



Fall 2009

Angioma Alliance Newsletter

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Angioma Alliance Intensifies Research Focus, Hires Scientific Officer

Last spring, Angioma Alliance created an online survey to ask our members what they would like to see from their organization over the coming 2-3 years. You told us that our current efforts at providing patient information and support were working well. Now that this part of our mission is going smoothly, you said you would like to see us intensify our efforts toward searching for a cure for cavernous angiomas.

To that end, we have recently hired a full-time Chief Scientific Officer, Dr. Amy Akers. With Dr. Akers' arrival, we will be developing new research initiatives. Our first new program will be to develop a patient registry that is not necessarily connected to our bio-repository. As researchers need individuals to participate in natural history studies or in clinical drug trials, we would like to have a list of individuals who are interested in participating in such research. Within a few months, we'll be developing the infrastructure to collect and organize this data. We hope to put out a call for registrants by the beginning of 2010.

Dr. Akers will also be overseeing the DNA/Tissue Bank, coordinating the program at our annual

international Scientific Workshop, and interfacing with the National Institutes of Health and with research programs to assess ways in which we might facilitate their work. Dr. Akers states, "It is a unique privilege to join Angioma Alliance. I am anticipating a successful year of research and outreach for the cavernous angioma community. I look forward to working within the growing support of this wonderful group."

Dr. Akers comes to us from Dr. Douglas Marchuk's laboratory at Duke University where she has worked for the last four years. Dr. Marchuk has been one of Angioma Alliance's Scientific Advisors since our founding and has one of the world's most active cavernous angioma research labs. Dr. Akers is a geneticist who has conducted studies to develop a new mouse model for cavernous angioma. Additionally, her genetic studies have supported a model for the underlying mechanism for the genesis of cavernous angioma lesions. We welcome her to Angioma Alliance and enthusiastically look forward to her defining and leading our scientific mission.

*Connie Lee
President, Angioma Alliance*

Note: In this newsletter, the terms "cavernous angioma," "cavernous malformation," and "CCM" are used interchangeably.

New Angioma Alliance Mission Statement

Over the weekend of September 12th, the Angioma Alliance Board of Directors gathered to write a strategic plan to guide our work as we move forward through the next three years. One of the products of this meeting was a new mission statement with a new set of goals:

Our Vision: A Cure for Cavernous Angioma

Our Mission: To inform, support, and empower individuals affected by cavernous angioma and drive research for a cure

Our Goals and Objectives:

- 1) Facilitate and participate in cavernous angioma research to achieve a complete understanding of the disease and, ultimately, a cure.
 - Expand the Angioma Alliance DNA/Tissue Bank and Clinical Database.
 - Establish a Patient Registry.
 - Encourage collaborative relationships among researchers and institutions by inviting them to participate in conferences and projects.
- 2) Provide information to educate and improve the lives of people affected by cavernous angioma.
 - Maintain a website and printed materials that provide up-to-date information to affected individuals including those with cavernous angiomas, caregivers, health professionals, researchers, policy makers, the media and the general public.
 - Organize and host educational events.
 - Strive to increase health professionals' knowledge of the condition.
- 3) Foster and promote a caring community to provide support.
 - Provide multiple avenues of online community support.
 - Maintain a program of peer matching with trained volunteers who can provide one-to-one email and phone support.
- 4) Get people involved in advocacy and active participation toward a cure.
 - Develop a campaign to inform and encourage every individual to actively participate to their full potential.
 - Encourage people to contact their legislators to promote increased funding of cavernous angioma-related research and services.
 - Provide tools for more successful fundraising events.
 - Encourage and help people to participate in research.
 - Encourage people to share their experiences to raise public awareness.
- 5) Build and sustain a broad base of funding sources to adequately support our mission and goals.
 - Develop and execute an efficient, effective, long-term fundraising strategy.
 - Use fundraising activities to increase awareness and understanding of cavernous angioma and the work of Angioma Alliance.

In the coming issues of our newsletter, we'll talk more about how we will achieve these goals. As we discussed in the lead article in this issue, we are increasing our focus on research. In addition, we have added a goal that addresses our desire to empower all of our members to work toward a solution. There are countless ways you can make a difference, and we are in the process of putting together program guides and support materials for anyone who would like to participate. Letting us know that you'd like to participate is now very easy—there is more information about this in the “You Weren't Sure How To Use Your Skills...” article on page 4 of this newsletter. We also recognize the need to develop a comprehensive fundraising strategy. Our goal is to funnel our energies more effectively to get the biggest benefit from our efforts.

We are very excited about the future of Angioma Alliance and are very glad to have you with us as we strive for answers.

Connie Lee

News

Smart Car Raffle Winner

On June 27, dozens of people gathered in Santa Fe's DeVargas Mall to watch the drawing of the winning ticket for a 2009 Smart Fortwo Passion Coupe. Angioma Alliance is pleased to announce that winner of the drawing was Sadhna Khalsa of Santa Cruz, NM. Rather than taking the car, Sadhna opted for the \$12,000 alternative prize. Our congratulations to him and our thanks to everyone who purchased a ticket to support our work.

Joyce Gonzales, the owner of the 2009 Smart Fortwo that was offered in the raffle, has listed it for sale. It has many upgrades and only 300 miles. If you are interested, please contact her at joyce@angioma.org.



New URL and Address

Have you noticed that the URLs for the Angioma Alliance webpages we've referenced in this issue are a bit shorter? We are now using www.angioma.org as our official web address. You can still get to us with your old bookmarks, but we are hoping to make it easier for newcomers to find us.

You may also notice that our address has changed. Please send your donations and other correspondence to:

Angioma Alliance
 520 W 21st Street, Suite G2-411
 Norfolk, VA 23517

Using Social Networks to Help: Firstgiving and Facebook

In the last year, members who opened Firstgiving pages raised almost \$19,000 for the work of Angioma Alliance. This year, we'd love to raise the goal to at least \$25,000. Firstgiving is an easy way for anyone to host a fundraiser. Visit <http://www.firstgiving.com/12841> and follow the simple directions for setting up a webpage. Finally, e-mail the link to your page to the

contacts in your address book. That's it—in less than 30 minutes, you could be helping your family and friends to make a difference in the search for a cure. If you opened a page last year, it's time to remind everyone that it's been about a year since they last supported us.

Other members have been using Facebook to help Angioma Alliance. Along with the Angioma Alliance Group, there are several Causes that have been established to benefit Angioma Alliance:

- Cavernous Angioma Awareness
- Cavernous Malformation Awareness
- CCM and AVM awareness
- Support research into Cerebral Cavernous Malformations

Please feel free to direct your friends and family to these Causes.

Facebook also allows members to set up Birthday pages where they can encourage their loved ones to substitute a gift to Angioma Alliance for a birthday gift. Thanks to everyone who has taken the initiative to help!

2nd Annual Wine Crush and Harvest Party

For the second year, Christine Castellano and Mark Seymour will be hosting a garden party to benefit Angioma Alliance. The event will be on October 10th at 3 pm in the metropolitan Philadelphia area. Everyone is invited! For more information and to RSVP, visit <http://www.mypunchbowl.com/parties/641435-second-annual-wine-crush-harvest-party> or call Chris and Mark at 610-896-6789.

You Weren't Sure How to Use Your Skills...

We know we have many talented members and friends, but maybe you haven't known how to use your skills to help Angioma Alliance or even that we needed your help. Responding to a suggestion made on our planning survey, Angioma Alliance has created a volunteer sign-up form that will let us know how you are willing to help. The form can be found at www.angioma.org/volunteer.htm.

With this form, we'll be able to have close at hand a list of individuals and your preferences so that we can contact you as projects are being planned. We appreciate everything our volunteers add to Angioma Alliance, and we look forward to having many more of you involved. Volunteering for Angioma Alliance is a wonderful way to make a difference.

Event Planning Google Group

We have started an open group using Google Groups to share resources and expertise for planning community events to raise awareness of cavernous angiomas. The initial invited members were folks who had previously expressed an interest in organizing an Angioma Alliance event—a walk/run, an auction, a bowling tournament, etc. We hope to share tips and resources and to cheer each other on as we turn our ideas into reality. To join the group, go to <http://groups.google.com>, search for Angioma Alliance Events, and follow the “Join This Group” link.

Angioma Alliance Receives Grant from Con Alma Health Foundation

Angioma Alliance has received a director's discretionary grant of \$2,500 from the Con Alma Health Foundation to support our patient education efforts in New Mexico. We are using the funds to create a bilingual patient brochure that is particularly focused on the community of individuals with the common Hispanic mutation. This brochure will be available in time for Cavernous Angioma Awareness Week in Santa Fe in November.

