

DRFOCUS Diabetes Research Institute Foundation Spring 2010 | Volume 46 | ISSUE 2

Spring 2019 | Volume 46 | Issue 2



"Not only did our strategy prevent the formation of tumors, but also eliminated them completely when we switched on the suicide genes only after the tumors were fully grown."

This colony of stem cells were genetically modified with a double fail-safe mechanism at the DRI

Researchers have been advancing methods to generate insulinproducing beta cells from stem cells to treat type 1 diabetes (T1D). However, transplantation of these immature cells into patients poses substantial risks, namely the development of tumors (teratomas) and the growth of these stem cells into unwanted cell types. Certain stem cells can develop into all of the body's cells and tissues.

Now, for the first time, DRI scientists have engineered a stem cell line containing two 'suicide genes' that can eliminate all but the desired insulin-producing cells. This double fail-safe approach, recently published in Stem Cell Reports, addresses the limitations of stem cell-derived beta cells and opens the door to creating safe cell-replacement therapies for people with T1D.

With clinical trials already initiated using stem cell-derived beta-like cells and other approaches on the horizon, the need to ensure patient safety is of paramount importance. Research has shown that only about 30 – 40% of beta-like cells are obtained through current development methods, leaving a significant percentage of undefined cells in the balance. Most importantly, non-differentiated cellscells that have not yet developed into a specific type—may produce tumors upon transplantation, despite recent advancements.

To address these concerns, the DRI team set out to engineer stem cell lines that selectively destroy both tumorigenic cells and cells that do not produce insulin, like liver, brain, muscle cells and others. The team tested their approach in several ways, including in a mouse model of diabetes that mimics the disease condition in humans. All unwanted cells were removed.

"Not only did our strategy prevent the formation of tumors, but also eliminated them completely when we switched on the suicide genes only after the tumors were fully grown," said Dr. Juan Dominguez-Bendala, director of stem cell development for translational research.

No other research method reported thus far offers the same degree of safety and specificity. While the team focused on deriving insulin-producing cells, this strategy, if clinically successful, may benefit other conditions beyond diabetes.

"We could make the strategy specific for any tissue of your choice. Our main interest is beta cells, but it could also be tailored to select for neurons, heart or liver cells, for example," explained Dr. Dominguez-Bendala.

THE GURWITZ FAMILY: Finishing What They Started



When her son, **Richard Gurwitz**, was diagnosed with type 1 diabetes at the age of 2, **Lorrie Ann Knowles** and her husband, **Stanley Gurwitz**, had to do something. Seeking a cure for their son, Lorrie and Stanley joined four other families and started what would become the Diabetes Research Institute Foundation. The organization's mission was to support a promising research program at the University of Miami solely aimed at finding

a cure for diabetes. Eventually, that program became the Diabetes Research Institute.

While his parents worked tirelessly to help fund the DRI, Richard was struggling to manage his diabetes, and by the time he reached his 2Os, he had developed many of the most severe complications— hypoglycemic unawareness, diabetic neuropathy and retinopathy.

Years and many scientific advances later, Richard was selected for a clinical trial and was the recipient of an islet cell transplant, which changed his life forever.

"When my parents were working so hard to help create the DRI, I bet they couldn't have imagined that the research would benefit me so directly. I'm living proof that this research works."

"That transplant changed everything," Richard said. "It allowed me to do all the things that I had hoped to do as a young man. I ended up getting a great job with the fire department, I was able to marry a beautiful woman and have two beautiful kids...none of that would have been possible without my transplant. I wouldn't be around today."

The Gurwitz family truly created a legacy when they helped establish the DRI Foundation and participated directly in the research, but their support didn't stop there. In order to ensure that critical funding of diabetes research continues into the future, both Lorrie and Richard made provisions for the Foundation in their estate plans.

"I wanted to make a bequest to the DRI Foundation in honor of the five founding families," said Lorrie. "I asked that the funds be designated to support the islet cell transplant program, in gratitude for everything they did for Richard."

Sadly, Lorrie passed away in 2018, but the impact she had on the DRI will always be remembered.

"When my parents were working so hard to help create the DRI, I bet they couldn't have imagined that the research would benefit me so directly. I'm living proof that this research works."

To learn more about how to leave a legacy, visit DRI.GiftPlans.org or call 1-800-321-3437.

