

## BSF Conference Update



After many discussions, survey responses, and planning sessions, the BSF board decided to rethink ways we will bring our community together in 2022. This means that

we will NOT be gathering in person in Clearwater, Florida this July 18-23 for the BSF International Scientific, Medical, and Family Conference as we all had hoped. We are, however, excited to create new opportunities for people to come together, likely in a series of smaller gatherings, in locations around the US and the world more broadly.

We have heard the overwhelming need and longing of our community for an opportunity to see each other face-to-face, to gather with others who have the most

understanding of what it's like to live with Barth syndrome. It is that desire that is informing our steps as we work to develop lower risk and meaningful opportunities to bring people together in person this year.

We want to thank everyone who shared your perspectives about the conference, as your insights were instrumental in making this important decision. We are all admittedly disappointed to wait another year for our beloved international conference, however we are looking forward to charting new possibilities with plans for local gatherings. In parallel, we are holding a VIRTUAL SciMed symposium because research and development can't stop. Read more about the symposium on page 4.

If you are interested in helping support this effort, please email [bsfinfo@barthsyndrome.org](mailto:bsfinfo@barthsyndrome.org).

Stay tuned! More to Come!

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# JIMD Special Issue: Barth Syndrome

Over the last 20 years, our community of researchers, clinicians, affected individuals, and families have collaborated to outline the basic biology, pathophysiology, and symptomology of Barth syndrome. Now, in partnership with the *Journal of Inherited Metabolic Disease* (JIMD), and selected by guest editors Fred Vaz, Hilary Vernon, and Ron Wanders, we are proud to share the news of JIMD's Special Issue on Barth syndrome. We appreciate the effort of all the contributing authors, guest editors, and of course JIMD's decision to shine a scientific light on the immense progress in the Barth syndrome field!

## From the Authors

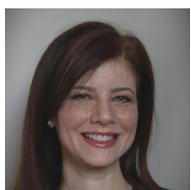
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**Barth Syndrome Foundation: From humble beginnings to becoming an integral partner** "The multi-disciplinary and immensely qualified stature of the contributing authors in this issue are a demonstration of the medical and scientific professionals who have joined us as partners in our shared mission of saving lives through education, advances in treatment, and finding a cure for Barth syndrome." -Erik Lontok.



**Clinical presentation and natural history of Barth syndrome: An overview** "The Barth Syndrome community of patients and families continue to be highly invested in participating in long term research and clinical studies. This allows clinicians and scientists to continue to enhance our knowledge and clinical care of patients with Barth Syndrome. Recognition and understanding of the natural history of this complex disease are important for anticipatory guidance and ongoing patient management as well as developing clinical endpoints to demonstrate the efficacy of new therapies." -Carolyn Taylor.



**Current and future treatment approaches for Barth syndrome** "Current treatment approaches in Barth syndrome include both expectant management, including regular monitoring for potential problems, as well as symptomatic management for ongoing issues. Ongoing research into novel, Barth syndrome-specific therapies includes two recently completed clinical trials to examine the effectiveness of bezafibrates and elamipretide and new potential therapeutic approaches on the horizon including gene and enzyme replacement therapy." -Hilary J. Vernon



**An improved functional assay in blood spot to diagnose Barth syndrome using the monolysocardiolipin/cardioplin ratio** "We developed an improved biochemical test to screen for or confirm Barth syndrome in just a tiny bloodspot. It is easy to collect and send by regular mail. Before this innovation we needed to confirm in a venous blood sample, but with the new assay we can do all, just in one bloodspot." -Frédéric M. Vaz



### **The lipid environment modulates cardiolipin and phospholipid constitution in wild type and tafazzin-deficient cells**

"It is well known that Barth syndrome on a biochemical level primarily causes cardiolipin abnormalities. However, so far it is still debated if and how other lipids are disturbed as well. In cell culture experiments we could show that non-functioning tafazzin indeed alters lipids other than cardiolipins. Remarkably, we found that different lipid diets are able to either mask, but also promote these effects, enabling the development of improved model systems for evaluating novel therapeutic strategies."  
-Markus A. Keller



### **A simple mechanistic explanation for Barth syndrome and cardiolipin remodeling**

"The paper provides evidence that cardiolipin supports protein crowding in mitochondrial membranes. This gives rise to a simple explanation for Barth syndrome. Patients are unable to meet high energy demands because they cannot concentrate the proteins required for respiratory energy metabolism." -Micahael Schlame



