

Innovations in Diabetes & Endocrinology



Rady Children's - A comprehensive system focused solely on children and adolescents.



PEOPLE

Dr. Sander garners prestigious research reward



Maike Sander, M.D., director of the Pediatric Diabetes Research Center and professor of pediatrics and cellular and molecular medicine at UC San Diego, has received a Humboldt Research Award, funded by the Alexander von Humboldt Foundation. Award winners are honored for their outstanding achievements in research and are invited to conduct a research project of their own choice in Germany, in close collaboration with fellow experts at a German research institution.

Nominated for this award by professor Norbert Hübner, Ph.D., of the Max Delbrück Center for Molecular Medicine (MDC) in Berlin, Dr. Sander is an expert in pancreatic stem cell biology, with over 20 years of experience in medicine and diabetes research.

After earning her medical degree from the University of Heidelberg Medical School in Germany, she conducted research at UC San Francisco. Prior to accepting her current position at UC San Diego, Dr. Sander held faculty positions at Hamburg Medical School, Germany and the University of California, Irvine.

Dr. Sander is an elected member of the American Society of Clinical Investigation and the German Academy of Sciences (Leopoldina), a member of the National Institutes of Health (NIH) Human Islet Research Network and the recipient of the prestigious Grodsky Award from the Juvenile Diabetes Research Foundation (JDRF). She is chair of the NIH study section on Cellular Aspects of Diabetes and Obesity and serves as a scientific reviewer for the JDRF and numerous scientific journals.



PROGRAMS

New clinic treats differences of sexual development

The [Differences of Sexual Development \(DSD\) Clinic](#) at Rady Children's Hospital-San Diego cares for children born with abnormalities of the genitalia and/or reproductive organs secondary to a chromosomal or hormonal disorder.

DSDs managed in the clinic include:

- Congenital adrenal hyperplasia (CAH)
- Partial or total androgen insensitivity (PAIS or CAIS)
- 5-alpha-reductase deficiency
- Leydig cell hypoplasia
- Gonadal dysgenesis



innovation
belongs in every moment



RESEARCH

- Abnormalities of the Mullerian duct syndrome
- Aromatase deficiency

DSDs may be diagnosed shortly after birth, but some go unrecognized until later in a child's life. Medical management of these patients involves correctly diagnosing the disorder, and some of them require hormonal treatment and/or surgical intervention. Psychosocial counseling is also a key element for the management of some patients and their families.

The clinic offers a multidisciplinary approach, with specialists in endocrinology, gynecology, urology and behavioral health. [Marcela Vargas, M.D.](#), from [Endocrinology](#) provides medical/hormonal treatment; [Akilah Weber, M.D.](#), from [Gynecology](#) and [Madhu Alagiri, M.D.](#), from [Urology](#) collaborate to manage children with disorders that require surgical intervention; and clinical psychologist Kriston Schellinger, Ph.D., provides psychosocial counseling to patients and families.

INNOVATIONS

Dietitian/diabetes educator employs mobile apps

Lisa Ameer, M.S.N.H., R.D., CDE, of [Rady Children's Nutrition Clinic](#), is always searching for technology to empower her diabetic patients and simplify their lives. To help them with calorie and carbohydrate counting, she is using mobile apps for patient education and daily diabetes management.

While working at the American Diabetes Association's Camp Wana Kura last summer, Ameer saw many of the kids trying out various apps for calorie and carbohydrate counting, which they found to be extremely helpful. Carbohydrate counting is often challenging for patients since it is difficult to understand these counts based on ounces or grams.

A unique app, according to Ameer, is the [Figwee Portion Explorer](#) (by Density Limit LLC for iOS; \$2.99), which allows users to visualize a plate. It clarifies portion distortions by using nearly 30,000 photos of weighed portions, according to its website.

"My patients can dish up their plates with a visual estimate matched to both carbohydrate and calorie calculations," Ameer explains. "Users can check out the calories as they stack up cheese cubes or slices of bacon and watch the carbs increase as the apple slices pile up." She notes that using the scale tool listed below in addition to this app can give patients and their families more visual accuracy when at home.

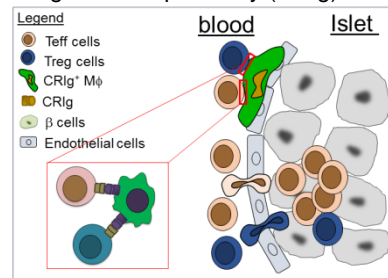
Other apps (and the scale tool) that have helped Ameer's patients are:



Researcher discovers novel role of macrophages in the pathogenesis of type 1 diabetes

[Wenxian Fu, Ph.D.](#), a researcher at the [Pediatric Diabetes Research Center](#) and an assistant professor of pediatrics at UC San Diego, and his colleagues have identified a subset of tissue-resident macrophages that contribute to stopping the development of type 1 diabetes.

Tissue-resident macrophages represent a key constituent of the innate immune system in orchestrating inflammation and regulating tissue homeostasis. The Fu lab has discovered a new subset of tissue-resident macrophages that impact the development and function of CD4⁺ Foxp3⁺ regulatory T (Treg) cells, a central mechanism in the prevention of lethal autoimmunity and excessive inflammation. This subset of tissue-resident macrophages distinctively expresses complement receptor of the immunoglobulin superfamily (CRlg).



In addition to dampening pathogenic T cell proliferation, the researchers found that CRlg promotes the differentiation of induced Treg (iTreg) cells by synergizing with TGF- β signaling. CRlg also stabilizes Foxp3 expression in iTreg cells. Moreover, *in vivo* CRlg-Ig treatment increases Treg cell abundance, particularly in pancreatic islets of NOD mice, a primary animal model for juvenile autoimmune diabetes.

Therefore, CRlg may potentiate the development of novel therapeutic regimen to treat human type 1 diabetes.



- [MyFitnessPal](#) for iOS and Android (free) A complete description can be found in the article "[Smartphone Apps for Heart-Healthy Living - Clients Can Track Diet and Exercise Habits at Their Fingertips.](#)" by [Clare T. Dyczkowski, B.A., and Christin L. Seher, M.S., R.D., LD.](#) *Today's Dietitian*, Vol. 14, No. 8, p. 18.
- **All-In Yoga** by Arawella Corporation for iOS and Android
- **The Perfect Portions Digital Nutrition Food Scale:** A tool to help with portion distortion, this scale calculates both weight and carbs based on the food code entered.
- More mobile apps: [Drag 'n Cook](#) by the Asian American Diabetes Initiative at the Joslin Diabetes Center, [GoMeals](#), [Fooducate](#) and [CalorieKing](#)



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