



Barnraising News

The latest news on Benjamin Siedman and the grassroots, "Barnraising" effort to find a cure for Sanfilippo Syndrome

June 2011



FINISH LINE IN SIGHT! NIH Grant sets path for Clinical Trial

A decade ago we produced a flyer. Many of you will remember it. It featured our son, Farmer Ben, proudly wearing his cowboy hat and talked about his dreams of being a farmer. In it, we spoke about a race against time—a race to find a cure. That race became a marathon run with both hope and determination by Ben, our family and you our supporters.

Today that race appears to have a finish line. In May 2010 Dr. Fu phoned us, exhilarated by a research breakthrough—mice living longer, clearance of storage, improvement in cognitive abilities. Everything we had waited so long to hear!

But she was out of money and suddenly we were back in the fundraising business. Thankfully, Ben's Dream was able to provide \$200,000 in funding to move the research to an application for an NIH grant. We began networking with other foundations and families nationwide to help in our efforts.

This past May Dr. Fu was awarded an NIH grant to move her work toward human clinical trials—a giant step forward and the closest we have ever been to realizing a treatment.



PRESS RELEASE



Nationwide Children's Hospital Researchers Receives NIH Grant for the Move Toward Clinical Trials Targeting the Lysosomal Storage Disease MPSIIIB

Strategy involves bypassing the blood-brain barrier to deliver needed genes to the central nervous system

Columbus, OH - 5/25/2011

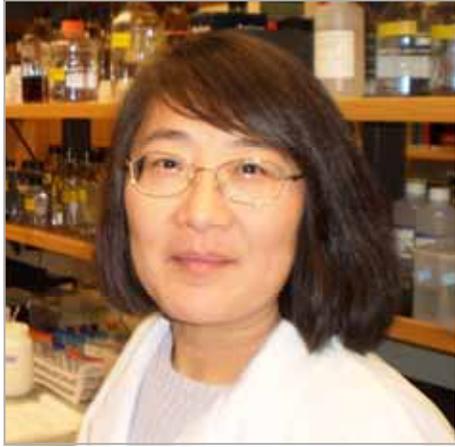
Investigators at Nationwide Children's have received a grant from the National Institutes of Health (NIH) to help move a therapy for MPS IIIB that has been shown effective in mice toward clinical trials in humans.

Mucopolysaccharidosis (MPS) IIIB, also known as Sanfilippo Syndrome B, is a lysosomal

Inside this newsletter, you will learn about her research, and the efforts of many of those helping to bring this work to trials as quickly as possible.

As you look through the pages, look at the children and study their faces. Each one has dreams, just as Ben dreams of a barn full of Holsteins, and each one is counting on you. Many, like our Ben, may not be able to wait the years it will take to bring Dr. Fu's research to a human application but today each has something they have not yet had—the hope of a cure on the horizon.

The yellow ribbon and olive branch garland is waiting for them—join us and be a part of helping them cross the finish line!



Dr. Haiyan Fu
Gene Therapy Center,
Nationwide Children's Hospital

Mucopolysaccharidosis (MPS) III or Sanfilippo Syndrome manifest predominantly in the central nervous system (CNS), including the brain and spinal cord. The greatest challenge for treating MPSIII has been the blood-brain barrier (BBB) which prevents therapeutics from entering the CNS.

Gene therapy has been considered an ideal approach because it has potential to mediate long-term restoration of the missing enzyme activity. In addition, the NAGLU enzyme is secreted, and can be taken up and used by neighboring cells. Therefore, it is not necessary to reach 100% of cells by gene therapy vector to treat MPS IIIB.

Our research over the last 10 years has been focused on developing efficient approaches to deliver the therapeutic AAV vectors into the CNS. Using these clinically scalable approaches to deliver the human NAGLU gene, we have achieved significant results. Recently, we have demonstrated the best long-term therapeutic impacts to date in treating MPS IIIB in mice using a single intravenous (IV) injection an AAV serotype 9 (AAV9) vector.

