Giving Back

TO MOVE RESEARCH FORWARD

THE LEGACY OF ANGELS FOUNDATION
Annual Report 2014
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Giving Back – In 2014 TLOAF provided more than 1.6 million dollars in grants to support research for Krabbe’s, cystic fibrosis and newborn screening. As our investment in research continues... so does the excitement!

Excitement is building amongst researchers of Krabbe’s disease in their collaborative efforts to discover better treatments that may provide better treatments with better outcomes for many tomorrows. Promising critical data is moving research forward. The Legacy of Angels Foundation supports the Krabbe Translational Research Network (KTRN) meeting. The KTRN is a consortium of scientists and clinicians who are dedicated to accelerating the translation of research discoveries to clinical therapies. To achieve this goal, members work together, combining knowledge from clinical experience and basic science to develop unique studies.

Excitement continues in cystic fibrosis research. We applaud and support the Cystic Fibrosis Foundation with the discovery of Kalydeco that is now available to treat the underlying symptoms of CF for a certain percentage of CF patients. These patients are now experiencing life in ways previously never thought possible. As excitement continues with TLOAF’s research in addressing the false positive and false negatives that occur in the newborn screening of cystic fibrosis, it is our hope, that with improvement of cystic fibrosis newborn screening, families will not have to experience the unknown.

In looking forward, with its funded innovative research, excitement at TLOAF continues to build with supporting new pathways to open new frontiers. The clinical research will help to FDA-approved clinical trials. A key component to accomplishing a major TLOAF goal “to be able to offer children and adults who are battling Krabbe’s -- a life-changing treatment!

In closing ... With its investment in research, The Legacy of Angels Foundation aspired to provide hope to families diagnosed with Krabbes and CF, that one day soon, families will no longer live with, or, in fear of these diseases. Families will have hope to live and embrace life with confidence that “we shall overcome” these obstacles and live their family life, disease free.
**Grant Funding Total Since Inception**

**Total Grants Awarded by Year**

2009 - 2014

- **2014** -- $1,602,663, 10 grants
- **2013** -- $1,475,013, 9 grants
- **2012** -- $1,332,994, 6 grants
- **2011** -- $1,576,253, 7 grants
- **2010** -- $1,289,000, 5 grants
- **2009** -- $500,000, 2 grants

**Total Grants Awarded by Program**

*%s are rounded to the nearest full percentage point*

2009

- $500,000 total
  - Krabbe’s (1)
  - CF (1)

2010

- $1,289,000 total
  - Krabbe’s (2)
  - CF (2)
  - NBS (1)

2011

- $1,576,253 total
  - Krabbe’s (4)
  - CF (2)
  - NBS (1)

2012

- $1,332,994 total
  - Krabbe’s (4)
  - CF (2)

2013

- $1,475,013 total
  - Krabbe’s (8)
  - CF (1)

2014

- $1,602,663 total
  - Krabbe’s (6)
  - CF (3)
  - NBS (1)
In 2014 the Foundation funded $1,602,663 in grants for the following:

A Prospective Study of Newborn Screening for Cystic Fibrosis Using Novel IRT/Next Generation Sequencing Method
Mei Baker, M.D. – University of Wisconsin, Madison, WI

Global Correction of Krabbe’s Disease Via Combined Cell, Gene and Neuroprotective Therapies
Ernesto Bongarzone, Ph.D. – University of Illinois at Chicago, Chicago, IL

Krabbe’s Translational Research Network (KTRN) Annual Meeting
Maria Luisa Escolar, M.D. – University of Pittsburgh Medical Center, Pittsburgh, PA

Roadmap Initiative to Support Gene Therapy for Krabbe’s Disease
Maria Luisa Escolar, M.D. – University of Pittsburgh Medical Center, Pittsburgh, PA

Program for the Study of Neurodevelopment in Rare Disorders
Maria Luisa Escolar, M.D. – University of Pittsburgh Medical Center, Pittsburgh, PA