### **Cardiolipin function in the yeast *S. cerevisiae* and the lessons learned for Barth syndrome**

"Studies using the yeast *S. cerevisiae* have provided valuable insights into the role of cardiolipin (CL) and CL remodeling in mitochondrial and cellular functions. Many functions of CL determined from the yeast studies have been validated in higher eukaryotic cells. These functions may be implicated in the pathology of BTBS and may also identify physiological modifiers that lead to the disparities in clinical presentation among BTBS patients." -Miriam L. Greenberg



### **Experimental models of Barth syndrome**

"Efforts over the past decade, many supported by BSF, have created several experimental models of Barth syndrome. This JIMD article reviews these models and highlights their individual strengths. These models will enable discovery and testing of new therapies for Barth syndrome." -William T. Pu



### **Mechano-energetic aspects of Barth syndrome**

"In patients with Barth syndrome, cardiolipin defects not only impair respiratory chain function, but also the uptake of calcium ions into mitochondria, which are required to activate the Krebs cycle when the heart needs more energy. This defect explains the inability of hearts of Barth syndrome patients to increase their output during exercise, and possibly also arrhythmias. Drugs that further aggravate such mechano-energetic uncoupling, such as cardiac glycosides, should therefore be avoided in patients with Barth syndrome as they contribute to heart failure." - Christoph Maack



### **Interplay between cardiolipin and plasmalogens in Barth syndrome**

The identification of the interplay between the metabolisms of cardiolipin and plasmalogens opens new routes to be explored aiming to improve health outcomes in Barth syndrome." -José Carlos Bozelli jr

**For access to specific articles and to contact the authors, please email [erik.lontok@barthsyndrome.org](mailto:erik.lontok@barthsyndrome.org).**

# BSF Announces New Partnerships



We are pleased to announce that BSF is now a participating organization of *The Research Acceleration and Innovation Network (TRAIN)*, a FasterCures program established to create opportunities for medical research innovators to discuss and tackle the challenges that cut across diseases. TRAIN is a unique network of patient-driven nonprofit foundations that fund medical research

across a spectrum of diseases. They represent the kind of organizations that are fast becoming the engine behind innovation in disease research - collaborative, mission-driven, strategic in their allocation of resources, and results-oriented.



As the newest member of the Institute for Gene Therapies (IGT) Patient Advocacy Advisory Council, BSF enthusiastically joins fellow organizations committed to aligning access and outcomes with the promise of gene replacement therapy for affected individuals. In partnership with foundations, industry, and academia, IGT convenes experts from across

the healthcare system to advocate for a policy framework that encourages innovation and access to these critical therapies. Membership in this coalition is one of the many ways BSF amplifies our advocacy on behalf of our ultra-rare community.

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Scenic Biotech BV, a pioneer in the discovery of genetic modifiers to enable the development of disease modifying therapeutics for rare genetic disorders and other devastating illnesses, and the Barth Syndrome Foundation, are proud to announce that they have entered into a partnership to support the advancement of Scenic's in-house drug discovery program to find novel tailored treatments for Barth syndrome.



When we seek to advance treatments for Barth syndrome, we don't limit our vision to just treating the symptoms but also try to address the underlying biology of Barth syndrome. We know we can't do it alone, so we seek collaborators who are most qualified to help us advance potential therapies. Our work with Scenic



Biotech is one such a partnership. Although the work is still early-stage, we are hopeful about the learnings we can derive from this program and the possibility of a therapy in the future.

**To read the full press release, visit [www.barthsyndrome.org](http://www.barthsyndrome.org)**

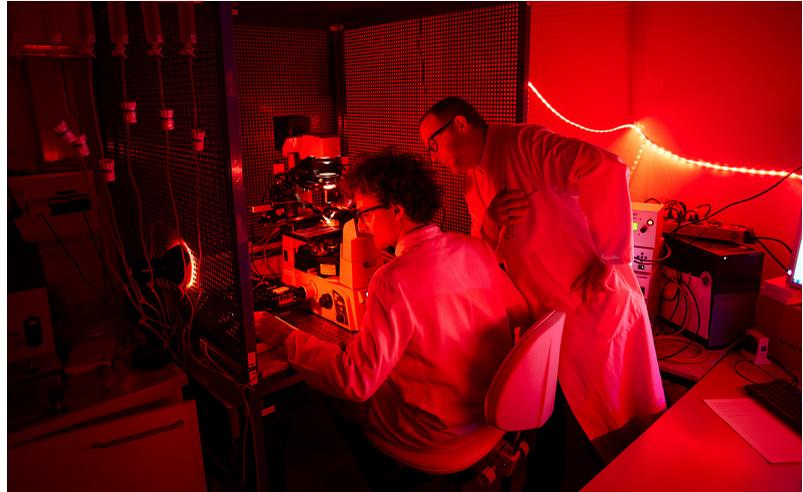
# Weak Spot for Heart Dysfunction Discovered

## Würzburg scientists identify missing mitochondrial calcium channel as trigger for arrhythmias and heart failure for the disease Barth syndrome

-Courtesy of Comprehensive Heart Failure Center, Würzburg

Patients with Barth syndrome may soon be able to breathe a sigh of relief.