We were able to restore the NAGLU enzyme activity and correct the lysosomal storage pathology throughout the brain, spinal cord and multiple somatic tissues in adult MPSIIIB mice. Most importantly, the AAV9 vector treated mice showed significant behavioral improvement and survived to a normal lifespan.

A simple breakdown of Dr. Fu's results and what it could mean for children with Sanfilippo Syndrome.

- ◆ The lifespan of a normal mouse is between 18 and 32 months.
- ◆ The lifespan of a mouse with Sanfilippo is between 8 and 12 months.
- ◆ *Mice from the colony originally treated with Dr. Fu's AAV9 gene therapy process lived to at least 16 months of age. The oldest mouse is still alive and is currently 25.2 months old.*

It more than doubled the average lifespan.

- ◆ A normal, 5-month old mouse can stay on a rotarod (a spinning wheel) approximately 275 seconds before falling off.
- ◆ A mouse of the same age but with Sanfilippo falls off after about 125 seconds.
- ◆ *A 5-month old mouse treated with gene therapy averaged 250 seconds before falling from the rotarod.*

It improved the physical abilities of the mice.

- ◆ Cognitive testing via the Morris Water Maze shows that a normal 5-month old mouse can find a hidden platform on the third day of testing in approximately 15–20 seconds.
- ◆ The same test performed on a 5-month old mouse with Sanfilippo found many of the mice taking more than 45 seconds to find the platform, if they found it at all.
- ◆ *Mice treated with gene therapy found the platform in 18–30 seconds.*

The mice showed cognitive improvement.

The AAV9 vector has the unique ability to cross the BBB from the vasculature without additional treatment. Because of this BBB-crossing ability, a relatively low dose is needed to achieve clinical benefits. This will overcome one of the major challenges in the translation of gene therapy from mouse to human, the scalability (and the cost) of vector production. Importantly, this IV rAAV9 gene delivery procedure is minimally invasive and poses minimal burden to patients when translated to clinical application. Therefore, we strongly believe that we are well positioned to move our rAAV9 MPS IIIB gene

therapy program to clinical trial. We are currently working towards submitting an Investigational New Drug (IND) application to the FDA for approval of AAV9 gene therapy clinical trial in patients with MPS IIIB.

Because all four types of MPS III share similar disease properties, we believe that the gene therapy approach similar to what we've developed for MPS IIIB may also be feasible for other MPS III types. Furthermore, this AAV9 gene delivery procedure is also applicable for treating other forms of MPS/LSDs with neurological manifestations.

The Power of Social Media: Pepsi Refresh

In January, Ben's Dream worked cooperatively with the greater Sanfilippo community to realize the power of social media and gain a \$250,000 grant from Pepsi Corporation to support the work of Dr. Fu. Foundations and Families nationwide rallied their supporters to vote via Facebook or Text every day for a month. Monies from Pepsi Refresh are being used to fund vector production for both Sanfilippo Type B and A gene therapy.

Like Ben's Dream to follow us on Facebook: www.facebook.com/bensdream

To reach the finish line Dr. Fu's research needs us to pick up our stride and rededicate ourselves to fundraising.

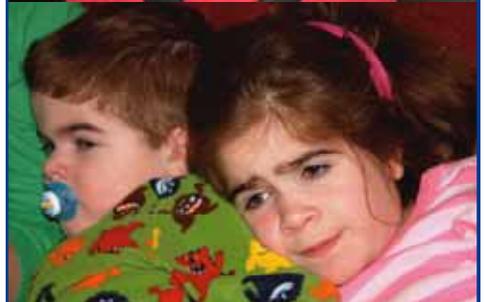
Dr. Fu has an immediate need for an additional \$250,000 to perform critical toxicology testing necessary to determine the safety of the vector.

In partnership with the Children's Medical Research Foundation (CMRF) in IL, Ben's Dream and CMRF were able to fund \$50,000 and \$100,000 respectively. We need to work together to provide the remaining funding.

The NIH grant does not fund research to apply this same gene therapy process to other Sanfilippo Types.

Working collaboratively with the Sanfilippo Children's Research Foundation (SCRF) in Canada we have been able to bring initial funding to AAV9 gene therapy studies on Type A.