Cavernous Angioma Awareness Week

The City of Santa Fe, New Mexico will host the second annual Cavernous Angioma Awareness Week from November 9th-14th. Many of the events are still in the planning stages, but this year's Awareness Week will include the 5th Pathobiology of Cerebral Cavernous Malformations International Scientific Workshop and a half-day patient seminar. We will post more information on our website as it becomes available.

Peer Supporters Needed

We have been receiving many requests for support through our peer support program. There have been so many that we are in need of additional peer support volunteers. If you have a few hours to give each month and are interested in providing support to a newly diagnosed person or a person who is new to Angioma Alliance, please contact us. The peer support volunteer questionnaire can be found at www.angioma.org/peer_support_volunteer_form2.htm.

We need volunteers of all kinds, but we particularly need:

- pregnant women or diagnosed women who have given birth,
- parents of young children who are diagnosed with cavernous angiomas,
- individuals who have a cavernous angioma in the parietal lobe,
- women in general.

Stories

From Connie Lee: Angela Grubisic is a member of Angioma Alliance who lives in Australia. I have known Angela for five years and have always been in awe of her resilience and courage as she raised her son Max, who was severely affected by cavernous angiomas. Max passed away this year, and I asked Angela to write a tribute in his memory. This is the story of their love.

A Love Like No Other

It was June 5, 2002. He slid into our world effortlessly, three weeks early, a very speedy labour with a head of soft, black, woolly hair and a big healthy newborn cry. I remember the midwife asking if we had a name for him; for months we could not decide on a name, but as soon as I saw him I knew with absolute certainty his name. “Max” I said, “just Max”. He was anything but just Max.

Six weeks later our little world came crashing down. Max was diagnosed with hydrocephalous—fluid on the brain—and required a shunt. We were suddenly thrown into this whole other world of doctors and of the Children’s Hospital. I struggled to come to terms with what was happening, praying that it was just a nightmare and that I’d wake up soon and it would all be over. How naïve I was; if only I knew what was yet to come.

Seven months later, we found out that Max had multiple cavernous angiomas, spread throughout his brain and brainstem. It was hereditary; my sister’s cause of death was now understood. She had suffered a massive hemorrhage when she was 24 years old from this condition that we never knew we carried. We were all scanned, and my mother, my then two-year-old daughter and I have the condition and carry the KRIT1 gene.

It was explained to us that Max’s condition was quite rare; for cavernous angiomas to behave in such an aggressive manner was not seen often. We were told that Max was not expected to live long because of



the nature of his illness. I will always wonder if the insertion of the shunt aggravated his condition.

The next three years were spent in and out of hospital, de-bulking surgeries, shunt infections, gastronomy button surgery, and others. Max progressed back and forth, and occasionally we had times that I called “windows” when things looked bright. We dreamed of the day he would overcome the disease and we could finally put this all behind us.

Over time, the persistent bleeds and oozing of the CAs slowly deprived Max of any physical capabilities. At Christmas 2007, Max was weak, his scan was a mess of blood matter, and there were even more CAs. He was not expected to make it to Christmas. So we made the heart-wrenching decision to try and prepare our 7-year-old daughter, family and friends. For our daughter Gina, this was especially difficult. She still wanted to believe Max would go to school with her one day and often spoke of the things they would do together once they were older. Max made it through Christmas, and the rest of 2008, sleeping throughout a whole year, many times slipping in and out of a conscious state. It was emotional torture; the reality of living minute to minute, holding your breath expecting that last fateful bleed.



It was January 1, 2009. It was a day like so many others, yet it was the last of those days. The night before he seemed better, and I thought he had turned a corner once again. As we watched the evening fireworks over Sydney Harbour on TV, I was holding Max in my arms when Gina turned to me and asked, “Next year, can we have New Years Eve at home with fireworks and invite everyone? That way we can bring Maxi out in his chair and he too can see the fireworks.”

I couldn’t believe that what we had been expecting for such a long time now felt so unexpected. I was holding Max in my arms that day, crying, when

he took his last breaths. And just as he came into our world, he was gone.

Life without Max to hold and care for has been a lot more difficult than I expected. Yes, there's no more suffering for our little boy, no more vile medications, projectile vomiting, hot flashes, seizures, invasive procedures, doctors, hospital stays, MRI's, disability equipment, gastronomy feeds every four hours, and all the rest. But also gone are those cold little feet for me to massage and warm up, snuggling up to him in bed, playing "where's the tiger", taking delight in his growl, the only sound he could make. Throwing Max's limp arms around my neck so we could share a hug. Fighting over who gets to wrap their arms around Max in our bed with his dad.

