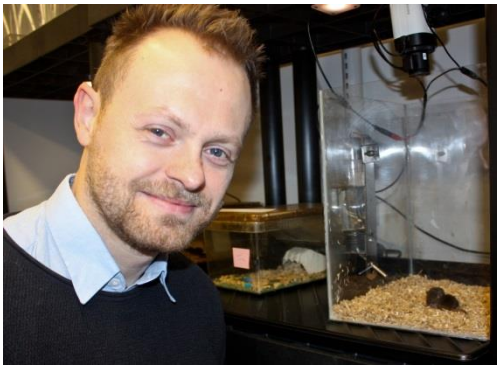
One Mission: End AHC!

YOUR ALTERNATING HEMIPLEGIA OF CHILDHOOD FOUNDATION NEWSLETTER April 2016

2000 Town Center ■ Suite 1900 ■ Southfield, Michigan 48075

PATH TO A CURE

European Expert Joins Northwestern Team to Develop Mouse Models for AHC Research



Last year, at the *4th Symposium on ATP1A3 in Disease*, Thomas Holm, Ph.D., presented information about the work he did at Aarhus University in Dr. Karin Lykke-Hartmann's laboratory. Together, they investigated the **Atp1a3-D801Y mutant mouse as an animal model for AHC.**

During the conference, Thomas met Dr. Alfred L. George, Jr. who later offered him a postdoctoral position in his laboratory in the **Department of Pharmacology at Northwestern University Feinberg School of Medicine.** Thomas accepted the offer and relocated to Chicago earlier this month.

"Despite efforts to understand the consequences of individual ATP1A3 mutations, it is clear that other factors contribute to disease outcomes. I am very excited to join Dr. Al George's lab at Northwestern where I will use a mouse model of AHC to identify potential genetic modifiers of the disease."
Thomas Holm, Ph.D.

Dr. Holm received his Master's degree from University of Southern Denmark in 2006 investigating protein trafficking in yeast using mass spectrometry. He then earned his Ph.D. in the field of neuroimmunology from the laboratory of Dr. Trevor Owens, University of Southern Denmark. During his graduate training, he and his co-workers used **mouse models to define the key mechanisms driving immune responses to injury in the brain.**

Dr. Thomas Holm & Dr. Al George in the lab at Northwestern University, Chicago, Illinois

In his new position at Northwestern, Thomas will continue his work on Atp1a3-D801Y mice and help create another new AHC model for the purposes of **testing pharmacological strategies as therapy** for the disease and to identify genetic factors that promote epilepsy in AHC. Thomas will be joined by his family in Chicago later this year.

The work going on in this lab is exceptionally important because these genetically engineered mice will exhibit many important features of human AHC. By establishing a new model for the disease, new therapeutic strategies can now be tested.

Please join us in welcoming Dr. Holm to the United States and extend our sincerest appreciation for the contributions he is making to the AHC Community in an effort to meet our **One Mission: End AHC!**

Join Us

Join Us

Your Dollars Matter Most. Our foundation is 100% donor-supported.
Help improve the quality of life of children with AHC today…with your donation.

www.ahckids.org

PATH TO A CURE
European Researchers Collaborate on New AHC Study with Significant Findings

On March 21, 2016, an open access article was published in PLOS One which discussed a variation in the brain's (cortex) ability to respond to stimulation in people with AHC not seen in people without AHC. They suggest that **such variations account for hemiplegia attacks**, and theorize that the variations detected may be useful traits to measure disease activity.

To conduct the research, they used **transcranial magnetic stimulation** to assess the effect of the condition on motor cortex neurophysiology both during and between attacks of hemiplegia. **Nine people with alternating hemiplegia of childhood were recruited**; eight were successfully tested using transcranial magnetic stimulation to study motor cortex excitability, using single and paired pulse paradigms. For comparison, data from ten people with epilepsy but not alternating hemiplegia, and ten healthy controls, were used.

Their results found **symptomatic and asymptomatic fluctuations in motor cortex excitability** in people with alternating hemiplegia of childhood, not seen in controls. They propose that such fluctuations underlie hemiplegic attacks, and speculate that the asymptomatic fluctuation we detected may be useful as a biomarker for disease activity.

For more information on this research, go to:
http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0151667

PATH TO A CURE
ATP1A3 Mutation Found in Gene Panel Analysis of Early-Onset Seizures

On March 18, 2016, an article appeared in *Journal of Medical Genetics* titled, "Improving Diagnosis and Broadening the Phenotypes in Early-Onset Seizure and Sever Developmental Delay Disorders through Gene Panel Analysis." **The discussion sought to investigate the diagnostic yield and mutation spectrum in previously reported genes for early-onset epilepsy and disorders of severe developmental delay.**

The study **looked at 400 patients with these disorders** with no known underlying etiology and no major structural brain anomaly; they analyzed 46 genes using a combination of targeted sequencing.

They **identified causative mutations in 71/400 patients (18%).** The diagnostic rate was highest among those with seizure onset within the first two months of life (39%). The most frequently mutated gene was SCN2A (11 patients, 3%). Other recurrently mutated genes included **ATP1A3**, PRRT2 and SLC9A6 (two patients each).