The NIH grant does not fund all costs needed for clinical trials. Additional funds will be needed.



Sanfilippo Support Group

During 2010, with a grant from Shire, Ben's Dream established a support group. Parents of children with Sanfilippo gather every 6-weeks and are facilitated by Mary-Frances Garber, a licensed genetic counselor. With an understanding of both the genetics and prognosis, Mary is able to help the parents focus on their emotional needs. In a protective environment, the parents are able to share their fears, frustrations and triumphs.

Mary says, "peer support is a wonderful thing; to be able to laugh, cry and identify with others who are walking in your shoes seems to at times be the best medicine available".

For more information visit: www.listeningreflectinghealing.com

Events ...



Jog for Jessie

Hosted by Matt Aufman and Cari Cornish in honor of their daughter Jessica, this 5K Road Race was held in Wayland, MA on May 15th, National MPS Awareness Day. Over 150 runners participated in the professionally timed race but the true hit of the day was the Kids Fun Run. Sixty kids tied up their running shoes and raced around a soccer field. They were greeted at the finish line by Jessica and brother, Dylan who handed each runner a whistle and a medal. The Foundation would like to thank Jessie and her family, the welcoming community at the Claypit Hill School, the volunteers and local businesses whose generous support resulted in more than \$18,000 to support research.

Emily and Grey's Lemonade

Perhaps Florida's best young philanthropists, these 7 year olds are a true example of the power of love and hope. Inspired by her best friend's sister Blair, who has Sanfilippo, Emily contacted Ben's Dream to ask it would be OK if she followed Noah's example and created wristbands. Emily and Grey sold the purple *Grey's Wish: A Cure for Blair* bands at school and at their lemonade and bake sale raising over \$2,500. Emily took her dedication to her friend a step further by creating a fundraising page on FirstGiving. She not only donated her entire piggy bank but raised an additional \$2,400. Be inspired by her and visit www.bensdream.org/EmilysPage



Links for Lucas

This year, the Montgomery Family of Cedar Rapids, IA will donate the proceeds from their golf tournament, *Links for Lucas*, to Ben's Dream and Dr. Fu's research. Held in honor of Stacey and Lew's son Lucas, this year's tournament will be on July 8th and feature the chance to win a Chrysler 200 sponsored by Pat McGrath Dodge. Check out all the details at www.bensdream.org/Links4Lucas

Chapin's Orlando Golf Tournament

In April, Jennifer and Stuart had the honor of attending a scientific conference at the University of Florida sponsored by Dr. Barry Byrne of the Powell Gene Therapy Center and the Chapin and Chicone Families. The day long forum was attended by a who's who in science and discussed the progress of research worldwide. It culminated in a presentation by Dr. Fu and a discussion about how the scientific community, families and foundations could best support her research. We were thrilled to meet Blair and Grey and are honored by the support of Roger and Susan who will host a golf tournament at the Dubsdread Golf Club.



A Decade of Memories

In November 2010, *Crop for Ben* celebrated its 10th anniversary with the pop of champagne, and a trip down memory lane as participants viewed scrapbooks chronicling Ben's life. Tears flowed as Jennifer explained Dr. Fu's research and thanked hosts Lisa Wentworth and Lisa Cross for their decade long dedication. In its 10 year lifetime this cherished event has raised more than \$40,000 for research.



The Foundation Gives Thanks

- ★ Susan Chapin for hosting a shopping day at Lilly Pulitzer Winter Park.
- ★ Shannon McNeil and Sarah Giere for hosting a Thirty-One Shopping event.
- ★ Ten year old, Katharine Chapin and the Helping Hand Girls in Greensboro, NC for organizing a Lemonade, Bake & Band Sale raising \$400 in honor of her cousin, Blair.
- ★ Riley, Devon & Camryn Galizio along with their friends Sofia, Erica, Lilly, Cecilia and Isolde made and sold friendship bracelets at Jog for Jessie and other events.
- ★ Ben's Dream White Sox for proudly representing the Foundation since 2007.



Birdies for Ben is BACK!



