

M.I.N.D. matters

MEDICAL INVESTIGATION OF NEURODEVELOPMENTAL DISORDERS

American Reinvestment and Recovery Act Funds Stimulate

Neurodevelopmental Research at the M.I.N.D. Institute

*Research
making hope
a reality.*

In February the United States Congress passed the American Reinvestment and Recovery Act (ARRA) of 2009 as an economic stimulus package. This act presented the National Institutes of Health (NIH) with a unique opportunity and a hefty problem. The opportunity came in the form of a \$10 billion supplement to the NIH budget to augment existing research, fuel new and innovative research projects that would improve the health of Americans, and create new job opportunities. The problem came with the mandate that the funds were to be expended within two years. This started a mad rush of grant announcements, writing, reviewing and finally funding. The review process of the NIH was taxed to its limit. One grant announcement, the NIH "Challenge Grant," generated over 23,000 applications. But a heroic effort led to 100's of new grants being funded.

A special request for applications, entitled Research to Address the Heterogeneity in Autism Spectrum Disorders, was of particular interest to scientists involved in autism research. Originally advertised with a budget of \$60 million, NIH funding for this program is now projected at about \$80 million.

Stimulus grants

Autism Phenome Project	\$2,858,804
CHARGE Study	\$1,618,492
Infant Sibling Project.....	\$1,022,289
Synapse Formation and the Visual System and Maternal Immune Activation.....	\$1,013,570
FXTAS/NeuroTherapeutics Institute	\$787,088
Gene Expression/Immune Cell Function	\$535,500
Autism Intervention in the First Year of Life	\$527,020
Virtual Reality and Autism	\$411,624
Epigenetic Interaction of MECP2	\$101,042

M.I.N.D. Institute investigators were awarded nearly \$5.1 million from this autism-specific funding opportunity, and a total of approximately \$9 million from all NIH ARRA offerings. These monies will enhance a wide array of M.I.N.D. Institute research studies, including the Childhood Risks of Autism from Genetics and the Environment (CHARGE) Study, Autism Phenome Project (APP), Infant Sibling Project, and the Neurotherapeutics Research Institute (NTRI).

Not only will these awards facilitate new and ongoing research at the M.I.N.D. Institute, but, consistent with

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the goals of the ARRA, they will also support the hiring of many new personnel with various levels of technical and scientific experience.

A team consisting of M.I.N.D. Institute Research Director David Amaral, developmental psychologist Sally Rogers and immunologist Judy Van de Water received a nearly \$3 million award in support of the Autism Phenome Project (APP). The Autism Phenome Project is one of the largest and most comprehensive assessments of children with autism nationwide. The project has evaluated over 200 families thus far, two thirds of them with a child with autism, and a third with a typically developing child. The goal of the project is to define different subtypes of autism in order to more systematically study causes and develop more effective targeted treatments. Participants receive a wide array of tests, including extensive behavioral and physical examinations, magnetic resonance imaging (MRI), blood sampling and immunological examinations. The new funding will allow the APP team to increase the number of families evaluated to over 400.

Amaral said that the study already has begun to find clues to autism's origins.

"Even with data from the first 200 families, we are seeing interesting differences among children with autism. Some kids, for example, have very large brains, and we've had some kids with very small brains. The children with small brains have different immune profiles than those with larger brains. We've also detected four types of brain responses to auditory stimuli using EEG or the recording of brain electrical activity. So, the unique, multidisciplinary

approach that we are using in the APP is already beginning to identify possible biological signatures of subtypes of children with autism."

Amaral said he is happy that the APP grant was funded through an initiative specifically for inquiries into the heterogeneity of autism—"exactly the goal of the Autism Phenome Project," he said.

"This is a wonderful opportunity. These grants will infuse money into the local economy in personnel and supplies—and all of this new investment supports scientific advancement."

— Paul Hagerman

The CHARGE study, lead by epidemiologist Irva Hertz-Picciotto, received two awards totaling more than \$1.6 million. Hertz-Picciotto is a professor of public health sciences, deputy director of the Children's Center for Environmental Health at UC Davis and a M.I.N.D Institute researcher. CHARGE was launched in 2003 as a study of 2,000 children that is designed to better understand the causes and contributing factors for autism or developmental delay and, in particular, to uncover the interplay between genetics and the environment. Participants include children with autism, children with developmen-

tal delay who do not have autism and typically developing children.