At the Comprehensive Heart Failure Center (DZHI) in Würzburg, Christoph Maack and his team have discovered that loss of the calcium channel in mitochondria is the reason for their cardiac dysfunction during physical exercise and likely also their higher risk for arrhythmias. Barth syndrome is caused by a mutation in the tafazzin gene, and tafazzin produces cardiolipin, an essential component of the mitochondrial membrane. The



disease usually affects boys in early childhood and causes heart failure and arrhythmias. The scientists found out that due to the defect in cardiolipin, the channel required to import calcium into mitochondria is missing. Since calcium is the most important ion for the adaptation of energy production to increased demand, this defect explains the inability of Barth syndrome patients to increase their cardiac pumping capacity during physical activity and their predisposition to cardiac arrhythmias. These findings, which have now been published in the highly respected journal *Circulation of the American Heart Association*, are not only a ray of hope in the treatment of the rare Barth syndrome, but could also contribute to a better understanding and treatment of the more widespread heart failure with preserved pump function (HFpEF).

A normal healthy heart is pumping four to five litres of blood per minute into our body, and even up to 30 litres per minute during exertion. The heart of boys suffering from Barth syndrome beats faster during exercise, but the output cannot be increased accordingly. The consequence of this reduced functional reserve during exertion is shortness of breath and insufficient supply of the skeletal muscles with blood. In addition, the calcium defect predisposes to cardiac arrhythmias, which can lead to sudden death.

### Less calcium = less energy in heart muscle cells

Cardiologist Christoph Maack and biologist Jan Dudek have been researching the disease mechanisms of Barth syndrome for many years. They found out that the impaired energy production of the heart muscle cells due to the defect of the tafazzin gene is related to the calcium balance. The reduced calcium uptake in the mitochondria, the power plants of the heart muscle

cell, disturbs the activation of the so-called Krebs (or citrate) cycle. The Krebs cycle produces the coenzyme NADH, which provides electrons for the production of the energy-rich molecule adenosine triphosphate (ATP), and NADPH, which is required to detoxify oxygen free radicals.

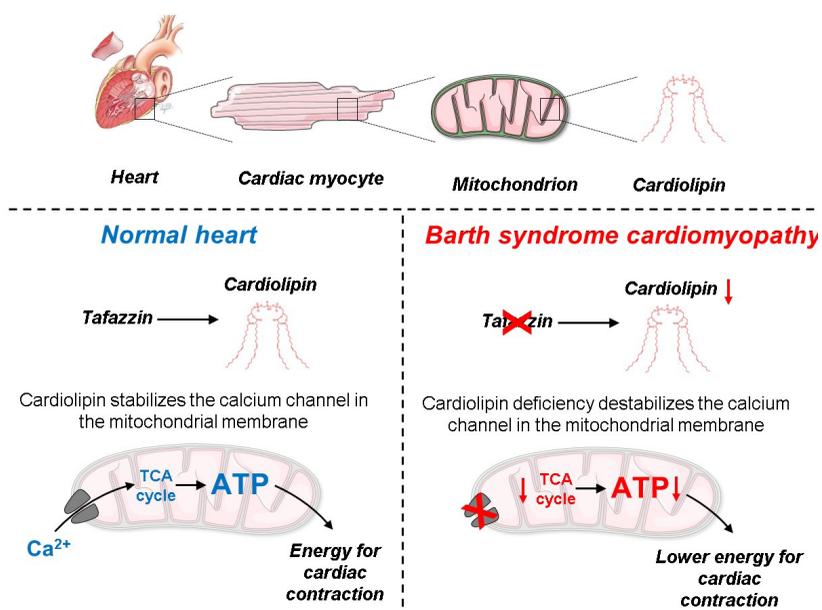
### Missing calcium channel depletes the stores

