

## Janice Y. Chou, Ph.D. -NIH

Patients with glycogen storage disease type Ia (GSD-Ia) lack the enzyme glucose-6-phosphatase- $\alpha$  (G6Pase- $\alpha$ ) in their liver. All patients have problems controlling their blood glucose levels while 70-80% of patients over age 25 years also develop a long-term complication called hepatocellular adenoma (HCA). We are developing a gene therapy to restore G6Pase- $\alpha$  enzyme activity in the patient. To develop a safe and effective method for doing this we have been working

disease over the next 8 to 10 weeks. When examining the amount of G6Pase- $\alpha$  expressed at 2 weeks after therapy, our results showed that the optimized gene produced up to 2.5-fold more G6Pase- $\alpha$  activity in the liver, compared to the non-optimized gene. This study is on-going but the preliminary data suggest that the optimized gene is a leading candidate for human clinical trials.

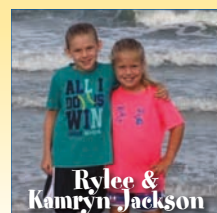
To test how long the effect of gene therapy might last, we have done an

**Evaluation of the efficacy of a recombinant AAV vector expressing the codon-optimized human G6Pase, supported by The Children's Fund for GSD Research in the amount of \$98,996.**

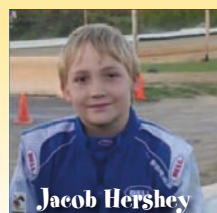
with a mouse model of GSD-Ia. Our therapy works by putting the G6Pase- $\alpha$  gene in a novel virus-based vector, named rAAV-GPE-G6Pase. A problem in gene therapy is to get the introduced gene expressed in the right tissue at the right level to restore normal function. The key characteristic of our approach is that we use the natural human G6Pase- $\alpha$  gene control elements to control the G6Pase- $\alpha$  gene. When introduced into the GSD-Ia mice our virus delivers the gene to the liver, restores their G6Pase- $\alpha$  activity in the liver, and prevents the occurrence of HCA.

The G6Pase- $\alpha$  gene contains the sequence of 3-letter codes that provide the genetic information to produce the G6Pase- $\alpha$  enzyme. Recent studies have shown that there are ways to improve the 3-letter code to make it more efficient in making the enzyme protein, named "codon optimization". We have used this technique to optimize the expression of the G6Pase- $\alpha$  gene and have initiated studies to compare the efficacy of the normal and optimized versions of the G6Pase- $\alpha$  gene. A higher level of expression is expected to be beneficial in clinical trials. The study consisted of performing gene therapy on 2-week-old GSD-Ia mice and monitoring the correction of their

extended study in mice. We have shown that our therapy, when given to young mice aged 2-4 weeks-old, can last for at least 70 weeks in correcting for the loss of G6Pase- $\alpha$  in the liver of GSD-Ia mice and preventing the occurrence of HCA. While this study shows that gene therapy can prevent HCA formation in young mice, what we still need to learn is if HCA already exists, can our gene therapy stop its progress or reverse its effects. This is important to know as it will determine who might be eligible for initial treatment when we get to the stage of conducting a clinical trial. Recent studies have shown that in a mouse where the G6Pase- $\alpha$  gene has been inactivated only in the liver, the mouse lives a lot longer than a mouse that has had the gene inactivated in all its tissues. In our previous experiments we have used the latter mouse, and it has not been possible to keep them alive long enough to develop HCA. Recently, the liver-specific inactivated mice have been shown to live long enough to develop HCA. So we are now using this strain of mouse to understand whether our gene therapy can slow, stop, or even cure existing HCA. Armed with this knowledge we will be ready to start the final, important, studies required by FDA to allow us to initiate a clinical trial.



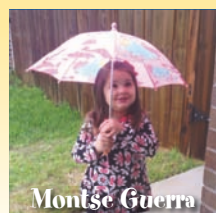
Rylee & Kamryn Jackson



Jacob Hershey



Pablo Guerra



Montse Guerra

The Children's Fund for Glycogen Storage Disease Research, Inc.

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# Hopes and Dreams

The Newsletter for Friends of  
The Children's Fund for Glycogen Storage Disease Research, Inc.



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"...because every child deserves to be healthy."



# Hopes and Dreams

The Newsletter for Friends of

The Children's Fund for Glycogen Storage Disease Research, Inc.



