Message from CART Director

Welcome! We are pleased to launch our first CART Newsletter. Our purpose is to communicate new developments at the UCLA CART and in the field of autism research in general. You may not realize it, but UCLA investigators and the UCLA CART are recognized as among the top in the world. Scientists at the UCLA CART include leading experts in autism genetics, brain imaging, psychophysiology, psychopharmacology, developmental psychology, clinical assessment, and intervention. Over the last 5 years, we have integrated our clinical, research, and treatment programs so as to provide a true multidisciplinary approach to autism spectrum conditions, ranging from molecular genetic studies, animal models, and brain imaging, to infant-toddler research and treatment in adolescents and non-verbal children with autism.

We are excited about scientific breakthroughs that have shown how specific genes may change brain function, as well as studies in early infancy that may help predict autism in children at risk. Our goal is that these findings from research will translate into new treatments for children, adolescents and adults with autism. There is so much going on in autism research, and although we still have a long way to go, researchers are making great strides compared to where we were just a few years ago. This makes me very optimistic about the future, as long as we can continue the pace of our research on its current trajectory. We are grateful for those of you who have taken the time to participate in CART research and to all of those in the UCLA community who are involved in autism advocacy and treatment.

We plan to issue this Newsletter twice each year— in Spring and Fall. We also invite you to visit our website (www.autism.ucla.edu) throughout the year to stay informed about our research projects, clinical programs, and our lecture series, as well as our annual symposium and other sponsored events. All CART lectures are open to the community. I hope you will come to some of our lectures or events and I look forward to seeing you there. As always, we invite your feedback so that we can best provide you with what we hope will be interesting and useful information and updates about our work.

With best wishes, and many thanks for your support.

Daniel H. Geschwind, M.D., Ph.D.

CART Mission Statement

The mission of the UCLA Center for Autism Research and Treatment is to continue to play a leading role, both nationally and internationally, in efforts to develop an improved understanding of the biological basis of autism, so as to improve diagnosis, and develop and disseminate new, more effective, treatments for autism and autism spectrum disorders across the lifespan. We hope to achieve these goals via fostering a strong collaborative environment for basic and applied research, as well as a challenging, but supportive, environment for trainees.

Inside this issue:
- New Faculty at CART— Dr. Shafali Jeste
- Participate in Research
- CART Annual Symposium, Lectures & Pilot Grants
- CART Director, Recent Scientific Advances
- Autism Treatment; UCLA Clinical Resources

Did you know?
- Autism is more common than diabetes and childhood cancer, affecting 1 in 150 children.
- Autism has a strong genetic component.
- Brain imaging studies in children and adults are providing new information as to how autism affects brain functioning.
CART welcomes Shafali S. Jeste, M.D., a behavioral child neurologist who was recruited to CART in January 2010.

Dr. Jeste's background and training made her especially well-qualified to join the interdisciplinary research team at CART. After earning a B.A. in philosophy from Yale University in 1997 and her M.D. from Harvard Medical School in 2002, Dr. Jeste completed a residency in child neurology and a fellowship in behavioral child neurology at Children's Hospital, Boston. From 2007-2009 she pursued postdoctoral training in developmental cognitive neuroscience with Dr. Charles Nelson at Harvard Medical School, where she gained expertise in the use of high density event-related EEG and eye tracking to understand cognition in infants and toddlers with developmental disorders. Dr. Jeste received the Child Neurology Foundation's Researcher-in-Training Award in 2007 and the American Academy of Neurology's Clinical Researcher-in-Training Award in 2008. In November 2010, Dr. Jeste received a grant from the Department of Defense to continue her innovative research on neural mechanisms in autism at UCLA.

"When we can define the brain basis of autism at an early developmental stage, we will be able to alter the pathways that lead to this devastating disorder and, in turn, design treatments that target the source of the impairment."

- Dr. Jeste

In her electrophysiology lab at CART, Dr. Jeste’s research goal is to design and apply novel, brain-based methodology to better characterize behavioral and cognitive domains in infants at risk for autism and in young children with autism, and then determine how these domains predict clinical outcomes. As a child neurologist, Dr. Jeste is also very interested in motor impairments in children with autism and the relationship between motor and cognitive development in this population. Two of the cognitive processes currently studied in the Jeste Lab are joint attention and statistical learning. Both of these have been implicated in early language development, a domain that is typically impaired in children with autism. In the Jeste Lab, children (3 months to 10 years of age) from two groups—typically developing versus those with autism—are presented with various pictures while wearing an EEG net (see photo below). An eye-tracking device is used to provide information on the exact locations of the children’s eye gazes during the presentation of the pictures. Together, EEG and eye tracking are especially practical techniques for researchers studying non-verbal or language-delayed populations, as they assess cognitive processing without requiring any verbal or behavioral responses.

Dr. Jeste hopes to define areas of strength as well as areas of impairment in the brain processing of children with autism spectrum disorders (ASD) and, ultimately, help evaluate, design, and implement more effective treatments for ASD. She states, “When we can define the brain basis of autism at an early developmental stage, we will be able to alter the pathways that lead to this devastating disorder and, in turn, design treatments that target the source of the impairment.”