The researchers from the Department of Translational Research of the DZHI, in particular Edoardo Bertero, Alexander Nickel and Michael Kohlhaas, have now identified the mechanism why cardiac output cannot be increased and arrhythmias occur more frequently in Barth syndrome hearts. Formerly, it was assumed that the lack of cardiolipin mainly causes problems for the respiratory chain and that oxygen radicals damage the cells. Cardiolipin is also affected by oxidative stress in many other heart diseases. A deficiency of this phospholipid disrupts the respiratory chain, resulting in less ATP being produced. "Although we also found moderate disruption of the respiratory chain in our studies, we did not measure excessive levels of radicals," explains Edoardo Bertero, the study's first author. "Instead, we observed that the channel responsible for calcium import into the mitochondria, called the mitochondrial calcium uniporter, or MCU, was almost completely gone in mice with tafazzin knockdown. This is important for patients with Barth syndrome because it explains why their hearts are unable to increase their output during exercise; but also for general cardiac physiology because it reveals a previously unappreciated function of cardiolipin, namely the stabilisation of the MCU-protein complex."

### New finding leads to better understanding of Barth syndrome

Maack adds: "The gene and protein structure of the mitochondrial calcium channel has only been known for ten years. Barth syndrome is to our knowledge the first disease in which a relevant defect of the MCU in heart cells contributes to their dysfunction." With this discovery, the DZHI researchers provide an important therapeutic approach, possibly not only for the treatment of Barth syndrome, but also for other forms of heart failure with a preserved pump function, and in particular for other genetic cardiomyopathies. Maack urges that based on the

new findings, drugs that increase the pumping power of the heart by increasing sodium may be less advantageous. This is the case for digitalis, which is still often used in patients with Barth syndrome. "Instead," Maack adds, "the administration of SGLT2 inhibitors, drugs that improve outcome in patients with heart failure and a preserved pump function, could be more favourable." Some studies suggested that SGLT2-inhibitors reduce the sodium levels in cardiac cells, which would positively affect mitochondrial calcium accumulation and Krebs cycle activation in Barth syndrome hearts, so that the heart can keep up better with increased stress. However, this is still an open field for future research.



In the past, boys with Barth syndrome often did not live beyond the age of three. They died of heart failure or infections. With improved diagnosis and proper medical treatment and monitoring of all symptoms, quality of life and survival of these children is much better. "That's what motivates and encourages us. The disease is rare. There are about 300 known cases worldwide. However, we assume that the number of unreported cases is high. And what counts is the fate of every individual affected by Barth syndrome," Maack emphasises.

The research was conducted in close cooperation with numerous other groups in Homburg/Saar, Göttingen and Würzburg and funded by the German Heart Foundation (Margret Elisabeth Strauß program), the German Research Foundation (DFG), the Federal Ministry of Education and Research (BMBF), the European Research Council (ERC) and the Barth Syndrome Foundation ([www.barthsyndrome.org](http://www.barthsyndrome.org)).

Publication in AHA Journal Circulation: Loss of Mitochondrial Ca<sup>2+</sup> Uniporter Limits Inotropic Reserve and Provides Trigger and Substrate for Arrhythmias in Barth Syndrome Cardiomyopathy  
Edoardo Bertero, Alexander Nickel, Michael Kohlhaas, Mathias Hohl, Vasco Sequeira, Carolin Brune, Julia Schwemmlein, Marco Abeßer, Kai Schuh, Ilona Kutschka, Christopher Carlein, Kai Münker, Sarah Atighetchi, Andreas Müller, Andrey Kazakov, Reinhard Kappl, Karina von der Malsburg, Martin van der Laan, Anna-Florentine Schiuma, Michael Böhm, Ulrich Laufs, Markus Hoth, Peter Rehling, Michaela Kuhn, Jan Dudek, Alexander von der Malsburg, Leticia Prates Roma and Christoph Maack

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We are excited to virtually convene our second BSF Scientific and Medical Symposium. Much like 2020, participants will be able to engage and discuss recent research advancements with our longtime champions, young investigators, and trainees. The symposium will be open to members of the Barth community from researchers, clinicians, family and affected individuals, as well as industry and governmental partners.

More information to come, including speakers and presentation topics so keep an eye on your email and BSF social media.

# 2022 Research & Development Grants

We are pleased to announce this year's BSF research and development grantees. With projects vetted by BSF's Scientific and Medical Advisory Board (SMAB) and then approved for funding by the Board of Directors, the 2022 grantees demonstrate BSF's unrelenting commitment to identifying potential treatments and better understanding the challenges experienced by our community of affected individuals.