PEP Walk & Family Fun Day

Hundreds gathered for the PEP Walk & Family Fun Day, sponsored by Walgreens and held in March at T.Y. Park in Hollywood, FL. Thanks to the family teams—the heart of this event—and sponsor support, \$150,000 was raised for the DRI. Attendees enjoyed a walkathon through the beautiful park, the Walgreens health fair, music by DJ Bucko, bounce houses, face painting, airbrush tattoos, appearances by the 501st Legion Star Wars characters, and more! This community-driven event was a collaborative effort between the DRI Foundation and Walgreens, which have raised millions for research since the inception of the partnership.





In Memory of Shelly Singer

The Diabetes Research Institute and Foundation deeply mourn the passing of **Sheldon "Shelly" Singer**, who together with his wife, **Barbara**, was one of the original five founding families of the organization in 1971.

Shelly served as the first chairman of the DRI Foundation's Board of Directors and continued to serve on the National Board through 2014. In addition to his role as founding chairman, he held the position of secretary and treasurer, and was a member of the

finance and planned giving committees and the Florida Region Board's major gifts committee. Generous with both his time and financial support, he was a Grand Founder of the DRI Foundation.

Shelly became passionately committed to the search for a cure when their youngest child, **Deb B**, was diagnosed with type 1 at age 2, and later, one of their sons, **Jon**, was diagnosed, too. Tragically, Deb B lost her life in 2001 at age 33 due to complications of diabetes, further strengthening his resolve to end this disease. Shelly will forever remain in our hearts.

Caroline and Alitza Weiss Family Foundation Pledges \$1 Million



In an immense gesture of philanthropy—and gratitude—the Caroline and Alitza Weiss Family Foundation has committed \$1 million to support the pioneering work being conducted by the Diabetes Research Institute.

Caroline Weiss is chief executive officer of the Weiss Group of Companies, LLC, a Miami-based real estate company founded by her late husband, **Jack Weiss**, in the 1970s. Her daughter, **Alitza Weiss**, serves as senior vice president of marketing. The Weisses have been benevolent contributors to many charitable organizations throughout the community, but their decision to support the DRI is a personal one. Caroline suffers with diabetes and they would love nothing more than to see a cure for the disease. Not only do they hold the research being done by the DRI and its director, **Camillo Ricordi**, M.D., in the highest regard, they also credit him with saving Caroline's life.

"I have known Dr. Ricordi for many years and admire and greatly respect his beneficial work that will serve the world, but the search for a cure became personal when my mom was diagnosed. He saved her life when she experienced challenges with her diabetes," said Alitza. "We are committed to giving back, as we consider this a duty and obligation to make a difference in the lives of so many touched by diabetes."

Beyond their desire to help advance the DRI's research closer to a cure, they hope to inspire others to donate to the DRI, as well. They are challenging others to match their \$1 million donation, providing the DRI a total of \$2 million through this effort.

"We know that the scientists at the DRI will find a cure for diabetes. We humbly ask caring individuals to join us and provide them with the funds they need to get us closer to that goal for our loved ones," said Alitza.

"We are deeply grateful to the Caroline and Alitza Weiss Family Foundation for their generous \$1 million donation and for providing us with an extraordinary matching opportunity to raise double that amount in support of the DRI's cure-focused research initiatives," said **Alice Rodd O'Rourke**, CEO of the Diabetes Research Institute Foundation.



\$1 Million Match Challenge

At the Diabetes Research Institute, there is *Innovation Underway* in every laboratory and within all of our collaborative projects. While integrating technology and medicine, we stay singularly focused on finding a cure. Thanks to an extremely generous matching gift by the Caroline & Alitza Weiss Family Foundation, all donations will be doubled through June 30, 2019—up to \$1 million! This is an incredible opportunity to keep this innovation moving forward. Every dollar makes a difference, and we truly need your support at this time to earn the full amount of the match. Use the enclosed envelope or donate online at DiabetesResearch.org/match.

BE THE HERO: DRI Diplomats



How fun does four-wheeling for a cure sound? That's exactly what the Shapin family is doing! **Leah** and **Kevin Shapin**'s son, **Declan**, was diagnosed with type 1 diabetes at age 2. Now, they're raising funds and awareness with their Jeep Insulin Powered! Its sleek black design features blue accents and decals, including the DRI logo and other diabetes awareness messages. This spring, they were at Jeep Beach, one of the largest jeep events in the country, held at Daytona International Speedway. Where will they be next? Follow them on Facebook @thejeepinsulinpowered.

DO YOU HAVE A HOBBY YOU LOVE? IT'S EASY TO TURN IT INTO A FUNDRAISING AND AWARENESS EFFORT! WE CAN HELP.

Learn more about the DRI Diplomats program at DRIdiplomat.everydayhero.do or send an email to TomKarlya@drif.org.

AROUND THE DRI



UNDER THE MICROSCOPE

WITH PETER BUCHWALD, PH.D.

Drug discovery has truly transformed the field of medicine over the last century. Millions have benefited from the introduction of novel drugs such as antibiotics, glucocorticoids, antipsychotics, contraceptives, antihistamines, and many others that have revolutionized the treatment of several serious as well as lethal diseases. Even the transplantation of organs and cells became feasible only after the introduction of improved immune suppressants.

Currently, type 1 diabetes is the only autoimmune disease that has no approved immune therapy—something that the DRI is aiming to change. Dr. **Peter Buchwald**, director of drug discovery, has been leading the DRI's efforts to design and develop safer and more effective agents for immune-related therapies. His research, in collaboration with several other Institute scientists, is yielding some exciting possibilities for those living with diabetes.

Q. What are you working to achieve in your area of research?

A. For several years now, we have been working to develop a Drug Discovery program that focuses specifically on immunomodulatory areas of interest for type 1 diabetes. Ultimately, our goal is to achieve improved immune therapies for islet transplant recipients on one hand, and prevention of onset in those who are likely to develop the diseases—and possibly even reversal in new onset patients, on the other. When we started, there was essentially no medicinal chemistry expertise at DRI or even at the University of Miami; hence, it took a while to build it up from the ground and acquire funding. Fortunately, due to interest from many people, including from Drs. Ricordi and Kenyon here at DRI, we are now approaching a critical mass for drug discovery-oriented work here on the medical campus.

Q. Can you explain some of the drug discovery projects now underway?

A. Our work is focused on three main areas. The first is the modulation of co-signaling interactions that act as immune checkpoints. Immune checkpoints are regulatory pathways critical for immune regulation and self-tolerance: they play crucial roles in helping the immune system mount an attack against invading foreign organisms, but prevent it from destroying all cells indiscriminately. Different molecules that participate in these signaling responses can be stimulatory or inhibitory.

We have been focusing on a molecular pathway known as CD40– CD40L interaction, because blocking this pathway was found to be particularly effective in islet transplant recipients. We were able to identify and synthesize the first promising small molecule inhibitors and are now conducting additional experiments to confirm and then improve their activity.

A second major area is in achieving local immune suppression and anti-inflammatory (LISAI) effects. This can provide improved islet survival and function, while minimizing the side effects of systemic immune therapies by focusing them at the site of transplantation and reducing their dose.

Finally, a third area of my work involves quantitative and computational modeling in general. As part of it, I am focusing on the study of islet function and of its change during diabetes onset or following transplantation. An important portion of this work has been supported by the NIH as part of our islet physiomimetic device project within the Human Islet Research Network (HIRN) consortia.

Q. Why is this area of research important for cell-based therapies/ islet transplantation?

A. Islet cell-based therapies need to overcome several major hurdles, including the considerable loss of functional islets after transplantation due to inflammation followed by limited oxygen availability until revascularization occurs. There is also a prolonged need for immune suppression to avoid immune destruction. A successful LISAI regimen could help with both: minimize the early inflammatory response and reduce the need for systemic immunosuppression.

Q. What makes this work so exciting?

A. The incidence of autoimmune diseases, including type 1 diabetes, is increasing at alarming rates in industrialized nations, and there is a very good chance that drug discovery can provide real break-throughs here in the near future. Our ultimate goal is to eliminate such diseases from being a life-long threat just as we were able to do so for bacterial infections with the introduction of antibiotics in the late 1940s.

DRI Director Appointed to Italy's Supreme Council of Health

Dr. **Camillo Ricordi** was appointed by Italian Minister of Health **Giulia Grillo** to Italy's Supreme Council of Health, the committee of medical experts who advise the government on health policy. Dr. Ricordi is among a new team of 30 top Italian scientists who are designated based on an exceptional international reputation, published scientific contributions to the medical field and the impact these works have had on clinical progress. Dr. Ricordi stated, "This prestigious advisory board will be critically important to enhance scientific research and to advise on strategic decisions on the path to cures."

NIH Grant Will Help Advance Islet Encapsulation Strategies

The focus of many research groups working to advance islet cell encapsulation has been on optimizing the capsules for transplant *in vivo*—within the body. However, supplying the insulin-producing cells with sufficient oxygen *in vitro*—outside of the body—prior to transplantation is also a vital yet overlooked aspect for transplant success, according to **Chris Fraker**, Ph.D. He and his team were recently awarded a five-year, \$2 million grant from the National Institutes of Health (NIH) to further develop and test innovative methods for maximizing oxygen transport to encapsulated islets during both critical phases of the islet transplant process.