I will miss the early days when, shopping with him, he used to love to grab hold of the fabrics as the pram swooshed by. Since this was one of the very few things Max could do, I would get the pram nice and close to as many racks as possible. And the time while we waited in the checkout queue I noticed Max trying so hard to lift himself forward so he could touch the skirt of the lady standing in front of us. I quietly edged the pram forward so he was within reach, and then looked another way, pretending not to notice as the lady turned around to the little boy pulling at her skirt. The simple pleasure of watching him eat and enjoying sticky date pudding on his second birthday, saying "ello" mischievously into his toy phone. I will always cherish the day, the only day, that Max ever called my name.

Max's life has changed us forever. I witnessed family and friends become strangers, as the strain of the disease, disability and us became too much to bear. Yet to those who were brave enough to get close and embrace Max, he rewarded them with a love like no other.



I will forever be thankful to Angioma Alliance and its members. Through reading posts on the forum I was able to have a better understanding of Max's symptoms. Since he could never tell me how he felt, all those people became his voice. Because of this I

was able to care for him better. We will be always thankful to Dr. Charlie Teo, for when everyone else turned us away, he gave us hope, and offered to operate on Max one final time. Dr Mark Westphalan, Max's pediatrician, cared for both Max and me with compassion and kindness. And Nurse Bridget and Nurse Troy opened their hearts to Max from the very beginning of this difficult journey. Thank you for always being there for us.

I am always surprised at the sense of love and pride that engulfs me every time I say I'm Max's Mum. This beautiful little boy of ours could do so little yet he gave so much more than most of us could give in a lifetime. Thank you Max, for just being the beautiful soul that you are. Thank you for being part of us.

Always and Forever,
Max's Mum, Angela

Neurology Resident's Award Article Published

Angioma Alliance offers cash awards to the best submissions from United States neurology residents in response to case scenarios about the clinical management of patients with cerebral cavernous malformations. In 2007, our Neurology Resident's Award was won by Dr. Lama Chahine, a resident at the Cleveland Clinic. Dr. Michel Berg from our scientific advisory board wrote the case scenario and judged the entries. We are pleased to report that Dr. Chahine's winning essay formed the basis of a journal article that was published in the September, 2009 Resident and Fellow section of Neurology, the most prestigious publication for neurologists:

Clinical reasoning: cerebral cavernous malformations. Chahine LM, Berg MJ. Neurology. 2009 Sep 1;73(9):e44-9.

Thanks to all of you who sponsored an award; it has taken us one step closer in our efforts to educate physicians about the management of cavernous angiomas.



International Updates

Having just visited my poor mother, in a Dorset care home, I jumped on the #13 bus to a vibration. Having finally learnt the distinction between the hunger vibration of my stomach and the noise emitted by the mobile, I reached into my pocket to hear a distinctly Irish voice on the telephone ask: "Is Professor Doctor Helmut Bertalanffy speaking on Saturday at your Forum?" "Yes". "How do I become a member? And is there room for one more person?" Thus began the fastest application that I have ever dealt with. Within 48 hours the Irish voice had embodied itself into our latest associate, sitting in the lobby of the Grange Holborn Hotel where we were holding the International Cavernoma Alliance UK 2009 Forum.

Many of the Forum's 100 attendees had checked into the hotel the evening before, which occurred on Saturday 13th June 2009. These included our speakers: Dr Helmut Bertalanffy from Zurich, via Japan; Dr Rustam Al-Shahi Salman, from Western General Hospital in Edinburgh and one of CA UK's medical advisers; Dr Eric Johnson, founder and clinical lab director, Aciregenetics, Connecticut, USA; and the President of Angioma Alliance, Dr. Connie Lee. Along with the treasurer and board were the indispensable volunteers David Watts and Victoria Spicer who had come up from Dorset especially for the Forum. Wonderful talks on genetics, neurology and neurosurgery gave way to an afternoon full of workshops for carers, those with epilepsy and sessions for those with the deepest cavernomas. Plans are already underway for the 2010 Forum, which will be held at the same venue with your very own Dr Amy Akers presenting a paper on cavernomas.