## Investigating the basis of neutropenia in Barth syndrome



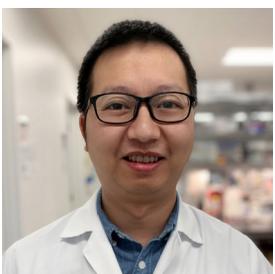
Awarded to Dr. Borko Amulic and Dr. Colin Steward, this project takes advantage of proximity to the National Health Service (NHS) Barth Syndrome Service at Bristol Royal Hospital for Children to investigate primary neutrophils and their progenitors from Barth syndrome (BTHS) patients. With a dual approach to investigating neutrophil dysregulation in BTHS, it will first utilize a newly established system to investigate development and differentiation of BTHS neutrophils from circulating progenitor stem cells under conditions of inflammatory and metabolic stress. Second, it will build on previously obtained data to examine how hyperdegranulation affects the interaction of BTHS neutrophils with the endothelium both *ex vivo* and in a mouse model of Barth syndrome.

## Feeding the starving heart in Barth syndrome



Awarded to Dr. Adam J. Chicco, this project will test the hypothesis that providing alternative fatty acid fuels that bypass the long chain fatty acid, or LCFA, oxidation system will improve exercise tolerance and cardiac functional capacity in Barth syndrome (BTHS) patients. Using the two tafazzin-deficient mouse models of BTHS currently available, it will determine if therapeutic doses of a synthetic shorter-chain fatty acid supplement recently FDA-approved for treatment of LCFA oxidation disorders (triheptanoin; a 7-carbon medium-chain triglyceride) improves exercise capacity, cardiac function, and mitochondrial metabolism. If results of these pre-clinical studies are positive, they will provide the basis for exploring a clinically feasible and inexpensive treatment for improving functional capacity and quality of life in BTHS patients.

## ALCAT1 as a novel target for the treatment of cardiomyopathy in Barth syndrome



Awarded to Dr. Jun Zhang, the proposed studies will determine the role and underlying mechanisms of ALCAT1 as a key regulator of mitochondrial dysfunction in Barth syndrome, further building on past BSF support for this hypothesis. This project will also validate inhibition of ALCAT1 by a small molecule inhibitor as a novel and potential treatment for cardiomyopathy in Barth syndrome.

To read more about this year's grants, visit [www.barthsyndrome.org/research](http://www.barthsyndrome.org/research)



SCAN ME

# Advocacy Alert! Barth Syndrome Deserves A Fair Chance!

Barth syndrome, unfortunately, is one of the more than 7,000 rare diseases without an approved therapy. As the only organization globally representing the Barth syndrome community, BSF has been on the front lines with the FDA, advocating for effective, fair and appropriate standards for regulatory approaches.

Currently, the FDA requires surmounting statistical hurdles that really can only be achieved in diseases with larger populations, rendering them simply impractical or infeasible in Barth syndrome that affects fewer than 130 people of all ages in the United States. BSF continues to support Stealth BioTherapeutics' ongoing struggles to find pathways forward for elamipretide's approval as a treatment for Barth syndrome. Our experience in regulatory affairs with elamipretide has certainly informed our stance about the significant and inordinate challenges faced by rare, and especially ultra-rare, diseases like ours. But\* the issue is broader and more widely relevant than any one example.

In our latest letter to the FDA, BSF's Board

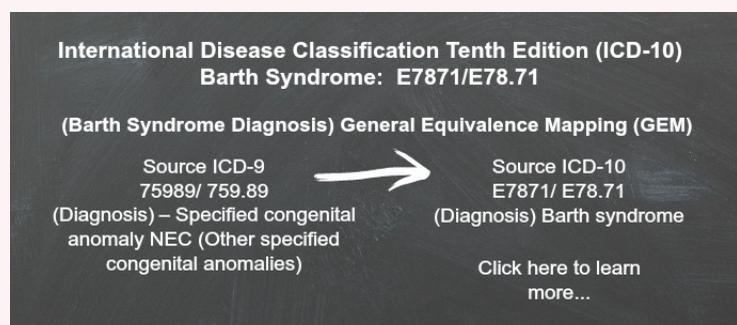
Chair Kate McCurdy recently wrote: "The practical possibilities available to all of us who work in rare diseases currently are a mere subset of those afforded larger populations and leave us with very few options, if any at all... This is a clear bias that results in a very real disservice that impacts not only those with Barth syndrome but also the estimated 25-30 million U.S. patients living with rare diseases."