The Infant Sibling Project will receive just over \$1 million to continue efforts by Sally Ozonoff and her team to uncover the earliest signs of autism and to prevent or mitigate the full onset of the condition and its severe disability. In addition to the comprehensive behavioral evaluations currently being conducted, the new award will fund magnetic resonance imaging (MRI) of young children at risk for autism. MRI will be done on infants as young as 6 months of age to determine whether aspects of brain organization may be used to help predict which children will progress to autism.

Paul Hagerman is the lead researcher on a \$787,000 Challenge Grant (one of the roughly 200 funded out of 23,000 submitted) to use stem cell technology to examine the disease mechanisms in a neurodegenerative condition called fragile-X associated tremor/ataxia syndrome, or FXTAS, in research that could provide insights into a number of other disorders, like Parkinson's and Alzheimer's diseases.

Hagerman is a professor in the Department of Biochemistry and Molecular Medicine and the director of the UC Davis Neurotherapeutics Research Institute (NTRI), which was established to discover highly integrated approaches to developing targeted therapeutics, including molecular interventions, for neurogenetic disorders.

"In this study we will take skin cells, or fibroblasts, from patients with FXTAS and individuals without it and induce these cells to become neurons

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Training Program *inspires* new generation of autism researchers

UC Davis M.I.N.D. Institute researchers are internationally known for their multidisciplinary investigations into the causes and treatments of autism. The M.I.N.D. Institute's post-doctoral training program, the Autism Research Training Program (ARTP), is working to ensure that a new wave of talented experts in autism research will follow in those scientists' footsteps.

The program is funded by a \$1.5 million grant from the National Institute of Mental Health (NIMH), that was recently renewed for a second five year period. It enables doctoral and medical degree fellows to develop specialized knowledge related to autism, while learning about a broad spectrum of relevant fields of study, including human genetics, epidemiology, child development, clinical diagnosis and neuroscience. The overarching goal of this program is to create a new generation of researchers who are comfortable communicating with colleagues spread across a diverse group of scientific and clinical disciplines.

Started in 2005, the program already includes many successful alumni, including Tracy Riggins, Christine Wu-Nordahl and Aparna Nadig, and such current participants as Amy Jo "A.J." Miller Schwichtenberg and Michael Gonzales.

ARTP participants— the first wave

Tracy (DeBoer) Riggins is currently an assistant professor in the Department of Psychology at the University of



Amy Jo "A.J." Miller Schwichtenberg and Christine Wu-Nordahl

Maryland, College Park; she was part of the first cohort of fellows from 2005 to 2007. A 2005 graduate of the University of Minnesota in child psychology, her research has centered on memory development in both typical and atypical populations. She was drawn to the M.I.N.D. Institute and to mentor Tony Simon for postdoctoral studies that utilized magnetic resonance imaging (MRI) to learn more about brain structure and function.

Today, as she establishes her own laboratory to look at changes in the brain and memory development from ages 3 to 5, she has high praise for her ARTP experience. "It isn't common to have basic science researchers right across the hall from clinicians, as is the case at the M.I.N.D. Institute," she said. "For a complex disorder like autism,

that kind of interdisciplinary team is essential. The M.I.N.D. Institute is a unique and amazing place."

As an ARTP postdoctoral fellow from 2005 to 2007, Christine Wu-Nordahl developed a highly effective protocol for acquiring magnetic resonance images of the brains of toddlers during natural sleep. Following completion of her ARTP fellowship, Wu-Nordahl has continued to work on this project, and, in addition, is beginning her own research under a K99/R00 Pathway to Independence Award funded by the National Institutes of Health (NIH). This five-year NIH grant is designed to help young investigators transition from postdoctoral fellowships to faculty positions. Christine is pursuing an exciting new line of research that focuses on analyses

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of brain structure and connectivity in young children with autism. Part of her research program involves imaging the brains of 6-month-old toddlers who are at high risk for autism.