WINTER 2013-2014

GSD NEWSLETTER

VOLUME 11



Spreading Awareness Helping Friends Curing GSD

On March 12, 2013, an informational lunch was hosted at the home of Lisa and Jason James in Miami, Florida in honor of their nephew, James, who was born with GSD1a on July 12, 2012. Close to 100 people attended this casual meeting, where James' parents, Meredith and Grant Gussin, addressed their community of friends and family. It was the first time anyone in the room had ever heard of Glycogen Storage Disease and many were interested and shocked to learn of the discovery of James' condition. Numerous questions were asked after the presentation which further helped the crowd understand the implications of misdiagnosis

and poor treatment, and the importance of spreading awareness. Most were moved to tears when hearing that James almost died overnight at 6 weeks old when his parents found him hyperventilating and sweating in his sleep. Each person expressed excitement about being presented with the opportunity to help this little known disease and close to \$25,000 was raised on that day alone! Thereafter, over 125 of the Gussin's friends and family attended the GSD Golf Classic & Speakeasy Club on April 19, 2013 and are looking forward to continuing their support to lead to a cure for James and all others similarly affected by GSD.

## Annual Super Bowl Raffle

Generously Donated by the Reed Family



Two tickets to Super Bowl XLVIII in East Rutherford, NJ February 2nd, 2014  
MetLife Stadium, East Rutherford, NJ

4 days/3 nights accommodations at Downtown Marriott  
(double occupancy) New York City

Two playing spots in 9th Annual Super Bowl  
Celebrity Bowling Classic on 2/1/14 Chelsea Piers, New York, NY

Drawing to be held: Sunday, January 5, 2014 at 5 PM  
For More Information, Please Visit Our Website [www.curegsd.org](http://www.curegsd.org) or call Teri Reed (203) 972-9199  
A total of 1000 tickets will be sold • Ticket Price \$100

"...because every child deserves to be healthy."

## The Children's Fund for GSD Research, Inc.

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The Children's Fund for  
Glycogen Storage Disease Research

### Mission Statement:

We are committed to funding research so that children born with GSD I will benefit from early detection, treatment and an eventual cure.

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## Research Update 2013

Thomas Conlon, Ph.D. and  
David Weinstein M.D., M.M.Sc.  
- University of Florida

As many of you know, the University of Florida Glycogen Storage Disease Research Team and the UF Powell Gene Therapy Center have collaborated with and been supported by The Children's Fund for GSD Research. After at least six years and with continued collaboration with the NIH team headed by Dr. Janice Chou, we are closer than ever to our goal of bringing AAV gene therapy to clinical trial. In fact, in conjunction with Dr.

**Gene Therapy for Glycogen Storage Disease Type Ia, supported by The Children's Fund for GSD Research in the amount of \$156,083.**

William Fodor and GlyGenix Therapeutics (GTI), we are seeking approval from the FDA in 2014. This means some really important pieces need to come together at the same time for which we are well known for doing at UF. As the last set of mouse data is being acquired at the NIH while I write, we will have our final clinical candidate. This is a very important step in putting our best DNA construct forward as once we take the next steps from this point we really cannot make any changes. The next step is making an amount of higher grade (intense quality control testing) AAV vector for permanent banking and testing in a Good Laboratory Practice (GLP) environment under the guidance of the Food and Drug Administration (FDA). This study aims to demonstrate the safety profile (histopathology and clinical blood tests) and expected biodistribution throughout the body of a small animal at a dose range including what we would plan to inject into human patients. This data would be included in the Investigational New Drug (IND) submission to the FDA for approval. The Children's Fund and GTI have provided the funding to get this step done in my lab with the final clinical candidate and we hope to begin the animal portion in early 2014 with conclusion in the summer.

The Children's Fund would like to congratulate Dr. David Weinstein on his recent achievement of receiving the prestigious Order of the Smile Award in Poland. Recipients are nominated for their humanitarian efforts in helping children.

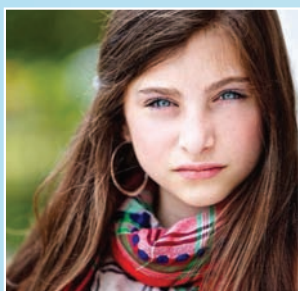




**7th Annual GSD Golf Classic & Speakeasy Club**

On April 19, 2013, we hosted the 7th Annual GSD Golf Classic, followed by a night at the Speakeasy. Over 100 people participated in an MLB-themed golf tournament and prizes were awarded to division winners, wild card winners and our overall Series Champs. This fabulous day on the course was followed by a bustling night at the Speakeasy. Almost 400 people with an eligible password were invited back in time to spend a few hours in the roaring 20's. Flappers, gangsters, movie stars and the like enjoyed eating, drinking, bidding and gambling, all while helping our cause. The event raised **\$275,000** for The Children's Fund for GSD Research, making it our largest and most successful event yet. This would not