Low IRT Levels and Characteristics of Persons with False Negative Newborn Screening Tests for Cystic Fibrosis in the United States
Martin Kharrazi, Ph.D. – CA Dept. of Public Health/Genetic Disease Screening Program, Richmond, CA

Identification of Drugs for the Treatment of Krabbe’s Disease
Magdalena A. Petryniak, M.D. – Oregon Health Sciences University, Portland OR

A Multi-Center Study of a New Method of Sweat Testing: The CF Quantum Sweat Test
Michael Rock, M.D. – University of Wisconsin, Madison, WI

Intracerebroventricular and Intravenous Injections of AAVrh10-CGALC into the Dog Model of Krabbe’s Disease
David Wenger, Ph.D. – Thomas Jefferson University, Philadelphia, PA

CDC Newborn Screening Translational Research Initiative

The Paul M. Fernhoff Memorial Lecture Series
Centers for Disease Control & Prevention Foundation, Atlanta, GA

If our initial review of a grantseeker’s Letter of Inquiry indicates that there may be a priority in one of our focus areas, we work to learn more about the organization and its programs. If a grant seeker remains under consideration, our due diligence, application and grant cycle is:

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Dr. David Wenger is the Director of the Lysosomal Diseases Testing Laboratory, Sidney Kimmel Medical College at Thomas Jefferson University in Philadelphia PA

After completing pharmacy school David knew he did not want to be a pharmacist. He enjoyed biochemistry and decided to get a PhD in biochemistry. His PhD research involved studies on glycolipid metabolism in myelin in the developing mouse brain. He hoped that someday his research would have clinical relevance. After two postdoctoral fellowships, one in organic chemistry and one in neuroscience, in 1971 he went to the University of Colorado Medical School and started a laboratory dedicated to understanding certain lysosomal disorders, including Krabbe disease.

His first NIH grant, which he wrote in 1972, was to study the substrate specificity of human beta-galactosidases, including galactocerebrosidase (GALC). It was only in 1970 that the enzyme defect in Krabbe disease was identified. In 1973 Dr. Wenger started a diagnostic laboratory for the diagnosis of certain lysosomal disorders including Krabbe disease. He identified two patients with Krabbe disease the first year. That increased his interest in trying to purify GALC to learn more about its structure and function. The methods for cloning genes were in their infancy until the late 1980’s, however they did map Krabbe disease to human chromosome 14, with the help of a post-doctoral fellow from China, Yue Qun Chen. In 1993 they also published on the cloning of the GALC cDNA (the coding region of the gene). This immediately allowed them to start looking for mutations in patients.

They identified the large deletion, the most common mutation in the European population, and about 60 other mutations. Studies were started showing that GALC cDNA placed in cells in culture resulted in the expression and secretion of GALC into the media and uptake by neighboring cells. This is the basis for cell and gene therapy currently underway in his and other laboratories. The availability of animal models has given them a valuable tool to evaluate treatments. Information from the researchers who study viral vectors for other disorders has allowed them to choose a vector they think will provide GALC activity to the central and peripheral nervous systems when they place the GALC gene into that vector. Studies from his laboratory and others show that a class of viral vectors called adeno-associated viral (AAV) vectors show promise for treating Krabbe disease.
His current research is centered on using a vector called AAVrh10 containing the mouse GALC cDNA both alone and in combination with bone marrow transplantation. This vector alone given simply by iv injection shows great promise in delaying the onset of clinical findings, improving myelination and delivering GALC activity to all nervous tissues, including the peripheral nervous system. Since hematopoietic stem cell transplantation in pre-symptomatic and mildly affected later-onset individuals with Krabbe disease is the current “standard of care”, the addition of a single iv injection of this viral vector to the treatment protocol could provide a large boost to the effectiveness of treatment. David thinks this viral vector will provide ample GALC activity to all critical tissues and the blood stem cells will improve the inflammatory component found in this disease. Affected mice undergoing this treatment are doing very well, some currently over 200 days old. It will take additional studies to evaluate the timing of treatment and dosing of viral vector before human trials can begin. Additional studies are planned in the dog model as bridge between mice and humans. However, David feels we are much closer to effective and safe treatment for patients with Krabbe disease.