It is our strong position that people living with rare diseases, such as Barth syndrome, need a fair chance at accessing therapies. This opportunity can only happen if regulators consistently apply fair and appropriate standards when reviewing and approving therapies for ultra-rare indications like ours.

The FDA has responded to our recent letter and has invited BSF to schedule a meeting to discuss viable and practical clinical trial designs for our indication and the corresponding methods for evaluating safety and efficacy.

## Have an upcoming doctor visit?

Assist your healthcare providers and all who have BTHS by reminding them Barth syndrome has a distinct ICD-10 Code. Why is this important? More descriptive coding will provide us with a tool to know more about disease severity and population statistics.



# BSF Requests Meeting with the FDA

February 22, 2022

Dear Dr. Stockbridge,

I hope that you and others in DCN are doing well and have been able to stay healthy in 2022. I am writing you now to follow up on your suggestion that the Barth Syndrome Foundation (BSF) request a meeting with you to discuss “broad issues in developing a therapy for this terrible disease,” and I have copied Bridget Kane on this letter, as you said she would be involved in organizing this.

We have been struggling to identify how we at BSF might best move forward to develop therapies for our disease, given just how ultra-rare it is. The practical considerations associated with the challenges of drug development in Barth syndrome are based on the facts shown in the figure below. These numbers include all U.S. Barth patients down to the youngest deemed at all feasible by Stealth BioTherapeutics in the latest protocol they have proposed for further

#BTHS Individuals in the U.S. $\geq$ 10 Years Old as of 12/31/21*	96
MINUS those with heart transplant (estimated at 16%)	-15
MINUS those with ICDs (estimated at 28% of those $\geq$ 15 years old)	-20
MINUS current elamipretide EAP participants	-7
<b>TOTAL Available in U.S. <math>\geq</math> 10 Years Old for Clinical Trial</b>	<b>54</b>

\*from the BSF Barth syndrome patient database

elamipretide studies:

Several crucial implications of this very limited cohort include:

- It is SIMPLY IMPOSSIBLE to muster the number of participants required to power a clinical trial that meets generally required p-values typical of larger indications that have much larger participant pools from which to draw.
- Practical considerations aside, if 24 participants might be required for a “well-powered” randomized, double-blind, placebo-controlled study in Barth syndrome, that would represent 44% of that entire population! And that assumes that everyone in the eligible age range would qualify based on other inclusion/exclusion criteria, which we know is not the case even with very inclusive parameters. If this same 44% percentage of population were required of larger indications, a similarly proportioned trial for a potential treatment for type 2 diabetes (which affects 37.3 million Americans, according to diabetes.org), would include 16.4 million individuals! By raising this very practical reality of powering limitations, we are not seeking lowered standards for ultra-rare diseases but rather fairness on a par with larger indications that still indicates efficacy. Ten percent is the rule of thumb for the maximum number of participants that can be recruited from a patient population, not 44%.
  - ◊ The data that were generated by the twelve individuals in the elamipretide study rep-

resented 22% of the relevant age group in the U.S. at the time. (NOTE: This calculation is understated because it does not account at all for the reduced size of the eligible cohort based on other inclusion/exclusion criteria such as weight, medication stability, ambulatory ability/impairment or ICD discharges.) Results from such a large proportion (more than double the 10% rule of thumb) of our patient population, even if difficult to interpret due to limited statistical power or other sources of residual uncertainty (e.g., open-label nature), MUST count for something, as they absolutely give an indication of broad efficacy. Ultra-rare diseases, by virtue of our small numbers, simply cannot conform to the same statistical standards. The Barth syndrome patient community has clearly expressed its tolerance for the acceptance of residual uncertainty that results in less confidence in treatment benefits inherent in this ultra-rare disease dataset.

- The fact that, even if a study were ever able to enlist the number of participants required to meet standard p-value requirements (which would presumably take many years to fully enroll, if it were ever possible at all), the execution of those trials would necessarily mean that recruitment for any future trials of other potential treatments would be completely crippled. To require that traditional statistical power standards be met (thus requiring, in our case, that nearly half of eligible individuals participate), the Agency is indirectly stunting any additional contemporaneous R&D efforts for our community. We, and other groups like us, have to be permitted to support more than a single trial in order to develop treatments for our patients. We know that not all trials are successful, and our goal is to save lives that are much too frequently lost at a young age, as you know.