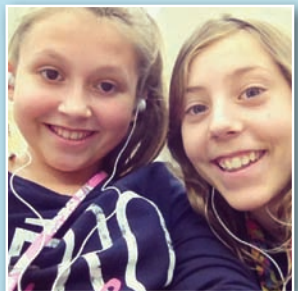
have been possible without a little help from our friends. Thank you to **Ryder**, our Title Sponsor, for their unwavering and generous support. We also thank all of our supporting sponsors, underwriters, auction donors and event partners. Sincere gratitude to **Gordon Latz, Jim Keenan**, and all of our amazing friends who volunteer their time and energy to help make this event a success. A big thanks to the **Gussin** family (Jamie, GSD1a) for having their wonderful, exuberant, generous family and friends attend. And finally, thanks to all of our incredible family and friends who have donated over the years and who continue to support our fight for a cure for GSD. We are truly blessed.  
- Lisa & Sandy Hodes



On September 7, 2013, **Chloe Wagner** celebrated her Bat Mitzvah. For her mitzvah project, Chloe started a charity called "Jogging for Jamie" in honor of her cousin, **Jamie Gussin**, who has GSD1a. Chloe raised \$2,000 which she donated to The Children's Fund, not only raising awareness in her community of Birmingham, Michigan but also focusing on the importance of health as she ran mile after mile to raise money to fund a cure for Jamie and others just like him. Thank you Chloe!



Thank you to **Jack Trimble** and **Eric McCoy** for selling GSD awareness bracelets in honor of Jack's cousin, **Justin Bagin**.



Thank you to **Haiden Hill** who sold GSD bracelets in honor of her friend **Zoey Robinson**.



**120 Holes For A Cure**

On Monday, June 17th, **Sandy Hodes**, dad of **Samantha & Katie Hodes** (GSD1a) played 120 holes of golf at Stonewall Links Golf Course in PA and raised \$10,000. This was the most played in the event with more than 30 participants. Based on the pedometer, **Sandy** and his partner **Ed Tancer** took more than 76,000 steps, walked in excess of 36 miles and the effort equated to walking up 156 flights of stairs.

It took 14 hours including a short 1 hour lightning delay at the 98 hole mark. He hit the first shot at 5:22 am and finished 54 holes by 10:45 am, 72 by 1 pm, 100 at 5:37 (after the delay) and 120 by 7:20 pm. Congratulations to **Sandy** and thank you to everyone who supported his effort.

Please visit our website [www.curegds.org](http://www.curegds.org) and provide us with your email address!

# In The News

## Ladies Golf & Tennis Invitational



On December 11, 2012, 85 wonderful women came together at Parkland Golf & Country Club in Parkland, FL to support The Children's Fund for GSD Research. Some took to the tennis courts for a round-robin tournament and others chose to tee it up on the golf course for a friendly scramble. The morning events were followed by a beautiful luncheon with raffles and prizes. It was a perfect day for reconnecting with old friends and inviting new ones into our GSD family. Thank you all for your kindness and support. \$3,000 was raised.

- The Hodes Family



Thank you to all of our shoppers who have taken advantage of the wonderful world of iGive.com. It is an easy way for our foundation to generate funds from just shopping online! Thank you to **Kathy Turi** for organizing this. We have raised over \$1100.00 so far.

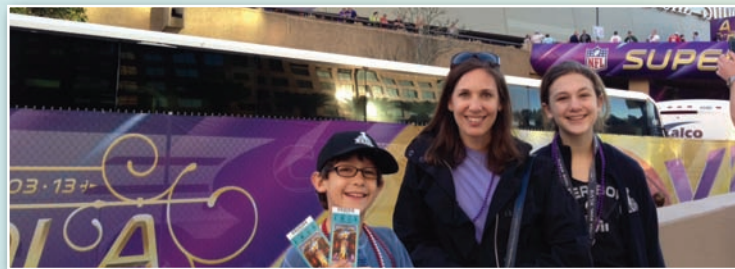
We are grateful to **Paymer Associates** for their generous contribution to The Children's Fund this past year. It is much appreciated.