Cavernoma Alliance UK have also established 7 more CaverHubs around the country. (For previous non-readers, CaverHubs are community discussion groups with local neurosurgeons and geneticists.) Earlier this year we established CaverHubs in Sheffield, Edinburgh, Manchester and Birmingham. In the final quarter of 2009 we established Hubs in Bristol, Leeds, Oxford, Cambridge, Southampton, London and Liverpool. (My thanks to Iris Cassomini who, along with a team of local hub coordinators, has helped me establish these groups).

Unfortunately, all of this costs money. And so Cavernoma Alliance UK have gone overboard with our fundraising. durnoVibe 09 has been established by Dr Rick Birley, a local composer who has set up a day-long music festival in Dorchester during October to raise funds and awareness for Parkinson's Disease and Cavernoma Alliance UK. Poole Tangent, a local group of ladies, have awarded CA UK with £900 and Mr Neil Kitchen, consultant neurosurgeon, National Hospital of Neurology & Neurosurgery, has agreed to run the 2010 London Marathon. 50% of the proceeds will go to us.

We have also increased our membership this year to over 200 individuals. Hopefully they and our American friends (you!) will come to our next Forum, Saturday June 5, 2010.

Ian Stuart



Research Highlights

With advancements in human genetic and molecular studies, as well animal model research, these past few months have been rich in scientific developments for cerebral cavernous malformations. It is known that, for the familial or inherited form of cerebral cavernous malformations, inheritance of a genetic mutation in one of three genes, *CCM1*, *CCM2*, or *CCM3*, causes disease onset. However, when these genes were identified they were of completely unknown function. A major research focus in recent years has been to determine the normal function of these genes, and where they function within the body. If we can determine the role of the CCM proteins (the gene products) and what they do under normal physiological conditions, we can make great strides towards discovering a treatment for cerebral cavernous malformations.

Molecular Studies

It had been determined previously that all three CCM gene products work in a cooperative fashion as part of a larger signaling complex. What remains unknown is exactly how the complex functions, and what biological processes it regulates to maintain normal vascular integrity. Two studies were published this year that aimed to describe one of the functions of *CCM2*. Researchers at the University of Utah and the University of North Carolina at Chapel Hill have discovered that the *CCM2* protein is involved in a signaling cascade that regulates a downstream enzyme which is responsible for mediating endothelial cell permeability. These studies lead us to speculate that deficiency for *CCM2* under a diseased condition will cause an increase in vascular permeability and leakage from blood vessels, which may trigger the formation of CCM lesions.

Grosecropf LE, Hilder TL, Sciaky N, Johnson GL. Cerebral cavernous malformation 2 protein promotes smad ubiquitin regulatory factor 1-mediated RhoA degradation in endothelial cells. *J Biol Chem.* 2009 May 15;284(20):13301-5

Whitehead KJ, Chan AC, Navankasattusas S, Koh W, London NR, Ling J, Mayo AH, Drakos SG, Jones CA, Zhu W, Marchuk DA, Davis GE, Li DY. The cerebral cavernous malformation signaling pathway promotes vascular integrity via Rho GTPases. *Nat Med.* 2009 Feb;15(2):177-84.

Additional studies by a group at Yale suggest that the *CCM3* protein normally functions to induce cell death. Regulated cell death is a necessary process; for example, cancer results from deregulation of cellular lifecycles. The results of this study support the hypothesis that mutation of the *CCM3* gene may result in the onset of CCM lesions due to aberrant cell death. This same research team also worked in collaboration with Turkish researchers to show that the *CCM2* and *CCM3* proteins are expressed in human blood vessels of the placenta. The placenta is an area of rapid vascular development and these results suggests a role for the CCM proteins in blood vessel development.

Chen L, Tanriover G, Yano H, Friedlander R, Louvi A, Gunel M. Apoptotic functions of PDCD10/CCM3, the gene mutated in cerebral cavernous malformation 3. *Stroke.* 2009 Apr; 40(4):1474-81.

Tanriover G, Seval Y, Sati L, Gunel M, Demir N. *CCM2* and *CCM3* proteins contribute to vasculogenesis and angiogenesis in human placenta. *Histol Histopathol.* 2009 Oct; 24(10):1287-94.

Endothelial Specific Studies

Endothelial cells are the primary component of blood vessels. A major focus of research for this year has been to determine the role of endothelial cells in CCM lesion development. While CCM lesions are composed of malformed blood vessels, little research had been done to determine if involvement of other cell types is required for lesion genesis, or if endothelial cells alone are responsible for the lesion phenotype. Multiple studies addressed this issue from a variety of angles.