The practical possibilities available to all of us who work in rare diseases currently are a mere subset of those afforded larger populations and leave us with very few options, if any at all. There is a reason that more than 95% of all rare diseases lack even a single FDA-approved therapy. This is a clear bias that results in a very real disservice that impacts not only those with Barth syndrome but also the estimated 25-30 million U.S. patients living with rare diseases. There MUST be other approaches available for ultra-rare disease trials and regulatory review, especially when the particular rare disease communities themselves are well-informed of and have expressed tolerance for the tradeoff of Type 1 and 2 error that this necessarily entails.

We would really welcome the chance to brainstorm with you about new avenues and out-of-the box ways of thinking to solve this critical problem, including both (1) your creative notion of possibly utilizing the statutory foundation on which the animal rule is based to allow alternative sources of efficacy data where traditional clinical studies are infeasible and (2) consideration of our community's accepting greater uncertainty of treatment benefit by prespecifying p-values that are commensurate with feasible study designs.

Please let me know what I should do to help plan such a meeting.

Best regards,

Kate McCurdy  
BSF Board Chair and Mother of Son with Barth Syndrome (Deceased)

## BSF Core Values

**Credibility • Integrity • Inclusion • Compassion • Professionalism**

# Legislative Update

## The STAT Act

More than 30 million Americans are living with one or more rare disease. Between 93% and 95% of the more than 7,000 known rare diseases have no U.S. Food and Drug Administration-approved therapy. The development process for a rare disease drug takes an average of 15 years. Traditional regulatory processes have become more complex involving combinations of therapies, genomics, novel diagnostic tests, multi-systemic diseases, small patient populations, and precision medicine. As a result, numerous parts of the regulatory system need to cohesively work together. When new therapies for rare diseases are approved, patients often face unnecessary delays and barriers to access, resulting in avoidable deterioration in health. The STAT Act is a bipartisan bill that was created with the input of the rare disease community aimed at improving the development of and access to therapies for the rare disease community.

## 21st Century Cures 2.0 Act

21st Century Cures 2.0 Act H.R. 6000 builds on the successes of the 21st Century Cures Act, passed in 2016, to advance biomedical research, regulatory science, public health, and payment policy innovation so critical for rare disease patients and families. The draft builds on the framework of the Cures Act and aims to further modernize the nation's healthcare pipeline in the hopes of avoiding some of the burdens that the system has faced during the COVID-19 pandemic. Some of the proposed areas for policy include public health and pandemic preparedness, healthcare delivery systems, patient engagement in healthcare decision-making, caregiver integration into the care team, modernizing CMS, and increasing diversity in clinical trials.

## Helping Experts Accelerate Rare Treatments (HEART) Act

Helping Experts Accelerate Rare Treatments (HEART) Act H.R. 1184 will ensure that FDA is transparent and open when it reviews medications to treat rare disorders. It will require FDA to publish an annual report summarizing its actions related to designating and reviewing drugs for rare diseases. Further, it will require the use of outside experts, including patient advocates and experts in small population trial design when reviewing these products. The HEART Act calls for these simple and common-sense changes:

- The FDA must include members of its own Rare Disease Program staff in reviews for drugs to treat rare diseases.
- FDA must include experts in rare diseases on Advisory Committee panels for rare disease drugs.
- Each year the FDA must prepare a report showing how many rare disease drug applications were reviewed by each division at the Agency.
- Members of the patient community must be consulted when devising or reviewing a Risk Evaluation and Mitigation Strategy (REMS) for a rare disease drug.
- We should review the emergency use process for approval of rare disease drugs including the use of data from open-label extension studies.

Visit [barthysyndrome.org/advocacy](https://barthysyndrome.org/advocacy) for more info and to take action



# Coming Up: Happy Heart Week!



## SAVE THE DATE

10th Anniversary  
**HAPPY HEART PARTY**

Friday evening, May 13th

JBL Home Ranch ~ Briones, CA

*in person. outside. grab a sitter. details coming soon.*

## The 10th Annual Happy Heart Week 2022 is just around the corner!

This special week will look a lot like the last few years, a virtual fund and awareness raising campaign for Barth syndrome, centered around Henry's birthday. PLUS, A BIG HAPPY HEART 10th ANNIVERSARY IN-PERSON PARTY is happening Friday evening, May 13th, and you are invited! Mark your calendars, book a sitter, grab your dancing boots, and get ready to celebrate! Party is in person (outdoors) at the JBL Ranch in Briones, CA, just down the road from the Branagh family home. Tickets are on sale now!



