

ACDA NOTES

From The Alveolar Capillary Dysplasia Association

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Dear Friends and Family,

As always, we would love to hear from you. Whether you have questions about ACD, are having a rough day, want to share some news, want to share a story about your baby, want to tell us about a fundraiser or you want to contribute to the newsletter, please feel free to contact us.

Money for ACD research is always at the front of our minds as it is always needed for research to continue. So, if you have any ideas on how to raise money for our restricted research account at NORD or if you have connections with a private foundation that supports medical research, please consider pursuing them. Also, remember that when you make a donation to NORD, your employer may match it. Please check with your Human Resources Department.

We hope you are enjoying the warm weather (in the northern hemisphere, anyway).

Fondly,

Steve & Donna Hanson
ACDA Executive Directors
sdesj@verizon.net

Baylor Article Published

Partha Sen, the lead ACD researcher at Baylor College of Medicine, informed us that their manuscript entitled, "Expression of Angiogenic and Vasculogenic Proteins in the Lung in Alveolar Capillary Dysplasia: An Immunohistochemical Study" was published in *Pediatric and Developmental Pathology* in March 2010. This medical journal is the prime journal for pediatric pathology findings and developments. The study outlined in the paper was supported by the grant awarded to Baylor by the National Organization for Rare Disorders (NORD) that was funded by donations by ACDA members and their families. Partha asked us to pass along his gratitude to everyone for supporting his research.

Here is the abstract:

Abstract

Alveolar capillary dysplasia with misalignment of pulmonary veins (ACD/MPV) is a rare, universally fatal developmental disorder of the lung affecting both the parenchyma and the vasculature. Its cause remains incompletely understood; the occurrence of familial cases has suggested a genetic abnormality. While several candidate genes have been studied previously, the affected pathway(s) have not yet been fully defined. The expression patterns of 8 gene products (eNOS3, Flk-1, HIF1a, VHLp, VEGF147, VEGFC1, VEGFA20, and ALK1), all known to have a role in vascular development in the

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lung, were studied in 13 ACD/MPV and 17 control lungs by immunohistochemistry to further address the underlying molecular abnormality. Expression was graded as to degree and extent for multiple components of the lung parenchyma and pulmonary vasculature for each antibody. Statistical analyses of the data using Mann Whitney test revealed only a few significant differences ($p \leq 0.05$) in degree of expression between ACD/MPV and control lung samples and do not clearly implicate one of these genes in ACD/MPV.

Authors: Partha Sen, Tiyashi Choudhury, E. O'Brian Smith and Claire Langston"

Publication: Pediatr Dev Pathol. 2010 Mar 23

Locke Family Raises Awareness

Diana Locke, mother to Christopher and a nurse, is quickly becoming an important ambassador for ACD. On May 25, Diana presented another lecture at the University of Florida for first year medical students. Diana's husband, Andrew, and son, Andrew Jr., attended the lecture to support Diana in what must have been an important but emotional message. Diana's power point presentation and lecture were very successful as half the students asked questions and one student even made the following encouraging remark - "I bet we won't miss a diagnosis of ACD from now on."

On a whim, Diana made the decision to email a local reporter about ACD and her lecture. Diana's email got the attention of Jeremy Cox, a reporter for the Florida Times-Union in Jacksonville, Florida, her hometown. Jeremy attended Diana's lecture at the medical school and then interviewed Diana for over an hour. The article below made the front page of the newspaper! So, not only was Diana successful at raising awareness amongst future doctors, but she knows that a lot of medical professionals in the area may have received their first bit of information about ACD via the newspaper article. We know that you will join us in thanking Diana and her family for their continued efforts in raising awareness of this rare disorder.

BABY HELPS UNLOCK A MEDICAL MYSTERY

These are sketches of Christopher Locke, who died in 2006 from a rare disorder called ACD, alveolar capillary dysplasia. After the child died, his mother, Diana Locke, devoted herself to chasing down information on the cause of his death.



Picture by DON BURK/The Times-Union

And his grieving mother persisted in her search to find out the reason behind her son's death.

By [Jeremy Cox](#)

To his family and the physicians who treated him, Christopher Josef Locke was the boy who mystified.

Ultrasounds showed that he would be trouble, that he would be born with a hole in his heart. And there were serious unseen problems in his gut that wouldn't become apparent until later.

But his doctors at Shands at the University of Florida in Gainesville, where Christopher was taken by helicopter shortly after his birth in Jacksonville, were confident he would improve with surgery and time.

He didn't. His condition got worse, despite the help of a machine doing the work of his heart and lungs. On Christopher's 40th day of life, with his lungs too filled with fluid to inflate, he was taken off life support.

To researchers investigating a genetic disorder with a 100 percent death rate and no known cause, Christopher was the boy who unlocked a mystery. It was a mystery that almost certainly wouldn't have been solved if not for the persistence of a mother in grief.

About a hundred first-year medical students gather at a lecture hall in the University of Florida's health science center, just a few buildings from where Christopher Locke took his last breath. The course's co-organizer, a developmental biologist casually clad in a polo shirt and jeans, begins to introduce a guest speaker to the medical genetics class.

"This is a case that has changed a lot in the last year," Brian Harfe says. "And it's a great example of how a single person can change an entire disease field."

Photographs of Christopher's short life - tubes, pink skin, bandages - flash on a huge screen above Diana Locke as she describes his deadly disorder.

Newborns afflicted with alveolar capillary dysplasia, or ACD, generally live less than a month, she tells them. It is usually not diagnosed until after they have died, through a lung biopsy. Medical literature lists only 200 known cases, but many more have likely occurred and gone undiscovered.

"It has been three years, five months, eight days since we last saw our son," Locke says matter-of-factly. Her husband, a tree service operator named Andrew, and their 14-year-old son have pushed aside their usual weekday morning obligations to be in the audience, to give her support.

As soon as she learned what took her newborn's life, Locke became an ardent supporter in the cause to educate people about ACD.

"So other people could have more information than we had," Andrew Locke likes to say.

But she did more than spread knowledge. She helped create it.

- - -

The daughter of a nurse who left anatomy books around the house to read, Diana Locke was virtually predestined to become a registered nurse. Once in the field, she split her time between an adult operating room at Baptist Medical Center Downtown and a nursing home.

Her specialty wasn't obstetrics, but she knew enough from her medical training and her first pregnancy that she was getting too big with Christopher. Thirty-seven weeks in, her swollen belly measured as if she were 47 weeks pregnant - at least seven weeks past due. Her abdominal muscles tore under the strain.

Doctors couldn't figure out why she was so big until after Christopher was born. She was producing amniotic fluid, but he wasn't swallowing it because his stomach wasn't connected to his intestines. Worse, his intestines weren't connected to his anus, leaving his waste with nowhere to leave his body.

He underwent surgery 18 hours after he was born at Wolfson Children's Hospital to fix the upper part of his digestive problems. Afterward, he began crashing in the neonatal intensive care unit and was flown to Gainesville, where he could be placed on special life support.

Sandra Sullivan, a neonatologist affiliated with UF, was assigned to handle the difficult case.

"I take care of a lot of babies, and I wouldn't remember most of their names off the top of my head. But I certainly remember the Lockes," she said recently.

After a few weeks, it became clear that Christopher wasn't pumping enough oxygen through his bloodstream.

At first, Sullivan suspected high blood pressure was to blame, but when the issue didn't correct itself, she began searching elsewhere. Sullivan remembered a case more than a decade earlier from her residency at Shands in which a child died from ACD. She wasn't directly involved in the child's care and struggled to recall details.

She hesitated to even mention the possibility to the Lockes. Not only was it the longest of long shots, but even if her hunch proved correct, there would be nothing science could do for the dying boy.

Back in the UF class, a student asks Locke whether a heart and lung transplant could have helped.

"There is no cure for it," she replies. "As far as I know from the literature, there are babies who had a heart and lung transplant who did survive ..."

She pauses. From the audience, it's hard to tell why. Locke nods solemnly in a way that suggests she wishes she could linger forever on that last word: "survive." Instead, she presses on.

"... beyond a couple of days."

After Christopher died, the grieving Locke poured her energy into chasing down the one lead she had in her son's case: ACD. She read journals and websites. She got in touch with other families affected by the disorder through a group called the ACDA - the ACD Association.

The more she learned, the more convinced she became of the diagnosis.

ACD is primarily marked by the failed development of the tissue in the lungs, known as the alveolar-capillary membrane, that delivers oxygen to the blood. That would explain his low blood-oxygen levels. And most ACD patients have other anomalies, not unlike the ones Christopher had in his stomach.