**A Cocktail Party for GSD**

A sincere thanks to our friends **Andy & Debi Weisman** for hosting our "Wine Collection" cocktail party at their home last January. It was a beautiful evening and we collected over 80 bottles of wine for our Speakeasy Wine Wall,

which generated \$5,000 for our foundation. We are so fortunate to have such good friends. Thank you to everyone who donated wine. And to **Andy & Deb**: Thank you from the bottom of our hearts.  
- Lisa & Sandy



**Thank You To The Reed Family**

The winner of last year's SB raffle was **Chrissy Woerz** of New Canaan, CT. She writes about the SB, "We had the most wonderful time. The game was thrilling! When the lights went out, my son said, "we came to the right Super Bowl!" We sold 750 tickets, and the Reed's raffle raised close to \$100,000.

Thank you to the **Jennifer Kuttner Memorial Foundation** of the Sacramento Region Community Foundation for making a generous donation to The Children's Fund in memory of **Jennifer Kuttner**, who battled GSD1 her entire life.



## Books & Bellinis - Book Signing and Luncheon

November 19, 2013 - What a lovely time we had at the Books & Bellinis Luncheon with **Rochelle Weinstein**, author of *The Mourning After*. We laughed, we cried, we met some lovely people and we educated a whole new group about GSD and we raised \$2500. Thank you to Rochelle for sharing the afternoon with us and to everyone who helped make our event a success.



Mazel Tov to **Sarah Feldman** on her Bat Mitzvah and a very special thank you to Sarah and her family for asking that donations be made to The Children's Fund in lieu of gifts in honor of her cousin, **Jonah Feldman**. She raised over \$8,000. We are humbled by your generosity.



On October 22, 2013, **Gift Chixx Boutique** in Miami, Florida hosted their grand reopening event during which they raffled off several great gift items throughout the day. All proceeds from the raffle along with a portion of sales were donated to The Children's Fund for GSD Research. Thank you **Karen, Shelly** and all the other chixx! Your thoughtfulness means the world to us!



Thank you to **Ben Hodes** for helping raise funds for his Mitzvah project in honor of his cousins **Samantha & Katie Hodes**. He raised over \$2,600 for GSD research!



Thank you to the middle school student government of the **North Broward Preparatory School** for donating \$1,600 to our Foundation.

The Children's Fund has raised over \$6 Million Dollars for Glycogen Storage Disease research!!



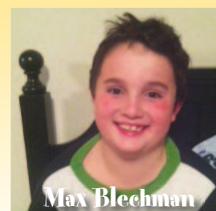
**Zack and Jake Gordon Organize Basketball Tournament For A Cure**

For our B'nai mitzvah project we organized a 7th grade co-ed basketball tournament to raise money for GSD. We charged a fee to participants who either played in or watched the tournament. We also organized a raffle that included great prizes. We were so fortunate to have a lot of support from our friends and family. We were also very lucky to receive the support of so many different stores and vendors who generously donated valuable prizes for the raffle. Items that we raffled off included a signed photograph of Knicks player Bernard King, a Knicks shirt signed by some of the players, some local gym memberships and much more.

It was a great night and all the 7th graders and adults had a lot of fun. We reached our goal and raised close to \$15,000 for GSD funding and research. It is our hope and dream to find a cure for GSD to help benefit our family and all the children afflicted with this disease.



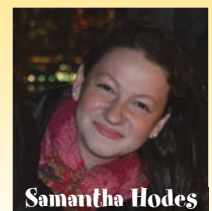
Teri & Anna Reed



Max Blechman



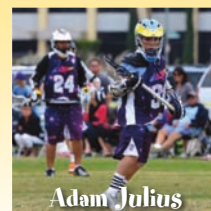
Katie Hodes



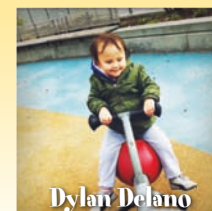
Samantha Hodes



Jonah Feldman



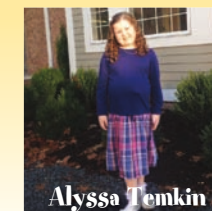
Adam Julius



Dylan Delano



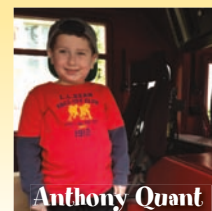
Jamie Gussin



Alyssa Temkin



Kasen Andrushko



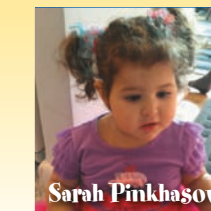
Anthony Quant



Nicholas Quant



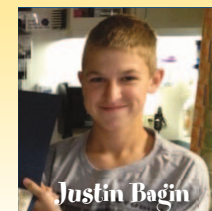
Rylee Graham



Sarah Pinkhasova



Tessa Peck



Justin Bagin