Can the Eye Help Achieve Islet Transplant Tolerance in Type 1 Diabetes?

It is said that the eyes are the window to the soul, but they may also open the door for discovering new ways to achieve immune tolerance to transplanted islets in type 1 diabetes, according to the DRI's **Midhat Abdulreda**, Ph.D., and **Per-Olof Berggren**, Ph.D. Their findings, which were published online earlier this year in *Diabetologia*, the journal of the European Association for the Study of Diabetes (EASD), show that islets transplanted in the eye can survive and function long-term without continuous immunosuppression, and moreover, that initial islet transplants within the eye of the recipient may lead to long-term peripheral immune tolerance in other transplant sites. The study was conducted in experimental and preclinical (non-human) models of diabetes.







6 Top Tips for Living Healthy

Did you know that the DRI's Education Service offers a variety of classes for people with T1D and T2D? The newest class, called Living Healthy, held every fourth Tuesday of the month, is actually for anyone who wants to achieve a healthy lifestyle. Learn more at DiabetesResearch.org/diabetes-classes or call 305-243-3455.



"We didn't know anything about diabetes, and there's a huge learning curve. So, we took the DRI's Mastering Your Diabetes course."



BOARD SPOTLIGHT Amy and Scott Greenwald

"When our daughter, Lexi, was diagnosed with type 1 diabetes at the age of 6, I told her I would do whatever it takes to find a cure, and that's exactly what we're trying to do," stated Amy Greenwald.

Feeling overwhelmed after diagnosis, the South Florida mom and her husband, **Scott Greenwald**, immediately began looking for support. Since they were active with the University of Miami, they quickly discovered the Diabetes Research Institute and felt embraced by the DRI family.

"We didn't know anything about diabetes, and there's a huge learning curve. So, we took the DRI's Mastering Your Diabetes course," she explained. The three-day, interactive program empowers families affected by diabetes to make informed decisions about day-to-day management. "It was a life changer for us."

They also took a tour of the Institute, spoke with the scientists, and learned firsthand about the different research areas being investigated. What struck them most was the passion they felt from everyone they met. "The scientists are so committed...their hearts are in it," said Amy, as were theirs!

Amy and Scott jumped right into supporting research, by sponsoring fundraising events, chairing Kids Party for a Cure for several years and now Out of the Kitchen—an always-sold-out culinary event where the area's top chefs cook tableside and interact with guests. The event has raised more than \$1.3 million for the DRI over the past 6 years. Even Lexi and their son, **Jonathan**, got involved with the DRI Diplomats fundraising and awareness program and helped spread the word through a "siblings" social media campaign.

Whenever the Greenwalds have taken on a leadership role for the organization, they have successfully reached out to their family, friends, and business associates to ensure incredible results. They garner raffle prizes, silent auction items, sponsorships, and more.

Scott, who is president of The Greenwald Group, a Miami real estate agency, explained why they work so hard, "We've seen the progress being made, and we believe with proper funding, the DRI will find a cure."

Fully committed, Amy and Scott now serve as Florida Region Board members and aim to fulfill that promise of a cure to their daughter.



#UnitedWeBuild a Cure for the Future

Our most dedicated partner, North America's Building Trades Unions (NABTU) held its annual Legislative Conference in early April to discuss important legislative priorities, engage with fellow union leaders, and mingle with congressional leaders. Held in Washington, D.C., the four-day event attracted approximately 2,000 union members and included a special DAD's Day (Dollars Against Diabetes) presentation that recognized members of The Colorado Building & Construction Trades Council (CBCTC) for their incredible efforts to raise funds for the DRI. Pictured are **Brent Booker**, NABTU Secretary-Treasurer, **Tom Karlya**, DRIF Senior Vice President, **Mike Gleiforst**, Elevator Constructors Local #25, **Tom Tuttle**, Pipefitters Local #208, **Jason L. Wardrip**, CBCTC DAD's Day Chairman, **Gayle Noon**, CBCTC, and NABTU President and DRIF National Board Member **Sean McGarvey**.



EVENTS

 Co-chairs Troy Gregory (I) and Ricardo Salmon (r) congratulate first-place finisher Daniel Marcucci (center) at the nth annual All In for a Cure Texas Hold'em Poker Tournament, which was held at New York's Grand Havana Room and raised \$250,000.
Event Co-chair Matthew Fishlinger (I) and emcee/former NFL quarterback Don McPherson present the Lifetime Achievement Award to the DRI's Della Matheson, RN, CDE, at the inaugural C³ – Collaborate, Celebrate, Cure event held at NYC's Tribeca Rooftop.
On the evening of the 35th annual Empire Ball, six iconic NYC towers helped #LightTheSkyForDRI in blue while New York's real estate industry honored Glen J. Weiss, Robert Cuzzi and Joel M. Brenner, and raised \$1.4 million.

Chaired by Natalie Olstein, Gloria Katz, and Renee Aronin, the sold-out A Gift of Love...A Gift of Hope Luncheon in Boca Raton featured boutique shopping, a lovely lunch and card playing while helping to raise more than \$1 million since its inception.
Families "Dreaming of a Cure" came clad in their PJs to Carnival for a Cure at Dave & Buster's in Long Island. Honorary Chairs Roberta and Bruce Waller flank Event Co-chairs Dara Melnick (with her son, Julian) and Edra Tepper.

6. Held at the iconic Nobu Hotel Eden Roc Miami Beach, the Love & Hope High Rollers Night featured casino games, dinner and dancing, and raised more than \$400,00. Pictured: DRIF CEO Alice Rodd O'Rourke, JD, Alitza and Caroline Weiss, Dr. Camillo Ricordi, and Executive Chairman Sandra Levy.

7. It was a foodie's delight at Out of the Kitchen where South Florida's best chefs cooked tableside for guests, helping to raise \$375,000. Pictured: "Top Chef" alum Sam Talbot, flanked by Event Co-chairs Scott and Amy Greenwald, and Tammy and Steve Klein.
8. More than 200 guests enjoyed dinner, dancing, prizes and a cooking demo at Cooking for a Cure. Pictured are Richard Valicenti, Co-Chair & NE Board Member Delia DeRiggi-Whitton, Co-Chair Rebecca Castronovo, Matthew Silver, honoree Chef Jeanine DiMenna, Mayor of Glen Cove Tim Tenke and Co-Chair & NE Board Member Wenly Waller.

DRIFocus

Diabetes Research Institute Foundation

National Office 200 South Park Road Suite 100 Hollywood, FL 33021

address service requested

Non-Profit Org. US Postage PAID Diabetes Research Institute Foundation

CALENDAR	For information on the events or DiabetesResearch.org or call one o	to make reservations, visit of the DRI Foundation offices listed	below.	
	JUNE 7	JUNE 13	JULY 19-20	AUGUST 9-11
2019	Night Out for a Cure CONNECTICUT	Buy In for a Cure LONG ISLAND	Mastering Your Diabetes (college prep) FLORIDA	Mastering Your Diabetes (kids/teens) FLORIDA
SEPTEMBER	OCTOBER 7	OCTOBER 11-13	OCTOBER 29	NOVEMBER 14
Ride for the DRI LONG ISLAND	Donaldson Organization Golf Outing NEW YORK	Mastering Your Diabetes (18 and over) FLORIDA	All In for a Cure NEW YORK	C3—Collaborate, Celebrate, Cure NEW YORK
DECEMPER				
DECEMBER 11				
Empire Ball				

NEW YORK

For more info visit: DiabetesResearch.org/Events

DRIFOCUS A publication of the Diabetes Research Institute Foundation | Spring 2019 | Volume 46 | Issue 2

Marketing & Communications Dept.

Lori Weintraub, APR / Lauren Schreier

Other Contributors Jacqueline A. Colon RD, LD/N / Jessica DeBlois

Photography DRI - DRIF staff and volunteers / Cox Photography / Marc S. Levine Photography / Joe Marzo Photography / Andrew Milne Photography

Design francdesign The Diabetes Research Institute Foundation supports the Diabetes Research Institute at the University of Miami Miller School of Medicine. The Foundation's mission is to provide the Diabetes Research Institute with the funding necessary to cure diabetes now. To obtain additional information or request copies of DRIFocus, please call (800) 321-3437, e-mail lweintraub@drif.org, or visit DiabetesResearch.org.

DIABETES RESEARCH INSTITUTE FOUNDATION

National Office Florida Region 200 South Park Road, Suite 100 Hollywood, FL 33021 Phone: (954) 964-4040 Fax: (954) 964-7036 info@drif.org

New York Office Northeast Region 259 West 30th Street, Suite 402 New York, NY 10001 Phone: (212) 888-2217 Fax: (212) 888-2219 neregion@drif.org