David Wenger is a TLOAF grant recipient. The Legacy of Angels Foundation is most excited about Dr. Wenger’s promising research. The Foundation is hopeful that upon completion of the FDA trials, this will provide better treatment for those with Krabbes Disease.
On February 13, 2014, the Co-Founders of The Legacy of Angels Foundation (TLOAF), Paul and Sue Rosenau, along with Micki Gartzke, their Research Consultant visited the Newborn Screening Laboratory at the Wisconsin State Laboratory of Hygiene (WSLH) where the one of TLOAF funded projects addressing improving newborn screening for cystic fibrosis (CF) using next generation sequencing technology is conducted.

Dr. Charles Brokopp, the WSLH director, provided an overview of WSLH and the Newborn Screening Laboratory. Dr. Mei Baker, the principal investigator of the project, reported the project progress as following: Ongoing assay performance and data collection, working on the collaboration with IA, acquiring FDA approved instrument, and manuscript preparation.

Paul, Sue and Micki also toured the Newborn Screening Laboratory, and the sequencing facility at the Biotechnology Center of University of Wisconsin-Madison. They were pleased with the study progress, and impressed by the science and technology. They also thanked the study team for the hard and productive effort, and encouraged the team to keep up the good work.
Ft. Lauderdale, FL-- In March, one of The Legacy of Angels Signature Grants, the Krabbe Translational Research Network (KTRN) gathered for its 4th annual meeting to advance knowledge and translate research from the bench to the bedside, striving to accelerate access to better treatments and improve outcomes for those affected by Krabbe’s disease.

From far and wide this highly renowned group of internationally recognized experts in Krabbe’s disease united again at the beautiful beachside B Ocean Hotel in sunny Ft. Lauderdale, Florida to share the highlights and progress of each of their lab’s work and amazing progress. With more than 25 clinicians, researchers, consultants, advocates, and family members participating, it was another year showing great advances towards improved clinical treatments.

The goal of this latest meeting was two-fold; to share knowledge about Krabbe’s disease by increasing communication among researchers and advancing specific projects that have the potential to develop into new therapies for patients.

“As we’ve always wanted to focus our philanthropy on the education and awareness of this disease and help fund research for improved treatments and ultimately a cure for Krabbe’s disease, my wife Sue and I could not be happier with the growth and success of these meetings.”

Paul Rosenau, Co-Founder of The Legacy of Angels Foundation.

Once again, María L. Escolar, M.D. the world-wide recognized premier physician who directs The Program for the Study of Neurodevelopment in Rare Disorders (NDRD) at the University of Pittsburgh Medical Center and has created a Virtual Medical Home and Clinic for Children with Krabbe’s Disease located on the web at: http://ndrdvirtualmed.com/index.shtml, hosted the meeting.
Research Topics addressed this year included:

- Natural progression Krabbe disease, unresolved questions
- New conditioning approaches to UCBT
- Canine GLD: benefits of the model and what we have learned so far
- Challenges of bone marrow transplant and gene therapy in the monkey
- Development and characterization of O-cells (DUOC-01 cells), novel cord blood-derived bridging cell therapy for patients with lysosomal storage disease
- Glial progenitor cell-based strategies for treating pediatric disorders of myelin
- Combination therapies for Krabbe disease – update
- Translational approaches for Krabbe disease with AAV gene therapy
- Lenti-based gene therapy for Krabbe disease evolved to address the pathology of and the current therapeutic regimen for Krabbe disease
- Updates on gene therapy with AAVrh10 in the mouse and dog models of Krabbe disease
- Effects of mutations and polymorphisms on trafficking and processing of GALC
- Development of novel pharmacological strategies as potential treatments for Krabbe disease
- KTRN Pilot: novel gene therapy approaches to treatment of Krabbe’s disease in the twitcher mouse – description of synergism
- Global studies of neuropathogenic mechanisms active in Krabbe’s disease
- Gene therapy from bench to bedside, the FDA approval process for steps leading to an IND
- NIH initiatives and funding mechanisms for networks and translational research