After a 4 year hiatus, *Birdies for Ben*, the Foundation's single largest fundraiser is back. Not your typical golf fundraiser- *Birdies for Ben* is designed to raise the maximum and cost the minimum. And it has done just that! Held 8 times in the past 12 years, Birdies for Ben has raised over \$500,000 for research.

Our goal this year is to raise \$100,000 at the tournament to support Dr. Fu's research and bring it to a human clinical application as quickly as possible.

Sponsorship Opportunities

Tournament Sponsor	\$5,000
<ul style="list-style-type: none"> • 4 golfers • Banner on golf course • Recognition in all print/web material 	
Golf Cart Sponsor	\$2,500
<ul style="list-style-type: none"> • Signage on all golf carts • Recognition in all print/web material 	
Own the Hole	\$1,000
<ul style="list-style-type: none"> • Individual sign at a Hole • Recognition in all print/web material 	
Share the Hole	\$500
<ul style="list-style-type: none"> • Shared sign at Hole • Recognition in all print/web material 	

Not a Golfer?

You can still hit a hole-in-one at Birdies for Ben.

Support one of our golfers with a donation at:
www.bensdream.org/Birdies4Ben

Raise money for a "virtual round" at Birdies for Ben. Set up a fundraising page on FirstGiving or use attached pledge sheet to ask friends and family to support your virtual round. You will be included in our 19th Hole post-golf BBQ and recognized for your efforts with a special sign at the golf course.

Our Formula....

Rather than put 144 golfers on the course at a set per player cost, **we ask golfers to secure tax-deductible donations (pledges) from family, friends and associates in support of their round of golf.**

Each golfer sets a personal fundraising goal and the Foundation provides printed materials and web tools to support their efforts. Participants pay their own greens fee and all other expenses are donated or paid for by Stuart and Jennifer Siedman.

This allows the Foundation to commit 100% of all contributions to Birdies for Ben directly to research.

Our Day....

August 29, 2011

Tee Time at approx. 11AM
Sandy Burr Country Club
Wayland, MA

- Lunch provided by Panera Bread Natick



After-Golf BBQ at 3PM
Siedman Residence



To learn more about the event, sign up to golf or become a sponsor visit www.bensdream.org or contact Stuart at stuart@bensdrem.org or 617-899-4158.

Walking with Hope

Ben doesn't walk independently anymore. His balance is unsteady and some days his feet seem almost stuck in place as if he has forgotten the simple act of raising his foot and taking a step. Someone is always walking next to Ben, holding his hand, guiding each step, keeping him from falling. However, the other night Ben's mind to muscle memory was clicking and I was letting him walk without support.

I followed him around the kitchen keeping close but nonetheless letting him walk free and unhindered by my protective arms. Stuart joined us and together we sent Ben back and forth between us, encouraging him to walk toward one of us, then turning him and sending him back to the other. Instinctively, Stuart and I slowly made the distance between us farther and farther apart.

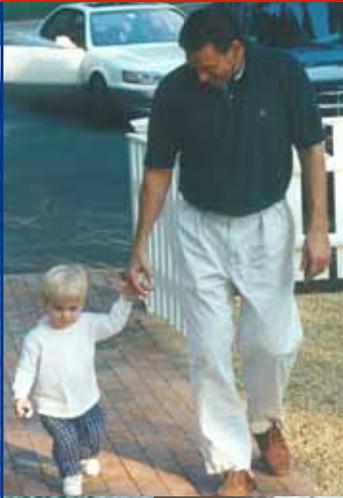
Just as Ben made his third loop back to his dad an intense sadness came over me. My mind was drawn back to Ben as a toddler first learning to walk and Stuart and I gently coaxing him to hit that milestone. **As I realized the similarity to those toddler days, I was forced to acknowledge how many skills Ben has lost to Sanfilippo and how much of him I already miss and mourn.** At 15, Ben is moving in the wrong direction, now losing basic skills like walking. With each loss, comes the hard, unwelcome reality that I am slowly watching my son fade away.