A 2004 UC Davis graduate with a PhD in neuroscience, Wu-Nordahl credits the ARTP for broadening her understanding of autism spectrum disorders. “The ARTP was very valuable for me in learning more about the clinical side of autism,” she said. “I had experience with imaging but not in working directly with children with autism. What’s wonderful about the ARTP is that it exposes participants to everything known about autism and lets trainees figure out how they can contribute to fill in the gaps in our knowledge.”

Aparna Nadig, who also participated in the ARTP program from 2005 to 2007 while funded by her own postdoctoral training grant from the National Institute on Deafness and Other Communication Disorders, was mentored by Sally Ozonoff. An assistant professor in the School of Communication Sciences and Disorders at McGill University in Montreal, Canada, since 2007, Nadig now studies social communication in both typical and atypical development. A current grant allows her to look at early word-learning processes in young children with autism.

“I had a cognitive and experimental psychology background,”

Laurie Vismara



said Nadig, who earned a doctoral degree in cognitive science from Brown University in 2004, “so working in a clinically-oriented setting was an important, and rewarding transition. It was a natural shift to apply insights from the basic study of language development to autism, since children with this disorder have significant social-communication problems.”

Current ARTP participants

Current postdoctoral scholar Amy Jo “A.J.” Miller Schwichtenberg started her ARTP fellowship last year, just after earning a doctoral degree in human development and family studies from the University of Wisconsin-Madison, where her research focused on infant sleep patterns. While pursuing her MS there, she had studied the use of applied behavioral analysis for treating children with autism spectrum disorders. She finds that her work at the M.I.N.D. Institute today, much of which involves the Infant Siblings Study led by her primary mentor Sally Ozonoff, resonates back to that experience.

“The ARTP is allowing me to return to autism,” the Minnesota native noted. “The interdisciplinary breadth of the program comes through immediately. In my first few days here, for instance, I held a brain in my hands. That was a first, and it was an example of being linked to different subject areas to which I otherwise would never have been exposed. I can’t say enough

Michael Gonzales

positive things about the program.”

Bay Area native Michael Gonzales, who holds a bachelor of science degree in biochemistry from UC Davis and a doctoral degree in molecular and cellular pharmacology from the University of Wisconsin-Madison, credits his ARTP experience from 2007 until this summer for broadening his horizons.

“My training was in chemical biology, without formal training in a medical field,” Gonzales said. “The ARTP has helped me see how basic science research fits in with such real-world problems as autism and other developmental disorders. It’s made me think outside my comfort zone and has given me a framework for moving from theory to practice.”

An emerging expert on the genetics of Rett syndrome, a disorder of the nervous system that leads to developmental reversals in such areas as expressive language and hand use, Gonzales’ next two years of postdoctoral study with his mentor Janine LaSalle are funded by an International Rett Syndrome Foundation grant.

“The ARTP has been a great program, and I’ve gotten a lot out of it,” Gonzales said. “I’ve really grown as a scientist by being a part of this program.”



Minds behind the M.I.N.D.

2009 – 2010 LECTURE SERIES



January 27, 2010 • Robin Hansen, M.D.

Fostering community partnerships

Robin L. Hansen is a professor of pediatrics, chief of the Division of Child Development and Behavioral Pediatrics, director of clinical programs at the UC Davis M.I.N.D. Institute and the director of the University Center for Excellence in Developmental Disabilities (CEDD), sited at the M.I.N.D. Institute. Hansen will discuss the goals of the CEDD and its efforts to both improve services for children and youth with autism spectrum disorders and provide a forum for community input in areas of training, service and community advocacy.

For further information, please contact Terri Contenti at (916) 703-0289.

Lecture will be held from 6 – 7:30 p.m. in the
M.I.N.D. Institute Auditorium at 2825 50th St., Sacramento, CA 95817

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that will develop the cellular features of FXTAS. We then will have in culture the cell type that has gone wrong in this disease,” Hagerman said. “This opens up a world of experiments.”

