved questions, challenges and future directions for the field. *J Neuroendocrinol*. 2018 Apr 14:e12600. doi: 10.1111/jne.12600. [Epub ahead of print] Review. PubMed PMID: 29656508. \*

Mink R, Schwartz A, Carraccio C, High P, Dammann C, McGann KA, Kesselheim J, Herman B; Steering Committee of the Subspecialty Pediatrics Investigator Network (**Allen D**, Frohna JG, Patel N, collaborators). Creating the subspecialty pediatrics investigator network. *J Pediatr*. 2018 Jan;192:3-4.e2. doi: 10.1016/j.jpeds.2017.09.079. PubMed PMID: 29246355.

Seibert TS, **Allen DB**, Eickhoff J, **Carrel AL**. CDC childhood physical activity strategies fail to show sustained fitness impact in middle school children. *Prev Med Rep*. 2018 Aug 23;12:60-65. doi: 10.1016/j.pmedr.2018.08.007. eCollection 2018 Dec. PubMed PMID: 30181947; PubMed Central PMCID: PMC6120423.

Strait RB, Slattery MJ, **Carrel AL**, Eickhoff J, **Allen DB**. Salivary cortisol does not correlate with metabolic syndrome markers or subjective stress in overweight children. *J Child Obes*. 2018;3(2). pii: 8. doi: 10.21767/2572-5394.100048. Epub 2018 Apr 18. PubMed PMID: 29998225; PubMed Central PMCID: PMC6037313.

**Terasawa E**, Garcia JP, Seminara SB, Keen KL. Role of Kisspeptin and Neurokinin B in puberty in female non-human primates. *Front Endocrinol (Lausanne)*. 2018 Apr 6;9:148. doi: 10.3389/fendo.2018.00148. eCollection 2018. Review. PubMed PMID:29681889; PubMed Central PMCID: PMC5897421.

**Terasawa E**. Neuroestradiol in regulation of GnRH release. *Horm Behav*. 2018 Apr 18. pii: S0018-506X(17)30575-5. doi: 10.1016/j.yhbeh.2018.04.003. [Epub ahead of print] Review. PubMed PMID: 29626484. \*

Vanderwall C, Eickhoff J, Randall Clark R, **Carrel AL**. BMI z-score in obese children is a poor predictor of adiposity changes over time. *BMC Pediatr*. 2018 Jun 8;18(1):187. doi: 10.1186/s12887-018-1160-5. PubMed PMID: 29880034; PubMed Central PMCID: PMC5992682.

Wattanavanitchakorn S, Rojvirat P, Chavalit T, **MacDonald MJ**, Jitrapakdee S. CCAAT-enhancer binding protein- $\alpha$  (C/EBP $\alpha$ ) and hepatocyte nuclear factor 4 $\alpha$  (HNF4 $\alpha$ ) regulate expression of the human fructose-1,6-bisphosphatase 1 (FBP1) gene in human hepatocellular carcinoma HepG2 cells. *PLoS One*. 2018 Mar 22;13(3):e0194252. doi: 10.1371/journal.pone.0194252. eCollection 2018. PubMed PMID: 29566023; PubMed Central PMCID: PMC5863999.

*\*ePub only; no print citation available when report was compiled*

*\*\* Publication had previously appeared in 2017 report as an ePub*

**GRANT SUPPORT**

<b>Principal Investigator</b>	<b>Sponsor</b>	<b>Title</b>	<b>Co-Investigators</b>
Allen, Brittany J	University of Wisconsin Foundation	Transgender youth resource network	Endocrinology: Jennifer Rehm
Allen, David B	National Institutes of Health (NIH)	Childhood diabetes clinical & molecular research training program	Endocrinology: Aaron Carrel (Associate Director)  Infectious Diseases: Ellen Wald (Associate Director)
Allen, David B	Pediatric Endocrine Society	PES travel grant, Elizabeth Mann	
Allen, David B	Pediatric Endocrine Society	PES travel grant, Lauren Kanner	
Allen, David B	Pediatric Endocrine Society	PES travel grant, Mita Naik	
Cryns, Vincent (UW Department of Medicine)	Wisconsin Partnership Program (WPP)	Wisconsin obesity prevention initiative	Endocrinology: Aaron Carrel
MacDonald, Michael J	University of Wisconsin Foundation	Pediatrics diabetes center	
Rehm, Jennifer L	North American Society for Pediatric and Adolescent Gynecology	Effect of sex hormones on ectopic fat deposition in overweight/obese pubertal children	
Rehm, Jennifer L	UW - Institute for Clinical & Translational Research	Wisconsin survey of trans youth: An assessment of resources and needs	GPAM: Britt Allen
Reeder, Scott B (UW Department of Radiology)	National Institutes of Health (NIH)	Evolution of quantitative MRI biomarkers of metabolic syndrome during puberty	Endocrinology: Jennifer Rehm
Terasawa-Grilley, Ei	National Institutes of Health (NIH) & Massachusetts General Hospital	Kisspeptin and neurokinin B: from physiology in the monkey to pathophysiology in the human	
Terasawa-Grilley, Ei	National Institutes of Health (NIH)	Stem cell-derived GnRH neurons: Optimization and characterization	
Terasawa-Grilley, Ei	National Institutes of Health (NIH)	Role of neuroestradiol in regulation of GnRH neurons	

Terasawa-Grilley, Ei	UW - Institute for Clinical & Translational Research	A non-invasive method for assessment of estradiol in the brain	
Terasawa-Grilley, Ei	Wisconsin Alumni Research Foundation	Role of neuroestradiol in the preovulatory GnRH surge	
Terasawa-Grilley, Ei	Wisconsin Alumni Research Foundation	International travel grant	
Drinkwater, Norman R (UW-Madison Office of the Vice Chancellor for Research and Graduate Education)	National Institutes of Health (NIH)	Wisconsin national primate research center	Endocrinology: Ei Terasawa-Grilley