WORKGROUPS

Upon completion of the individual presentations, workgroups were strategically put together to identify the main challenges in the following topics:

- Strategies for assessing current treatments (what knowledge-tools are needed to design efficient trials, availability of specimens, tissues, clinical gaps in improving patient care, newborn screening.
- Translational obstacles for FDA approval (design of preclinical studies and clinical trials for rare diseases)
- Challenges in preclinical studies (laboratory assays, treatment strategies, delivery methods, toxicology studies, outcome measures in animal studies)

At the conclusion of the meeting, all meeting participants agreed upon what the “Next Steps” for KTRN will be. Very exciting! The upcoming 2015 will bring us a step closer to our desired outcome after another year’s worth of hard work by The Legacy of Angels Foundation grantees and the additional scientists and clinicians who work daily to help the children. “We are gratified to see the progress being made, it is unprecedented!” Sue Rosenau, Co-Founder of The Legacy of Angels Foundation.
Paul and Sue Rosenau joined new TLOAF board member Bob Hoffman and his wife Judy at the 3rd annual Camden’s Concert on July 30th. Camden’s Concert was founded by Dave and Linda Mona, grandparents of Camden. Camden Mona was just a few days old when he was diagnosed with Cystic Fibrosis. Camden’s deep love for music inspired the launch of this benefit concert to raise money for the Cystic Fibrosis Foundation. This year’s entertainment featured the Wright Brothers. They have been delighting Minnesota audiences for years with a repertoire that ranges from Elton John to the Eagles. A silent auction preceded the concert which included a wide range of items. This event raised more than $50,000.

HUNTER’S HOPE SYMPOSIUM, NEW YORK

Research Consultant Micki Gartzke represented The Foundation at the annual Hunter’s Hope Symposium. Once again The Legacy of Angels Foundation outstanding funding work was well represented as quite a number of the scientific presentations were made by Grantees of The Foundation.

Pictured above are TLOAF Grantees L to R with Micki: Steven Gray, Dr. Maria Escolar, Ernesto Bongarzone and David Wenger
TLOAF VISITS MYELIN REGENERATION GROUP —
COLLEGE OF MEDICINE, UNIVERSITY OF CHICAGO

TLOAF Co-Founders Paul and Sue Rosenau and Research Consultant Micki Gartzke visited with Dr. Ernesto Bongarzone, a TLOAF grantee, and his team of scientists at the renowned Myelin Regeneration Lab at the College of Medicine, University of Illinois, Chicago.

It was an exciting afternoon, full of amazing scientific presentations, including new discoveries this team has made in different aspects related to Krabbe’s disease, ranging from neurogenesis issues to the recent find that there are aggregates in the brain similar to Parkinson’s disease. Further investigation in these areas may lead to potential therapies.

Some of their research goals include: to understand cellular and molecular mechanisms that impair remyelination and identify targets to overcome failure in repair is poised to change the future of the understanding.

Upon completion of the formal presentations, we all were treated to view the mice, the authentic model of Krabbe’s disease. We saw the actions of both treated and untreated TWI mice. It was amazing to see and understand the differences.

Dr. Bongarzone is a TLOAF grantee working on, “Global Correction of Krabbe’s Disease via combined cell, gene and neuroprotective therapies” at the University of Illinois at Chicago.

Dr. Bongarzone commented on many of his team’s hallmark experiments in poster form, which were exhibited in the throughout the building. This included showing published experiments and pending publications.