Other researchers affiliated with the M.I.N.D. Institute who are receiving stimulus funds include:

Kimberly McAllister, an associate professor of neurology at the Center for Neuroscience, received two grants totaling \$1 million, one for research into the formation of synapses between neurons in the visual system and another for the study of maternal immune function and its role in autism.

Sally Rogers and Laurie Vismara, both in the Department of Psychiatry and Behav-

ioral Sciences, are receiving a \$527,000 grant for studies that evaluate the effectiveness of autism-specific interventions for children between 6 and 11 months of age.

Peter Mundy, a professor of education and of psychiatry and behavioral sciences and director of educational research at the M.I.N.D. Institute, received \$411,600 to study the therapeutic applications of virtual reality technology and social skills training for high-functioning individuals with autism.

A team led by Frank Sharp, a professor in the Department of Neurology, that also includes Paul Ashwood, assistant professor of medical microbiology and immunology, and Judy Van de Water,

professor of rheumatology, allergy and clinical immunology, received \$535,500 to evaluate the interactions of genes and the immune system in mothers of children with autism.

Janine Lasalle, professor of medical microbiology and immunology, received approximately \$101,000 to study genetic and environmental contributions to the causes of Rett syndrome.

Paul Hagerman summarized the excitement of many of the M.I.N.D. Institute investigators. “This is a wonderful opportunity. These grants will infuse money into the local economy in personnel and supplies—and all of this new investment supports scientific advancement.”

Rewriting the rules of *early autism diagnosis*:

The Infant Sibling Study

A cutting-edge UC Davis M.I.N.D. Institute research project, the Infant Sibling Study, is leading the way in seeking clues to the earliest behavioral manifestations of autism. This project studies the younger siblings of children already diagnosed with autism. For reasons that are not entirely clear, these children are among the most

likely to be subsequently diagnosed with the condition. While the chance that a first child will have autism is about 1 in 100, the chance that a sibling of a child with autism will also have autism is as high as 1 in 5.

The study has as its premise that as important as determining whether a child has autism is when the diagnosis is received. A child who is diagnosed early has the best possible chance of receiving inten-

sive early intervention, such as applied behavioral analysis, or ABA, and speech therapy, and achieving his or her full potential.

The study is led by M.I.N.D. Institute faculty member Sally Ozonoff, a professor and vice chair for research in psychiatry and behavioral sciences

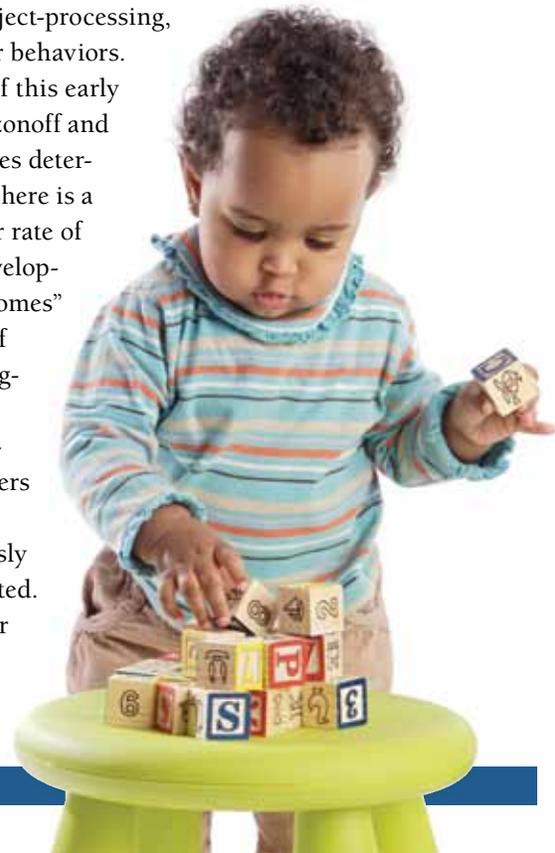
and a leading researcher in the field of early identification of autism signs and symptoms.

This ongoing study began in 2003. During the first five years, the study compared approximately 180 siblings of children diagnosed with autism to typically developing children on a wide array of behavioral tasks. Children were tested at two study sites, the M.I.N.D. Institute and UCLA. Researchers studied early emotional development, imitation, parent-child interactions, communication, social interest, and face- and object-processing, among other behaviors.

As a result of this early research, Ozonoff and her colleagues determined that there is a much higher rate of “adverse developmental outcomes” in siblings of children diagnosed with autism spectrum disorders (ASD) than had previously been suggested. While earlier estimates

“A child who is diagnosed early has the best possible chance of receiving intensive early intervention, such as applied behavioral analysis, or ABA, and speech therapy, and achieving his or her full potential.”

– Sally Ozonoff



placed the risk of having a second child with ASD at 3 to 5 percent, Ozonoff's work projected that the rate is closer to 15 to 20 percent or four times greater than previously believed.

Discovering autism's earliest signs

Ozonoff's team has been pivotal to identifying some of the earliest behavioral signs of autism in very young children.

"Many people think that you're born with autism," Ozonoff said during a recent interview, "but we've found that the behavioral signs are actually not evident in very early infancy."

"The first phase of our study found that the earliest indicators of autism are seen around 12 months. Some of these signs include failing to respond to your name when called or the unusual use of objects or toys. Unfortunately, there are few markers at 6 months of age or earlier that would help us identify which babies are at the highest risk."

In a report published in 2007 in the *Archives of Pediatric & Adolescent Medicine*, Ozonoff and her colleagues, including former ARTP post-doctoral fellow Aparna Nadig, reported that the failure of a 12-month-old child to orient to someone calling their name is highly suggestive of a developmental abnormality. While this failure to respond was observed in 15-20 percent of young siblings of children diagnosed with autism, 100 percent of infants in the comparison group, who had older siblings with typical development, responded when his or her name was called.

Another study, published in *Autism: The International Journal of Research and Practice* in 2008, reported that repetitive or stereotyped behaviors, one of the triad of symptoms diagnostic of autism, often are present by 12 months of age in toddlers who are developing autism—much earlier than initially thought.



Sally Ozonoff with baby Jack Hill and mom Monique Hill

Seeking the earliest possible clues

The second five-year phase of the study is focused on examining even earlier potential indicators of autism for clues to vulnerability to the disorder.

"So far, we haven't been able to find behavioral signs of autism at 6-to-9 months of age," Ozonoff said, "but that doesn't mean that they don't exist. We may not have been looking at the right things in our first study."

"We are now turning our focus to very basic, low-level processes that might help us identify the highest risk infants," Ozonoff said.

"For example, we think that there may be subtle differences in some very basic processes of vision, attention and speech perception that might help us figure out whether a child is particularly vulnerable and may soon begin to show symptoms of autism, even at this very young age."

"...we think that there may be subtle differences in some very basic processes of vision, attention and speech perception..."

— Sally Ozonoff

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Making a difference

Neuroscientist Cynthia Schumann joins the M.I.N.D. Institute

Cynthia Mills Schumann, a neuroscientist who specializes in the brain development of children with autism, joined the M.I.N.D. Institute in July 2009 as director of the newly created M.I.N.D. Institute Brain and Tissue Resource Center. She is also an assistant professor in the Department of Psychiatry and Behavioral Sciences.

Schumann's work at UC Davis will focus on how the brain develops on a cellular level in children with autism.

"We know that autism is, in part, a disorder of neural development," Schumann said recently. "But we don't really understand when, where, why

"Studying brain tissue allows us to visualize the organization of neurons in the brain and evaluate the contribution of certain genes and proteins in brain cells to development."

— Cynthia Schumann

or how the aberrant development is occurring. Studying brain tissue allows us to visualize the organization of neurons in the brain and evaluate the contribution of certain genes and proteins in brain cells to development." While Schumann is a new member of the M.I.N.D. Institute faculty, she became associated with the M.I.N.D. Institute much earlier, as a graduate student at UC Davis and recipient of pre-doctoral funding from the 2001 M.I.N.D. Institute Scholars program. Schumann received her doctorate in neuroscience from UC Davis in 2005.

In 2006, she co-authored a seminal paper with her doctoral mentor, M.I.N.D. Institute Research Director David Amaral. Published in the *Journal of Neuroscience*, the study found that there are



Cynthia Schumann

significantly fewer neurons than normal in the amygdala of males with autism. The amygdala is a part of the brain that has been linked to the social and emotional impairments associated with the disorder.

The study involved analysis of postmortem brain tissue, a technique little used in autism research until about 10 years ago.

"Other approaches, such as neuroimaging with MRIs, can tell us where in the brain there might be pathological development, but only by studying brain tissue can we understand what is occurring at the cellular and molecular level," Schumann said.

The Brain and Tissue Resource Center will allow the M.I.N.D. Institute to further tissue research by contributing to a brain donor network in association with the Autism Tissue Program, a program of Autism Speaks, the nation's largest autism science and advocacy organization. The M.I.N.D. Institute's unique laboratory facilities will provide a much-needed acquisition site for tissue samples for use by the autism research community.

"When I started this work 10 years ago, the scientific literature in this area was based on studies of a very limited number of brains,

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around 30. Even today, although more brains are donated, the degradation found in many samples makes them less than optimal for research,” Schumann said. “We need an effective plan for a comprehensive national donor program that would foster rapid collection and processing of tissue. We also need to be in touch with researchers to know the type of research they hope to conduct with the tissue, and how that would affect the processing methods we employ. The rapid collection and processing of tissue is especially important for genetic and protein studies.”

Schumann, who lives in Davis with her geologist husband, Robert, and their four-year-old daughter, Maya, began her academic career at UC San Diego, where she earned a bach-

elor of science degree in cognitive neuroscience in 1998. She returned to UC San Diego for a postdoctoral fellowship from 2005 to 2007 and most recently served there as an assistant research scientist through the summer of 2009.

The autism diagnosis of Robert’s younger brother several years ago has added a personal dimension to Schumann’s research.

“I have an incredible passion for this kind of work,” she said. “I’m very optimistic that the Brain and Tissue Resource Center will more rapidly advance our understanding of autism, eventually leading to more effective treatments and prevention.

“There’s no place like the M.I.N.D. Institute,” she added, “and I’m thrilled to be back. My office when I was a grad student is just across the hall, so this is like coming home.”

Infant Sibling Study from page 7

For the first phase of the study, the National Institute of Mental Health (NIMH) provided \$1.5 million in funding. The NIMH has increased the study’s funding to \$2.25 million for the second five years. During this phase, M.I.N.D. Institute and UCLA researchers are recruiting a new sample of infant siblings of children with autism, as well as following the original group of participants, who are beginning to enter school.

“In addition to more standard testing for signs of autism, we’ll look at behaviors that aren’t usually associated with autism at this early age,” Ozonoff said of the second-phase of the study. “These will include movement and visual processing, how infants track objects with their eyes, and integrate auditory and visual information.”

The Infant Sibling Study is part of the Baby Siblings Research Consortium, a voluntary network of more than 15 universities in the United States, Canada and Israel studying infant siblings of children with autism, and working together to examine questions that require large sample sizes. Ozonoff is currently the chair of this large, multi-site group and as such is directing many of the projects undertaken by the consortium. One particularly important undertaking of the consortium

is understanding the recurrence risk of autism, that is, how likely a family with one child with autism is to have another child with the condition.

Additional participants needed

The Infant Sibling Study is actively recruiting participants. Anyone with an older child with autism or ASD who is either expecting a baby or already has an infant no older than 9 months can volunteer. To contact study coordinators, please call (916) 703-0297.

The rewards of participation include not only receiving repeated expert diagnostic evaluations and referrals for any developmental concerns that may arise, but also helping to shape new tools to detect autism in infants, tools that can be used in the very near future.

“At least five of the 12 symptoms of autism used in our standard diagnostic manual aren’t applicable to children under 2 years,” Ozonoff said. “We need—and are now developing—new diagnostic tools for young children under 2.”

The ultimate goal is to get children into intervention as early as possible.

“Usually there’s a vague answer when a parent asks how research will help their child,” Ozonoff said, “but this study has immediate applicability and already has begun to help in the diagnosis of infants everywhere.”