My eyes were welling with tears when Ben greeted me with a smile and a hug, then turned with a giggle and headed off toward his dad. Ben's joy at his success lifted my sorrow and gave me clarity. Ben had once again taught me a lesson; the essence of parenting never changes regardless of your child's age or issue. From the moment they are born, your life is filled with the hope of all that they will become. It is that hope that defines you as a parent. With a tiny new life in your arms, and hope in your heart, you know your singular responsibility is to challenge and guide them, to encourage them to reach beyond their limitations, defeat their obstacles and become all they are capable of being.

That night in my kitchen this was exactly what I was doing for Ben; his age older, the expectations much different than those I had on the day of his birth, but the goal intrinsically the same.

I know that each day, every day for as few or as many as may be, I will nurture that pure, unyielding hope and help Ben be all that he can be.

*Jennifer's Journal
December 2010*



Meet Lucas ...



Our journey to diagnosis began 9 years ago when Lucas was 4 and started losing skills. We spent years explaining his baffling symptoms to specialists, who ordered countless tests. Lucas has the distinct features associated with Sanfilippo and one visit with Dr. Sara Copeland, at University of Iowa Hospital yielded the answers we had been searching for. Within minutes of meeting Lucas, she explained that he had MPS. His diagnosis was confirmed 2-months later in January 2006.

Although devastated to learn there is no treatment or cure, we were relieved to have a diagnosis. Now we had the "why" for his

communication losses, his regressing mobility and fine motor issues, his sleep issues and constant upper respiratory issues. With the question of the name for his regressing skills answered, we moved onto an equally challenging question, "What now?"

Our answer was to spread awareness and crusade to find a cure. Within months of Lucas's diagnosis we began hosting fundraisers to support research.

When Lucas was diagnosed, my husband and I made a pact; we were going to prepare him to live, not prepare ourselves for him to die.

We exercise our strengths making each day bright, and full of joy. Every outing and vacation is carefully planned to include Lucas. Although we miss him tucking the football under his arm and yelling "Hut 1, hut 2, hike hike hike," and running around the kitchen table until exhausted, his smile and laughter gives us much needed strength to get through our days as we watch Sanfilippo change and take away abilities from our baby boy.

If he can smile through it all, so can we. **We have hope, an abundance of hope, that we can and will make a difference!**

WE NEED YOUR SUPPORT

Birdies for Ben Golf Fundraiser

The 9th Annual Birdies for Ben Golf Fundraiser will be held August 29, 2011, at Sandy Burr Country Club in Wayland.

We need your help to fund pending clinical trials!

Please see the reverse side to support a golfer or contact Stuart Siedman at stuart@bensdream.org or (617) 899-4158 to learn how to become a corporate sponsor.

Your contribution will further research and bring Ben and his friends one step closer to realizing their dreams.

Thank you for your support

Our Mission...

To promote awareness of Sanfilippo Syndrome and raise funds to support research aimed at finding a cure.

Sanfilippo Syndrome is a rare and progressive genetic disorder . . .

Children afflicted are missing an enzyme that breaks down strings of a complex sugar called heparan sulfate. This sugar or mucopolysaccharide accumulates in the brain and tissue cells causing progressive damage. A child with Sanfilippo appears normal at birth, but as more and more cells become damaged symptoms begin to appear. Over time this build-up causes hyperactivity, sleep disorders, loss of speech, mental retardation, dementia and finally death.

Life expectancy for a child with Sanfilippo Syndrome is between 15 to 20 years . . .

It is estimated that Sanfilippo Syndrome occurs 1 in 70,000 births. Based on this estimate approximately 100 children will be born in the United States this year. Given the average life expectancy, there are thousands of families dealing with Sanfilippo in the USA alone.

There is currently no treatment or cure, only determination . . .



This newsletter was entirely donated – Thank you!

“Birdies for Ben” Sponsor Card

Name _____ Phone _____

Address _____

City _____ State _____ Zip _____

E-mail Address _____

I would like to sponsor _____ for: \$ _____

Check if your company participates in a “Matching Gift” program†

†Please include your company’s Matching Gift form with all necessary employee information.

Make checks payable to Ben’s Dream – Thank you.

FBK

Ben’s Dream is a public 501(c)(3) non-profit organization so your contributions are tax deductible. Our Tax ID# is 04-3565765.

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