The day concluded with Q & A session. “It is gratifying to know that our grant dollars are helping to make significant progress towards the future where the results will flourish to benefit the children,” Sue Rosenau, Co-Founder, The Legacy of Angels Foundation.
Paul Fernhoff was the first Lysosomal Storage Disease Geneticist. The Legacy of Angels Foundation met with in 2009, in conjunction with its initial meetings with the Newborn Screening Branch and CDC Foundation at the Centers for Disease Control and Prevention in Atlanta GA. Paul’s sudden death in September 2011 shocked the LSD community worldwide.

This Lecture Series is one of the key features of the CDC Foundation’s Newborn Screening Translational Research Initiative.

The Legacy of Angels Foundation Foundation partnership in this important event through financial sponsorship promoted TLOAF to an ever-broadening group of high-level key individuals in relevant institutions and programs, both public and private.

Even more importantly, TLOAF was nicely promoted by more than one of the speakers for its value to the LSD community with its work specifically in Krabbe’s research. Attention was brought to the audience about the value and expansion of the TLOAF Research Grant Program. Attendees were encouraged to check out the TLOAF website to learn more about the breadth and depth of the TLOAF grant work since inception. Additionally, attendees were challenged to consider if any of the current LSD research could possibly translate into something beneficial for Krabbe’s Disease.

Micki Gartzke, TLOAF Research Consultant represented The Legacy of Angels Foundation at this outstanding lecture. Attendees and participants came from far and wide across the U.S. and learned new and exciting information regarding different advances in Newborn Screening.

Originally this year’s Keynote Presentation was planned to be about Newborn Screening for Lysosomal Storage Disorders, for which Paul Fernhoff was an early strong advocate. Unfortunately, a last minute health event caused a shift to “Newborn Screening for SCID: It’s About Time.”
What a thrill it was to witness The Legacy of Angels Foundation Grantee Dr. Mei Baker, Wisconsin State Laboratory of Hygiene, University of Wisconsin-Madison, receive the prestigious international Harry Hannon Laboratory award at the recent APHL Newborn Screening and Genetic Testing Symposium in Anaheim, CA.

This award is given to honor a person working in newborn screening worldwide who has had a direct effect in improving the quality of laboratory results for the newborn screening system. Paul and Sue Rosenau and Micki Gartzke were on hand to share personal congratulations with Dr. Baker.

Dr. Baker has been a grant recipient of TLOAF the past 2 years and a recent grant recipient from TLOAF for another 2 years for the following project:

Improving IRT/DNA Newborn Screening for Cystic Fibrosis to Reduce False Positives by a New Molecular Strategy
In November 2014, Co-Founders, Paul and Sue Rosenau, TLOAF Research Consultant Micki Gartzke, and new TLOAF Board Member, Bob Hoffman visited Dr. Maria Escolar and her team at the University of Pittsburgh Children's Hospital. Dr. Escolar is the Director of the Neurodevelopment for Rare Disease Program and an internationally known practicing clinician and researcher.

Maria Escolar, MD, and her team provide ongoing services for patients with rare metabolic disorders from across the country. This experience, combined with ongoing clinical research, provides the expertise to assess the multisystem needs of these children and to plan appropriate management, therapies, and palliative care when needed. The NDRD team also consults with local health care providers and educators to assist them in providing care to children with these rare diseases.

We participated in Dr. Maria Escolar’s NDRD Clinical Trainee Program. During this time, we had the pleasure of meeting the Sturtevant family, pictured below, alongside Paul and Sue Rosenau and Micki Gartzke.

Shadowing Dr. Escolar and her team as they worked to care for children born with Krabbes, was amazing. They provide expert medical management, therapeutic and educational interventions and equipment recommendations. At the end of the day Paul Rosenau commented, “It is great to see how high the level of care is for the children and families, and seeing how the NDRD Virtual Medical Home extends clinical care beyond the day of the patients’ visit by allowing staff to communicate with families and local health care providers”.