Philanthropy

Doing some *heavy lifting* for neurodevelopmental disorders

Hheavy lifting—and digging and paving and building—have been the business of McGuire and Hester Civil Engineering and Heavy Construction Company since 1926. The Oakland-based company—which has operations throughout Northern California, builds roads and bridges and airports. But it also has a softer side. Its management decided that it wanted to be involved in building something a bit different: a better future for children with autism and other neurodevelopmental disorders.

In 2006 McGuire and Hester made the first in a series of generous contributions to the UC Davis M.I.N.D. Institute, through the McGuire and Hester Foundation, which seeks to give back to communities where the company has operations.

The donations came at the recommendation of Bill Fox, area manager for the Sacramento division of McGuire and Hester, who himself is the parent of an 8-year-old with autism. A resident of Cool, Calif., Fox said he had been impressed by the cutting-edge research being conducted at the M.I.N.D. Institute, and wanted the company to become involved.

“Our company’s philosophy is different than most. A lot of contractors will blow into an area, build a job, and then leave,” Fox said during a recent interview. “But we aren’t there to just build a project—we want to build relationships. So we look at the communities where we operate and see which organizations are doing good work that we want to be a part of.”

Fox said he looks forward to the day when the job of building a better life for children with autism and other neurodevelopmental disorders is completed.

We sometimes forget that our giving can be leveraged for many more dollars by harnessing the power of workplace giving or of a corporate foundation. Many organizations are open to making gifts, and value their employees’ input. In fact, a number of firms match employee giving, or choose to support causes recommended by their employees.



Bill Fox at a McGuire and Hester construction site

The Gift That Keeps Giving

The holidays are just around the corner! As you think about year-end giving, consider the following ideas:

- In lieu of holiday gift exchanges, consider a financial gift to the M.I.N.D. Institute, in honor of your employees or business colleagues.
- Consider the M.I.N.D. Institute in your estate planning.
- A gift of cash, stock, securities, real estate, or other tangible personal property provides our programs with enduring or endowment support.
- Contribute to the M.I.N.D. Institute in honor of a family or loved one.
- Help us fund a very special celebration. To honor the commitment and dedication of the children and their families who participate in the many clinical research studies conducted at the M.I.N.D. Institute, each December we hold a Thank You party that provides a festive, safe and secure setting for children with neurodevelopmental disabilities and their families.

In all cases, the honorees or family will be notified that a gift has been made, but the amount of the gift will remain confidential. Your gift to the UC Davis M.I.N.D. Institute qualifies as a charitable deduction for federal tax purposes as permitted by law. For more information on how you can make the season especially meaningful, contact Senior Development Officer Maureen McNulty at (916) 734-9583, or www.mindinstitute.org.

Dear Friends,

As you read the articles in this issue of *M.I.N.D. Matters*, I hope that you are impressed by how far the scientists of the M.I.N.D. Institute have come in a very short time. The “concept” of the M.I.N.D. Institute is barely 10 years old and we have occupied our clinic and research buildings for just 6 years. Yet, this issue offers proof that work addressing the M.I.N.D. Institute’s mission of understanding neurodevelopmental disorders as an essential step to preventions and more effective treatments, is well under way. The tremendous success of our scientists in the competition for American Reinvestment and Recovery Act (ARRA) funding indicates that the model of interdisciplinary, collaborative research—a hallmark of M.I.N.D. Institute science—is appreciated, even at a national level, as a powerful strategy for progress. In fact, grants to the CHARGE Study, the Autism Phenome Project, the Infant Sibling Project and the Neurotherapeutics Research Institute, all involve collaborative research among many M.I.N.D. Institute scientists.