Research groups at the University of Colorado, Duke, and the University of Marburg in Germany independently used human lesion tissue samples—many of which came from Angioma Alliance's Bio-repository—to investigate the genetic mutations and protein levels for the CCM genes within lesion endothelial tissue, as compared to non-endothelial lesion tissue. It was discovered that lesional endothelial cells are unique. If a patient has inherited a *CCM2* mutation, for example, every cell in that person's body will be deficient for one of his/her two copies of the *CCM2* gene. However, a percentage of

the endothelial cells residing within a lesion from that patient would show two mutated copies of the *CCM2* gene. The result of mutating both copies of the gene leads to complete loss of that gene product and no production of the *CCM2* protein within those endothelial cells of the lesion. This pattern was observed for CCM lesions with mutations in *CCM1*, and *CCM3* as well. These data support the hypothesis that complete loss of one of the CCM genes within endothelial cells contributes to lesion development.

Akers AL, Johnson E, Steinberg GK, Zabramski JM, Marchuk DA. Biallelic somatic and germline mutations in cerebral cavernous malformations (CCMs): evidence for a two-hit mechanism of CCM pathogenesis. *Hum Mol Genet.* 2009 Mar 1; 18(5):919-30.

Pagenstecher A, Stahl S, Sure U, Felbor U. A two-hit mechanism causes cerebral cavernous malformations: complete inactivation of *CCM1*, *CCM2* or *CCM3* in affected endothelial cells. *Hum Mol Genet.* 2009 Mar 1; 18(5):911-8.

Gault J, Awad IA, Recksiek P, Shenkar R, Breeze R, Handler M, Kleinschmidt-DeMasters BK. Cerebral cavernous malformations: somatic mutations in vascular endothelial cells. *Neurosurgery.* 2009 Jul;65(1):138-44; discussion 144-5.

Interestingly, the essential nature of the CCM proteins to normal endothelial cell development was confirmed in a different way by researchers at the University of Utah and at the University of Paris who used genetically-engineered mice for their studies. As a reminder, in the mouse models for cerebral cavernous malformations, complete deficiency, that is having two genetic mutations in all cells of the body, is not compatible with life; these animals die very early during embryonic stages of development. In these recent studies, scientist specifically designed mice to have two mutations of the *CCM2* gene but only in targeted cell types. They showed that when mice are deficient for *CCM2* specifically and only in endothelial cells, these animals die at the same time as those with two mutations in the entire body. This observation is compared to targeting the double mutation to nerve precursor cells, another cell type that has been shown to express the CCM genes; these animals survived and are indistinguishable from their wildtype littermates. These studies strongly suggest that the endothelial cell is the primary target for the signaling and genetic events that instigate lesion genesis. By focusing studies on the biology of endothelial cells researchers are

working to determine which processes differ in the lesional endothelial cells—these may represent future targets for pharmacological treatment.

Whitehead KJ, Chan AC, Navankasattusas S, Koh W, London NR, Ling J, Mayo AH, Drakos SG, Jones CA, Zhu W, Marchuk DA, Davis GE, Li DY. The cerebral cavernous malformation signaling pathway promotes vascular integrity via Rho GTPases. *Nat Med.* 2009 Feb; 15(2): 177-84.

Boulday G, Blécon A, Petit N, Chareyre F, Garcia LA, Niwa-Kawakita M, Giovannini M, Tournier-Lasserre E. Tissue-specific conditional *CCM2* knockout mice establish the essential role of endothelial *CCM2* in angiogenesis: implications for human cerebral cavernous malformations. *Dis Model Mech.* 2009 Mar-Apr;2(3-4):168-77.

Animal Studies

Researchers at Duke and Northwestern University have teamed up to develop sensitive Magnetic Resonance Imaging techniques that can detect microscopic CCM lesions in the mouse model of the disease. The sensitivity of this screening technique will allow researchers to identify the location of even very early stage lesions, and to follow lesion progression within the mouse brain. This technique may prove to be a valuable tool for monitoring disease status in future animal drug studies.

Shenkar R, Venkatasubramanian PN, Wyrwicz AM, Zhao JC, Shi C, Akers A, Marchuk DA, Awad IA. Advanced magnetic resonance imaging of cerebral cavernous malformations: part II. Imaging of lesions in murine models. *Neurosurgery.* 2008 Oct;63(4):790-7; discussion 797-8.

Amy Akers

This is the first installment of Dr. Amy Akers' Research Highlights column. In each issue of the newsletter, she will present a summary of recent developments as a glimpse into the work that is bringing us closer to a cure.



Invitation to Researchers to the 2009 Angioma Alliance Scientific Workshop

Dear CCM Researcher:

We would like to invite you to attend the fifth Angioma Alliance scientific workshop on the Pathobiology of Cerebral Cavernous Malformations. As in past years, the goal of this workshop will be to bring together many of the key players in the CCM research field to discuss their latest research in an open, friendly, and relatively informal atmosphere. The workshop, to be held over 1 1/2 days, will begin at 8 am on Thursday, November 12, 2009 and finish by noon on Friday, November 13. It will be held at the Hilton Santa Fe in Santa Fe, New Mexico.



I would also like to take this opportunity to announce the hiring of Dr. Amy Akers as the Chief Scientific Officer for Angioma Alliance. Those of you who have attended past workshops will know Amy for her work in Doug Marchuk’s lab at Duke. We feel very fortunate to have her join our organization. Amy, along with Issam Awad and Doug Marchuk, will be coordinating this year’s Scientific Workshop program.

We anticipate that this year’s workshop time constraints may not allow for everyone in attendance to present. We ask that, if you would like to speak, you

submit an abstract of your presentation by September 30. Timely submission of an abstract is a mandatory requirement for presenting. If you plan to attend, but not present, and if you plan to bring other members of your research group, please let us know this when you RSVP. There is no registration fee for attendance at this workshop. However, attendees are responsible for all travel expenses. We encourage both principal investigators and other members of the respective research groups to attend and encourage junior members of each team to present short talks focused on their particular research project.

We hope you will strongly consider attending this meeting and bringing along key members of your research groups. Please send your RSVP and abstract to Amy Akers at Amy.Akers@angioma.org. Please contact Connie Lee at clee@Angioma.org with any hotel-related questions.

When making hotel reservations (1-800-336-3676 toll free in the US or 1-505-988-2811 from outside of the US), please ask for the Angioma Alliance Conference room block. You must make your reservation by October 12 to be guaranteed a room. You will receive a discounted rate of \$139 per night for a single or double room.

Sincerely yours for Angioma Alliance,

*Issam Awad, MD, MSc, FACS
Clinical Professor of Surgery (Neurosurgery)
Biological Sciences Division
University of Chicago Pritzker School of Medicine*

*Doug Marchuk, Ph.D.
Principal Investigator
Duke University Dept. of Molecular Genetics
and Microbiology*

*Connie Lee, Psy.D.
President
Angioma Alliance*

*Amy Akers, Ph.D.
Chief Scientific Officer
Angioma Alliance*

Angioma Alliance Donors April 1 – June 30, 2009

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Con Alma Health Foundation
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Who We Are

Angioma Alliance is a non-profit, international, patient-directed health organization created by people affected by cerebral cavernous malformations (CCM). Our mission is to inform and support individuals affected by CCM while facilitating improved diagnosis and management of the illness through education and research. We are monitored closely in our educational efforts by a Scientific Advisory Board comprised of leading cerebrovascular neurosurgeons, neurogeneticists, and neurologists.

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How You Can Help

Your contributions will help fund conferences and forums, increase research, and enhance outreach and support efforts. Our pins, car decals and wristbands support the mission and growth of Angioma Alliance. Share these meaningful gifts with your friends and family.

Each donation of \$10 or more will come with a CCM lapel pin thank you gift. Our “little red guy” pin is a wonderful way to increase awareness of cerebral cavernous malformation (CCM), our little known illness. Increasing public awareness can go a long way toward increasing research funding and improving quality of life for those with cavernous angioma. Each pin comes with cavernous angioma business-size information cards that can be handed to anyone who might have questions.



Angioma Alliance has its own magnetic car ribbon! These unique ribbons are the larger 3 1/2” x 8” size and are available for \$5 each, including shipping. Educate while you travel! To donate or order Angioma Alliance merchandise, send a check or money order (using the enclosed envelope) or visit www.angiomaalliance.org and purchase all of your Angioma Alliance gear in one fast, easy transaction! You can donate and purchase using a credit card with our Paypal connection.

The Angioma Alliance Newsletter is a quarterly publication of Angioma Alliance

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