In addition to her research, Dr. Jeste also sees patients in the UCLA Autism Evaluation Clinic and is involved in the community of children and families who are affected by autism (please see ACEing Autism item on page 3).
Defining Autism

AUTISM - or Autism Spectrum Disorder (ASD) -

is a neurodevelopmental disorder that typically appears in the first three years of life and is characterized by three core impairments:

Communication problems can be seen in a significant developmental delay in language ability or no language use at all, robotic, formal speech or repetitive use of language.

Socialization issues are evident through a difficulty in developing peer relationships, lack of spontaneous engagement for enjoyment, and difficulty in the “give and take” of social interactions.

Restricted/Repetitive behaviors are characterized by preoccupations that are atypical in intensity or focus, inflexibility in routines, and rituals, stereotyped movements, and preoccupations.

ACEing Autism—Tennis anyone?

New CART faculty member, Dr. Shafali Jeste and her husband Richard Spurling, a tennis professional, created the non-profit organization, ACEing Autism, to provide tennis lessons to children with autism. Visit their website: www.aceingautism.com.

This organization was originally launched in Boston and, due to its tremendous success, was expanded to the Los Angeles area in 2010, partnering with UCLA Adaptive Sports. As part of their mission, Jeste says they seek "to use tennis as a means to enhance health and fitness, hand-eye coordination and motor development and improve the social skills of children with autism ... And, of course to make sure kids have fun in the process!"

Dr. Jeste’s research and clinical interest in motor impairments in children with autism and the relationship between motor and cognitive development is also reflected in her commitment to ACEing Autism.

Participate in CART Research

Are you interested in learning more about our research projects, including how to enroll in a study?

If so, please visit our website:

www.autism.ucla.edu

Or email us at:

info@autism.ucla.edu

Call JONI, CART recruitment coordinator, 310-267-CART
To see if you are eligible
On February 4th, CART held its 3rd annual symposium - “Autism 2011” to present the latest scientific findings and evidence-based treatment models for autism spectrum disorders. The all-day symposium offered continuing education credits and was attended by over 200 healthcare professionals—including pediatricians, psychiatrists, neurologists, psychologists, nurses, autism practitioners— as well as teachers, advocates, parents, and UCLA trainees, faculty and staff. CART faculty speakers included Drs. Dan Geschwind (genetics), Susan Bookheimer (brain imaging), Jim McCracken (medications), Connie Kasari (behavioral treatments), Shafali Jeste (neurology) and Ted Hutman (infants at risk). A clinical panel presented case studies and an “Ask the Experts” session concluded the day. Presentations were videotaped and will be posted on our website. Interviews with Drs. Geschwind and Jeste were featured later that day in news segments on TV channels CBS-2 and KCAL-9.

Autism Lecture Series

As an ongoing commitment to education and dissemination of scientific research findings, CART hosts monthly Autism Affinity Group Distinguished Guest Lectures in which world-renowned research experts lecture on topics they are passionate about— recent scientific breakthroughs and treatment issues about autism spectrum disorders. To date, CART has hosted over 64 lectures. The final speakers for the 2010-11 academic year are:

♦ David Skuse, M.D. from University College London - genetics and phenotypes (March 4)
♦ David Mandell, Sc.D. from University of Pennsylvania - community-based practice for autism (April 8)
♦ Shafali Jeste, M.D., UCLA CART - electrophysiology in young children with autism (May 6)
♦ Ellen Carpenter, Ph.D., UCLA - mouse model for genetics-environment interactions in autism (June 3)

Lectures are held on the first (or 2nd) Friday of the month from 9-10 am in the Gonda building on the UCLA campus (room #1357). The public is welcome and coffee is served at 8:30am. No registration is needed. For more information, please visit the CART website’s Events page (www.autism.ucla.edu) for a full list of this year’s speakers, lecture titles and map/directions. Lectures are free of charge.

CART Pilot Grant Program

Purpose: Outreach to UCLA scientific community to stimulate innovative and relevant autism research that will lead to external funding and future productivity.

► 14 Pilot grants funded to date ► Basic and clinical research ► Competitive & successful program attracts new researchers to the autism field and has generated: ~20 new externally funded research grants, ~30 scientific journal publications, ~38 new autism trainees

CART Pilot Grant Funding available for 2011-12: Applications due April 21st.

Request for Applications (RFA) is available at CART website.
About the CART Director

Daniel Geschwind, M.D., Ph.D., holds the Gordon and Virginia MacDonald Distinguished Chair in Human Genetics and is a professor of Neurology and Psychiatry at the David Geffen School of Medicine at UCLA. He is the director of the UCLA Center for Autism Research and Treatment (CART) and the Neurogenetics Program and co-director of the Center for Neurobehavioral Genetics. Dr. Geschwind has received many awards including an Autism Speaks Service Award and sits on the National Institutes of Health autism committee. He was founding scientific director of the Autism Genetics Resource Exchange (AGRE), the largest genetic resource for the study of autism. His laboratory works to identify the genetic and neurobiological mechanisms of autism with the goal of developing a better understanding of the disorder and new treatments.

As Dr. Geschwind explains, “Genetics is a crucial starting point for understanding disease mechanisms, especially in disorders like autism with strong genetic components. Once we understand genetic factors, it will make it easier to understand environmental contributions as well.”

Recent Scientific Advances

Gene’s Rewiring of the Brain in Autism Draws International Headlines

Discover magazine, AOL Health, