NTSAD Community News

Research, Community and Collaboration

Supporting families is the center of everything we do...

January 2021

In this Issue

Passage Bio to Begin Infantile GM1 Gene Therapy Trial

The U.S. Food and Drug Administration (FDA) has cleared an investigational new drug (IND) application for Passage Bio's lead product candidate, PBGM01, an adeno-associated virus (AAV)-delivery gene therapy that is being studied for the treatment of infantile GM1 gangliosidosis (GM1). **Passage Bio expects to dose the first patient for the global gene therapy clinical trial program in the first quarter of 2021.**

Read the Press Release.

Lysogene's Gene Therapy Clinical Trial for Infantile GM1 Receives Approval in UK

Lysogene has received MHRA and Research Ethics Committee approvals to initiate the gene therapy clinical trial in the United Kingdom with LYS-GM101 for the treatment of GM1 gangliosidosis. **Lysogene expects to dose the first patient in the first half of 2021.**

Read the Press Release.

Late Onset Tay-Sachs and Sandhoff Community Speak to FDA

With the dire need for effective treatments and clinical trials for individuals affected with Late Onset Tay-Sachs and Sandhoff diseases (LOTSS), NTSAD and LOTSS community members requested and participated in a listening session with the U.S. Food and Drug Administration (FDA), so regulators could better understand the impact of heterogenous disease on the lives of individuals and their families.

On January 15th Katie Buryk, Al Croft, Barry and Sarah Gamzon, Vera and Sophia Pesotchinsky, and Phil Rhodes shared their personal stories, including symptoms, years to diagnosis, and their collective hope to slow the progression of the disease and maintain their independence.

The LOTSS community would like to find treatments to improve their mobility to reduce falls, pain, broken bones, and resulting surgeries, swallow and eat more easily, improve memory and speech, and continue to work and live independently. Many have moved back in with their parents, who care for them, or rely on their spouse to provide care.

The listening session was dedicated to a much beloved member of the NTSAD LOTSS community, Scott Hunger, who passed away on December 21, 2020.

Members of the FDA were very engaged, asked several questions, and were visibly moved by the group's advocacy and push for urgency, particularly as many studies have been delayed or put on hold due to COVID-19.

After the session, the group convened for a Zoom chat with fellow presenter to the FDA Dr. Cyndi Tifft, Deputy Clinical Director at the National Human Genome Research Institute/NIH and Dr. Edwin Kolodny, a pioneer in LOTSS research who joined the Zoom chat to congratulate the group on their important advocacy.

We look forward to organizing future FDA Listening Sessions about GM1 gangliosidosis, Canavan, and Infantile and Juvenile GM2.

GM2 Large Animal Natural History Finds Important Biomarkers

Doug Martin, Ph.D., Auburn University, and Heather Gray-Edwards, Ph.D., UMass Medical School, were members of a research team performing a large animal natural history study for GM2 gangliosidoses (Sandhoff and Tay-Sachs diseases), a first of its kind examination that provides insight into the progression of the disease at a biochemical level.

In their research article, ***Natural history study of glycan accumulation in large animal models of GM2 gangliosidoses,*** the researchers stated that the two large animal models with naturally occuring forms of the disease, i.e. cat and sheep, mimic GM2 gangliosidoses in humans and has led to a better understanding of how disease progression influences the accumulation of pathology-related metabolites in urine, which are useful for evaluating disease severity for measuring drug efficacy.

However, there is still much that is not understood about what drives the different aspects of these disease. The importance of the researchers finding **beta hexosaminidase** substrates in driving disease progression should be explored more fully, and these two large animal models may provide a

valuable resource toward understanding the nature of the disease itself and how it progresses in humans.

Mouse models have helped enormously in our understanding of GM2 gangliosidoses, but their translatability to human patients has not been established and may be somewhat limited. **Naturally occurring large animal models that better approximate human pathology can provide a better understanding of disease progression in humans and be a better vehicle for preclinical testing of newly developed therapeutics.**

Read more about large animal studies for GM2 gangliosidoses.

Stem Cell Project Slows Onset of Symptoms in Sandhoff Mice

In 2010, NTSAD funded a stem cell research project led by Evan Snyder, MD, Sanford Burnham Prebys Medical Discovery, and Jean-Pyo Lee, Ph.D., Tulane University, to test the ability of stem cells to repair injured tissues in the mice with Sandhoff disease. **In a recent top journal publication,** the team shared their finding that stem cells could be used to repair injured tissues without causing inflammation.

Stem cells are part of the body's natural repair system, but their power to replace muscle cells, blood cells, and brains cells is limited in adults. Researchers in what is called regenerative medicine seek to harness the body's healing mechanisms by drawing and targeting stem cells to injured areas.

For this research, scientists altered a naturally produced molecule in the body to safely guide stem cells to damaged brain tissue. **In this study, they found that the Sandhoff mice had delayed onset of symptoms and lived longer when given the new molecule and neural stem cells.** The stem cells spread throughout the brain and produced new neurons.