Since 2010 Dr. Maria Escolar has been a grant recipient of The Legacy of Angels Foundation for the following:

- A Virtual Medical Home and Clinic for Children with Krabbe’s Disease
- Program for the Study of Neurodevelopment (NDRD)
- MRI for Neurodevelopment for Rare Disorders Program (NDRD)
- Krabbe’s Translational Research Network (KTRN) Annual Meeting
- Krabbe’s Translational Research Network Collaborative Lab Grant
- Roadmap Initiative to Support Gene Therapy for Krabbe’s Disease
TLOAF Co-Founders, Paul and Sue Rosenau attended the annual Cystic Fibrosis Breath of Life Gala at the Hyatt Regency in Minneapolis on November 22nd. Joining them were TLOAF past and present board members, accountant, and financial advisor. The evening began with a silent and live auction featuring more than 400 items followed by dinner and an evening hosted by Twin Cities Channel 5 news anchor, Leah McLean. Evening highlights included the presentation of the 2014 Corporate Friend of the Foundation Award and the Angela Warner Friend of the Foundation award. The program finished with the awe-inspiring “Bid for a Cure”. This event raised more than $850,000 for Cystic Fibrosis. The evening concluded with dancing provided by The Brian Kinney Band.
The Legacy of Angels Foundation is proud to announce the addition of Robert Hoffman to its Board of Directors. With his vast experience in Education, Business and Government the Foundation is excited that he has decided to join us. “Bob” brings a lively spirit and years of strategic values adding visionary breadth and depth to the Board in achieving the Foundation’s Mission.

Bob has chosen to spend time working with us and we are grateful, especially now, as he has recently retired as Vice-President of Strategic Business, Education and Regional Partnerships for Minnesota State University, Mankato.

Previously he served as Superintendent of Schools in Waseca, MN; Senior Vice-President of Brown Printing, Waseca, MN; and Vice-President of the Taylor Corporation.

The Ecumen Board of Directors, Shoreview, MN; and The Greater Minnesota Partnership Board are two Boards on which Bob currently serves, and gives back.

As an English Teacher and Coach in Redwood Falls, Bob then went on to become Principal of Wanamingo High School, and Assistant Superintendent of Schools in Worthington. He earned his bachelor’s and master’s degrees at Minnesota State University, Mankato, and a doctorate in education at Utah State University.

Hoffman served as a member of the Minnesota State Colleges and Universities Board of Trustees from 2000 to 2006, and further as its chair for two years. Gov. Mark Dayton has re-appointed Bob to the Board of Trustees in 2014 for a six-year term ending on June 30, 2020.

Please join us as we welcome and celebrate Bob Hoffman!

Dale DeRaad, a key founding board member of The Legacy of Angels Foundation whose dedication and hard work was instrumental in the establishment and structure of the Foundation, especially during the time of Inception, has resigned from the TLOAF Board of Directors.

Mr. De Raad has stepped down to pursue additional opportunities. We will miss his vital work and assistance and be forever grateful for all the time and effort he put in towards The Foundation. We will continue to build upon that which he helped develop.

Thank you Dale De Raad for all your hard work, time and talents!
BOARD OF DIRECTORS

Paul Rosenau  
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Heather Techmeier/Paul Rosenau  
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Secretary

CONSULTANTS

Micki Gartzke  
Research Consultant

Jared Dufault  
Foundation Tax Advisor

John Priebe  
Financial Advisor

OUR MISSION

Is to improve the lives of children by working to promote the expansion of newborn screening, and to further education, awareness and research of Krabbe’s disease and Cystic Fibrosis to provide a better treatment and a cure.

OUR VISION

Is to direct, fund and promote research to develop and enhance treatments and cures for Krabbe’s disease and Cystic Fibrosis.

TLOAF will promote through education and awareness the expansion of Newborn Screening, Krabbe’s disease and Cystic Fibrosis; benefitting children with the increased probability of early identification and effective access to treatment.