SCAN ME

For more information, please visit: [www.happyheartweek.com](http://www.happyheartweek.com)

## BSF Welcomes Loree Tillman



BSF recently contracted Loree Tillman to help support BSF's organizational priorities with new and expanded revenue opportunities. Loree is committed at a very passionate level to supporting causes that are near and dear to her heart, and Barth syndrome won her affection. Loree's efforts are focused on supporting Happy Heart Week, Stronger Together World Tour, and our upcoming virtual scimed symposium, and we are happy to have her as a contributor to our mission.

# Hockey With A Heart Raises \$100K for BSF!

**With your help, we raised \$100K, including a \$50K anonymous match, during the New York Islanders Hockey with a Heart game for Barth syndromethis year. Thank you to Thomas and his family, everyone who donated, and the NY Islanders owners, Jon Ledecky and Scott Malkin, who made this possible!**

Once again, the NY Islanders, who have been a long-time supporter of BSF and our mission, agreed to honor BSF and a representative of the Barth syndrome community - 5-year-old Thomas - at their March 19th game against the Dallas Stars. As every Barth family knows, Barth syndrome is unpredictable and can change plans in an instant; Thomas unfortunately couldn't be at the game, but his dad took up the flag in his honor.

This is the fifth year that the Islanders have made us a part of their family, helping us raise both awareness and over \$100,000 each year for research and family support. Scott Malkin and Jon Ledecky, the Islander's owners, have known the McCurdy family for decades, and became a devoted part of our Barth community out of admiration for Will McCurdy.

Thank you one and all!



# Rare Disease Week on Capitol Hill



Shelley Bowen, BSF's Director of Family Services and Advocacy, joined over 950 other rare disease advocates in February for Rare Disease Week on Capitol Hill in Washington, DC. The virtual event kicked off with the virtual Rare Disease Congressional Caucus Briefing entitled: The Accelerated Approval Pathway: Reflecting the Rare Disease Community's Priorities of Rigor, Safety, and Urgency. The briefing was moderated by Frank Sasinowski, Hyman, Phelps & McNamara & EveryLife Foundation for Rare

Diseases, Board Vice Chair.

The two-day Legislative Conference helped advocates learn about rare disease policy, prepare for their meetings with Members of Congress, and network with fellow advocates.

During the week of meetings, "Hill Days" provided opportunities for advocates to encourage their legislative members to join the Rare Disease Congressional Caucus, Cosponsor the Speeding Therapy Access Today (STAT) Act, Cosponsor the Newborn Screening Saves Lives Reauthorization Act, Cosponsor the Better Empowerment Now to Enhance Framework and Improve Treatments (BENEFIT) Act and Cosponsor the Access to Genetic Counselor Services Act.

If you would like more information about Rare Disease Week and to get involved in next year's event, visit [www.everylifefoundation.org](http://www.everylifefoundation.org)

**RARE DISEASE WEEK ON CAPITOL HILL**  
28 FEBRUARY 2022  
#RAREDC2022

**SC**

**VIRTUAL MEETINGS**

- ✓ Office of Rep. Nancy Mace (R) [SC-01]  
Legislative Assistant, Madison Van Every
- ✓ Rep. Joe Wilson (R) [SC-02]  
Legislative Director, Drew Kennedy
- ✓ Office of Rep. Jeff Duncan (R) [SC-03]  
Legislative Assistant, Will Lane
- ✓ Rep. William Timmons (R) [SC-04]  
Chief of Staff, Moutray McClaren  
Sr. Policy Advisor John Partin
- ✓ Rep. Ralph Norman (R) [SC-05]  
Legislative Director, Jake Hilkin
- ✓ Office of Rep. Tom Rice (R) [SC-07]  
Legislative Assistant, Philippa Bradly

**VIRTUAL RARE DISEASE HILL MEETINGS WITH**  
**SOUTH CAROLINA LEGISLATORS TO DISCUSS**  
**RARE DISEASE FEDERAL LEGISLATION**  
that is important to 30 million Americans with a rare disease!

- ✓ Speeding Therapy Access Today (STAT) Act
- ✓ Newborn Screening Saves Lives Reauthorization Act
- ✓ Better Empowerment Now to Enhance Framework and Improve Treatments (BENEFIT) Act
- ✓ Access to Genetic Counselor Services Act
- ✓ Join Rare Disease Congressional Caucus

**RARE DISEASE WEEK ON CAPITOL HILL**

**RDILA**  
Rare Disease Legislative Advocates  
POWERED BY THE EVERYLIFE FOUNDATION

March 2 - 3, 2022  
#RareDC2022



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Larchmont, NY 10538