The study demonstrates the considerable utility of a gene panel approach in the diagnosis of patients with early-onset epilepsy and severe developmental delay disorders., They provide further insights into the phenotypic spectrum and genotype–phenotype correlations for a number of the causative genes and emphasize the value of exon-level copy number testing in their analysis.

To read the entire article go to: http://jmg.bmj.com/content/early/2016/03/18/jmedgenet-2015-103263.long

AHCF in ACTION

Celebrate the Kids

This July at the
AHCF Family Meeting

Registration for the family meeting is now open.

We are also interested in sponsors and possibly vendors that would help pay for the conference and in return be able to demonstrate their product like special needs strollers, educational toys etc... Do you have any suggestions for who might be interested in doing this? Would you be willing to check them out?

Lastly, we would really like to celebrate the kids and for this we need your help. We want to highlight things they love to do, their successes, and what makes them happy. If you would like to share any of your videos or photos which tell a little bit about them, please let us know by the end of April.

Please don't hesitate to register, comment, or share you memories.
Contact Lynn at lynn@ahckids.org or 650-796-1910 or Sharon at sharon@ahckids.org or 313-663-7772.

DOUBLE the FUNdraising
Indiana 5k Taking Place this July

Jillian & Wes Rodman are hosting a 5K race in Indiana on July 2, 2016 in support of Jillian's cousin, Laura Marszalek.

This event is called **5K for Kathryn** in honor of Kathryn Marszalek, diagnosed with AHC at the age of 11 months. The Rodmans and Marszaleks welcome anyone interested in being a participant at the 5K or willing to be a volunteer at the event.

All proceeds from this race will go directly to the AHCF to help fund research for treatment and a cure.

To join in running/walking the course, please register on our site at: http://ahckids.org/kathryn/.

Lisa Hodes

INFO EXCHANGE
AHC Family to be Matched with Med. Student for Global Genes Cox Prize

Global Genes is partnering with Student Advocates for Neglected Diseases (STAND) to present the third annual **David R. Cox Prize for Rare Compassion**, an essay contest that connects medical students with the rare disease community with the goal of developing understanding and compassion for the challenges and lifestyles that patients diagnosed with a rare disorder are faced with.

Lisa, Renee and Paul Hodes were selected to partner with a local medical student and share their experiences living with AHC. We thank the Hodes for participating in this wonderful endeavor and look forward to reading the essay.

Help our Fundraising Efforts Grow This Spring
Check Out These Blooming-Good Fundraising Ideas

Do-it-yourself fundraising ideas come in a variety of sizes and shapes. There are even ideas for those of us with the busiest of schedules.

Some contain detailed instructions while others are just brief summaries of past fundraising activities of other organizations. Hopefully you can adapt some of them to have some fun and raise funds for AHC research.

Check out this site and maybe… just maybe, you'll find one that works for your entire family.
http://www.fundraising-ideas.org/DIY/

ADVOCATES FOR AHC
Foundation Awards Grants to Researchers for International Symposium this Summer

Dr. Al George
Northwestern Univ.
Feinberg School of Medicine
Chair, Dept. of Pharmacology

The AHC Foundation is pleased to announce the award of financial grants to Dr. Al George and Dr. Kevin Ess to attend the 5th International Symposium on ATP1A3 in Disease.

The Symposium will take place this August in London at the UCL Institute of Neurology.

Important discussions are scheduled to cover topics such as:

- Research developments in ATP1A3- related disease
- Translation to treatments in ATP1A3-related disease
- Clinical developments in ATP1A3-related disease

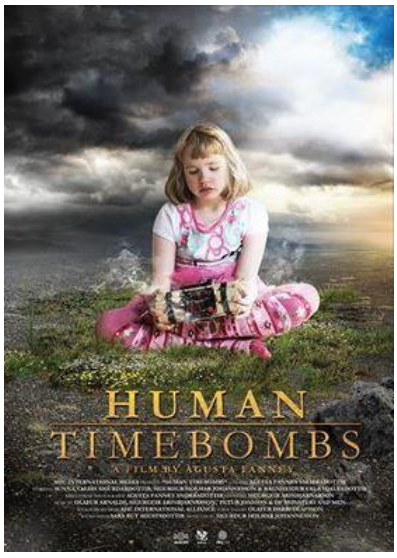
In addition, AHCF Director and Secretary, Vicky Platt, will attend the symposium to network with the research community and learn from an impressive group of international experts.

We thank the doctors for taking the time from their busy schedules to contribute to his important scientific work which benefits the entire AHC community.

Dr. Kevin Ess
Vanderbilt Univ.
Dept. Pediatric Neurology Cell & Develop Biology

ADVOCATES FOR AHC
AHC Documentary Makes Huge Splash at Neurology Conference in Vancouver

Earlier this month, AHC Iceland President Siggi Johannesson reported on the recent success of the AHC documentary, ***Human Timebombs***. He received great news from a neurologist that attended the American Academy of Neurology Annual Meeting in Vancouver, Canada.



The doctor commented: "Congratulations! Your film was just shown at the awards luncheon to about a **1000 neurologists** at the AAN. This should stimulate a lot of interest!"

This is probably the biggest exposure AHC has had at one time within the medical community. Hopefully this will lead to bigger things and eventually a treatment for our AHC kids.

Congratulations to everyone who helped make the documentary possible.