"*The ability to instruct a stem cell where to go in the body or to a particular region of a given organ is the Holy Grail for regenerative medicine*," said Dr. Snyder. **"*Now, for the first time ever, we can direct a stem cell to a desired location and focus its therapeutic impact.*"**

The team is now testing the application for amyotrophic lateral sclerosis (ALS) disease using a mouse model. Similar strategies may help improve stem cell therapy for spinal cord injury and stroke, as well as boost repair in other parts of the body.

NTSAD acknowledges the Cure Tay-Sachs Foundation for co-funding this research grant.

Read Snyder's Research.

2020 Jeffery Alan Gottlieb and Stanley N. Gottlieb Memorial Scholarship Recipients

Each year, the **Jeffrey Alan Gottlieb and Stanley N. Gottlieb Memorial Scholarship Funds** award scholarships to healthy siblings who are currently attending college or university. Applicants express how having a sibling with Tay-Sachs, Sandhoff, GM1, Niemann-Pick, Canavan, or another allied disease impacted their life, and how they hope to honor their sibling's life in college, their career pursuits, and beyond. The 2020 Gottlieb scholarships were awarded to the following students:

Jeremy Davis, a freshman at University of California Santa Cruz
Kyla Marquardt, a freshman at University of Florida
Jake Rabinowitz, a freshman at Kent State University

Abygail Seacord, a junior at University of Delaware
Justin Ungerleider, first year medical student at Cooper Medical School of Rowan University

Kyla Marquardt, whose brother William had GM1 Gangliosidosis, described the lasting lessons she learned from her sibling,***"I believe that the most important thing William taught me was personal resilience. William, for whom every day was a struggle, showed me that humans can endure so much more than we may initially perceive possible. His ever-persisting smile and happy glow are some of the strongest memories I have of who he truly was, and despite everything, he never failed to make us laugh. Thus, growing up with a brother like William made me realize that no matter how bad the circumstances, I also have strengths and resources that allow me to get through times of adversity."***

Thank you to Judy Gottlieb, who established these two separate memorial college funds with NTSAD in 2005, to honor her youngest son, Jeffrey Alan Gottlieb, who succumbed to Tay-Sachs in 1975 and her husband, Stanley N. Gottlieb, who passed away in 2001.

NTSAD Launches Resources for Newly Diagnosed and Newly Bereaved Families

To serve the most vulnerable members of the NTSAD Community, the NTSAD Family Services Team created specialized newsletters to provide support, information, and resources for 12 months to families following a diagnosis or the passing of a loved one.

The newsletters feature perspective and guidance from fellow parents, links to articles and videos, and strategies and tools for families as they navigate diagnosis and care and heal from loss.

The newsletters will be shared with newly diagnosed and newly bereaved families soon and will be archived for families who will need support in the future.

43rd Annual Family Conference "Heart to Heart, Home to Home"

NTSAD is building on the success of last year's virtual Annual Family Conference developing an online program that's bigger, better, and even more interactive for all attendees, including new sessions focused on addressing current and upcoming clinical trials, family planning and carrier screening, and advocacy.

Please save the dates of April 22-25, 2021 for our second, virtual Family Conference. Research-focused sessions are to be held on Friday, April 23.

We look forward to sharing the schedule of events and opening registration in mid-February.

The Mathew Forbes Romer Foundation Virtual Gala Series

The **Mathew Forbes Romer Foundation** raises funds and awareness of genetic brain diseases that affect children. The Foundation is hosting a series of three, virtual events, the **Sweetness and Laughter Gala mini-series, which kicks off on January 27** with

comedian and actor Bob Saget (*Full House and America's Funniest Home Videos*) and includes updates on research, genetic screening, and the Foundation's programs for nurse education. In addition, **the Romer Foundation will honor Dr. Gavin Corcoran, Chief Research and Development Officer, Sio Gene Therapies with a See the Light Award.** An interactive discussion with Dr. Corcoran on upcoming clinical trials will follow.

Register Now and Link to Participate.

2021 Gala Mini-Series (Wednesdays) January 27, March 24, and May 19 from 7-7:30 p.m. Eastern Time Zone

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Wear that You Care

Whether you are rare, care for rare, or support the NTSAD community, help advocate and spread awareness by sporting a special edition t-shirt.

We have a version for everyone--Rare Bear, Mama Bear, Papa Bear, Grand Bear, Bro, Sis, and Rare Support Bear, **order yours today in advance of Rare Disease Day on February 28, 2021.**

The t-shirts come in coordinating colors and various sizes for your Rare Bear family or Rare colleagues.

T-shirt orders must be received by February 1st for t-shirts to arrive in time for Rare Disease Day.

Order your t-shirt today and support NTSAD at the same time. A portion of proceeds go toward NTSAD.

NTSAD leads the worldwide fight to treat and cure Tay-Sachs, Canavan, GM1, and Sandhoff diseases by driving research, forging collaboration, and fostering community. Supporting families is the center of everything we do.

Donate

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