The first autopsy, performed only because the Lockes asked for one, pegged the heart defect as the cause of death.

For weeks leading up to the discussion of the findings, Locke had been feeding Sullivan the information she had found about ACD. Feeling more confident than ever about her initial suspicion, Sullivan asked the pathologist to run more tests, this time looking specifically for tell-tale signs of ACD.

The tests came back positive. What's more, Christopher's genetic tests showed that one of his chromosomes, the storage containers of the body's DNA, was partially missing.

Excited by what she saw, Melissa Maisenbacher, a genetic counselor at UF, called the researcher at Baylor College of Medicine in Houston whose name appeared on most of the ACD websites she found. As is customary for medical researchers, particularly those accustomed to years of letdowns, Partha Sen kept his optimism in check.

That would soon change.

Over the previous decade, Sen had studied several promising genes in search of the cause of ACD. But when Maisenbacher called, his work primarily consisted of a series of dead-ends and a 2004 paper outlining the disorder's symptoms and characteristics in 20 individuals.

Sen, though, noticed the same thing that Maisenbacher did: something missing on chromosome 16. To understand the importance of that finding, you must know that the human genome consists of millions of genes but only 23 pairs of chromosomes. To Sen, the appearance of the marred chromosome was like finding a bookmark in a million-page dictionary, pointing to a comparatively small section where he needed to start looking.

Or as Sen put it: "It was like a Rosetta Stone. It told us that there is a deletion in that region and the patient had ACD."

From previous research, he knew that the gene FOXF1 is involved in lung function. It turned out that not

only was Christopher missing that gene and a couple near it, but so were 30 percent to 40 percent of the other ACD patients that Sen studied.

Sen and a number of researchers, including a couple as far away as the United Kingdom, published their findings in the June 2009 American Journal of Human Genetics. They didn't proffer a cure, but they uncovered the gene responsible - an advancement that could one day lead to a genetic therapy that eradicates ACD once and for all, Sen said.

Now on a bench outside the hospital and relaxing after her talk, Locke reflects on a visitor's question: How did she feel when her hard-fought ACD diagnosis was confirmed?

Relieved, she says. "We knew then there was nothing we could have done."

Maybe someday, Locke adds, that will be different.

jeremy.cox@jacksonville.com, (904) 359-4083

A n n o u n c e m e n t s

- The balance of the ACD Restricted Research Account at NORD is \$11,382 as of June 11, 2010. We need to raise \$35,000 for our next research grant.
- If you have recently moved or changed your email address, be sure to let us know. If you have approved release of your information, we share your contact information with new families so they have others to reach out to for support and understanding.
- [REDACTED], aunt and cousin to beloved [REDACTED], created a Public Service Announcement on ACD in both English and Spanish. If you have not seen them, be sure to check them out on the ACDA website at <http://acd-association.com/>.
- Cami and Randy McGraw, who own Stretch Productions in Texas, have almost completed their compilation CD to benefit ACD. It should be available in July but the latest news is that 16 year old recording artist Jordyn Shellhart is now going to perform one of the tracks on the CD. Jordyn has played at the Grand Ol' Opry and performed at the Country Music Awards in Nashville, Tennessee just a few weeks ago. Jordyn's manager has also been the manager for Taylor Swift, Carrie Underwood and Lady Antebellum so expect Jordyn's career to take off. Check out Jordyn at <http://www.jordynshellhart.com/> or <http://www.facebook.com/JordynShellhartOfficial> . Hook up with Cami and Randy on Facebook also at <http://www.facebook.com/StretchProductions>.
- Please feel free to submit a poem, a story of your baby, a birthday tribute, or ways that you have kept your baby's memory alive.

As the hustle and bustle of life resumes and it seems no one recognizes the sorrow in your heart - we remember. May you find a meaningful way to celebrate the precious life of your baby.

		July 2
		July 2
		July 9
		July 10
		July 27
		July 27
		July 31
		August 6
		August 7
		August 12
		August 16
		August 17
		September 5
		September 7
		September 8
		September 8
		September 10
		September 29

*Remembering
Our Babies*

These are my footprints,
so perfect and so small.

These tiny footprints
never touched the ground at all.
Not one tiny footprint,
for now I have wings.

These tiny footprints were meant
for other things.