From its inception, a major goal of the M.I.N.D. Institute has been to define early diagnostic signatures of autism and other neurodevelopmental disorders. This issue highlights the Infant Sibling project lead by Dr. Sally Ozonoff. This collaborative study with colleagues at UCLA, aims to study perceptual and other cognitive processing in children as young as 6 months who are brothers and sisters of children with autism. Interestingly, new funding through the ARRA will allow additional biological testing, such as magnetic resonance imaging, to be carried out with these same children. The hope here is that

Dr. Ozonoff’s team can detect either behavioral or neurological signs that will identify children who would benefit most from early interventions. We have also highlighted some of the current trainees and a few of the alumni of the Autism Research Training Program. This unique postdoctoral training program strives to nurture the leading interdisciplinary neurodevelopmental researchers of the future. As you’ll see, the M.I.N.D. Institute model of family-sensitive, neurodevelopmental research is being exported to universities around the world via these young and highly motivated trainees. We are proud to have them as members of the extended M.I.N.D. Institute family.

Despite these successes, many formidable challenges remain. Dr. Cyndi Schumann has returned to the M.I.N.D. Institute to develop the M.I.N.D. Institute Brain and Tissue Resource Center. Research on other neurological and psychiatric disorders, such as Alzheimer’s disease and schizophrenia, has been greatly enhanced by microscopic and biochemical analyses of postmortem brain tissue. Yet, there is a real paucity of quality brain material from individuals with autism, Fragile X syndrome, chromosome 22q deletion syndrome and other neurodevelopmental disorders. Dr. Schumann will collaborate with scientists at a local, national and international level to facilitate the acquisition and best research practices with this precious resource.

Finally, just as many of you have suffered because of the recent economic downturn, the M.I.N.D. Institute has also been impacted. Staff have been laid off, programs such as the pilot research grants program have been halted and



David Amaral, UC Davis
M.I.N.D. Institute research director

other programs, such as the Social Skills program, have been reduced in size. As the year comes to an end and you consider your philanthropic giving, please consider making a donation to the M.I.N.D. Institute. While this issue of *M.I.N.D. Matters* highlights multiple ways you can help, feel free to make your own decision. If you’d like to support a specific program or a specific scientist, please indicate that clearly when you make your donation. All donations, no matter how small or large, are greatly appreciated and will be used to support the mission of the M.I.N.D. Institute. On behalf of the entire M.I.N.D. Institute family, I’d like to thank you for your continuing support of the Institute and to wish you a wonderful holiday season and a healthy and happy 2010.

– David G. Amaral, Ph.D.
Director of Research
UC Davis M.I.N.D. Institute

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Sally Ozonoff, Ph.D., Sally Rogers, Ph.D.,
Julie Schweitzer, Ph.D., Frank Sharp, M.D.,
Tony Simon, Ph.D., Marjorie Solomon, Ph.D.,
Flora Tassone, Ph.D., Laurie Vismara, Ph.D.

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Research

2009-2010 Distinguished Lecturer Series

The UC Davis M.I.N.D. Institute's Distinguished Lecturer Series began its eighth season of public lectures by nationally and internationally-recognized researchers in neuro-developmental disorders in October 2009.

Each speaker in this year's series will present a single lecture. Presenters will make every effort to convey recent research results at a level appropriate for a lay audience. These presentations will continue through June 2010 at 4:30 p.m. in the auditorium of the UC Davis M.I.N.D. Institute at 2825 50th Street in Sacramento. All lectures are free and open to the public and no reservations are needed.

Upcoming presentations:

- Jan 13, 2010** **Matthew W. State, M.D., Ph.D.,** *Yale University School of Medicine, Recent Insights into the Genetics of Tourette Syndrome*
- Feb 10, 2010** **Marsha Mallick Seltzer, Ph.D.,** *University of Wisconsin – Madison, Psychosocial and Biological Markers of Stress in the Lives of Mothers of Adolescents and Adults with ASD*
- Mar 10, 2010** **Jacqueline N. Crawley, Ph.D.,** *National Institute of Mental Health, Mouse Models of Autism to Discover Causes and Develop Treatments*
- Apr 14, 2010** **John N. Constantino, M.D.,** *Washington University School of Medicine, The Genetic Epidemiology of Autism*
- May 12, 2010** **Jay N. Giedd, M.D.,** *National Institute of Mental Health Imaging the Developing Brain*
- Jun 9, 2010** **S. Jill James, Ph.D.,** *University of Arkansas for Medical Sciences, Oxidative Stress and the Metabolic Pathology of Autism*