You will hear my tiny footprints,
in the patter of the rain.

Gentle drops like angel's tears,
of joy and not from pain.

You will see my tiny footprints,
in each butterflies' lazy dance.

I'll let you know I'm with you,
if you just give me the chance.

You will see my tiny footprints,
in the rustle of the leaves.

I will whisper names into the wind,
and call each one that grieves.

Most of all, these tiny footprints,
are found on Mommy and Daddy's hearts.

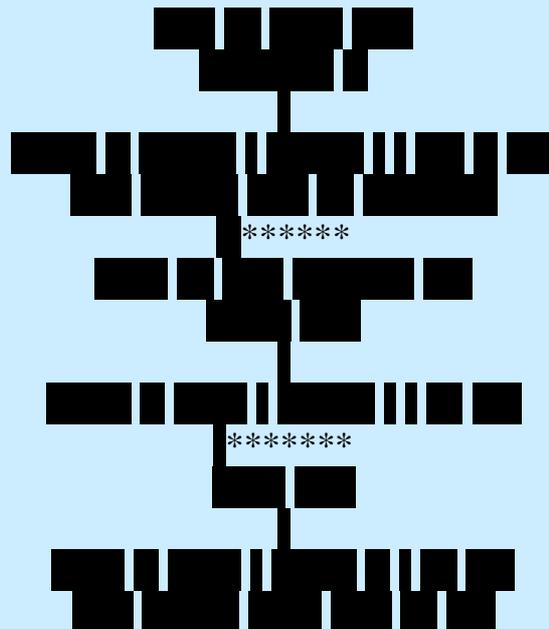
'Cause even though I'm gone now,
We'll never truly part."

~Unknown



welcome.....

Please introduce yourself and share the story of your family with our new ACDA members.



Make a Tax-deductible Contribution for ACD Research

The National Organization of Rare Diseases is a non-profit organization in the United States who is "dedicated to helping people with rare "orphan" diseases and assisting the organizations that serve them. For the sixth consecutive year, NORD has been awarded the top rating for sound fiscal management by Charity Navigator, a leading evaluator of charities. Less than four cents of every dollar donated to NORD goes to administrative and fundraising costs. The ACDA has had a restricted research account at NORD since 2002 which allows our members to make tax deductible contributions for ACD research. Once this account reaches \$35,000 NORD will initiate the process to award a research grant. Previously, two such grants have been awarded to Baylor because of the generous donations of our members, friends and family. As evidenced by past grants, we are confident that our donations will be used for research. Therefore, please follow these steps when making a contribution to NORD:

- Please make your check payable to "NORD - Alveolar Capillary Dysplasia Restricted Research Fund" to earmark your donation for ACD research.
- In the memo section of the check or on a separate note attached to the check, state that the donation is "in memory of (name of child)."
- Your family and friends can attach a note to their check with your name and address and NORD will notify you of their gift.
- Send your check to the following address:

National Organization for Rare Disorders, Inc.
P.O. Box 1968
Danbury, CT 06813-1968 USA

The most critical part of this process is ensuring that your check is made out to "NORD - Alveolar Capillary Dysplasia Restricted Research Fund" to ensure that your donation is earmarked for our ACD Research Account.

You may also make a donation on the NORD website at <http://www.rarediseases.org/helping/donate>. When filling out the section entitled "You may enter the name of the person you wish to honor with your gift here" type in the name of the baby followed by "Alveolar Capillary Dysplasia," (example: Jane Doe/Alveolar Capillary Dysplasia). If the name of the baby is written first, the accounting department at NORD will immediately know that this is a restricted research donation in memory of your baby.

Special Information for Families Living Outside of the United States:

NORD recommends that families living outside of the United State use a credit card to make a donation since it costs less to convert international currency when using a credit card. The person to notify with the authorization amount, type of credit card (Master card, Visa), name on the card and the expiration date on the card is Cindy Thayer cthayer@rarediseases.org. Also, please be sure to indicate the donation is restricted for ACD research, the person's complete name it is given in memory of, and the name and address of whom NORD should send an acknowledgment to. Your own name and complete address should also be included in order to process the paperwork.

Contact Information

ACD Association
Steve and Donna Hanson
5902 Marcie Court
Garland, TX 75044-4958 USA
(972) 414-7722
Email – sdesj@verizon.net
<http://acd-association.com/>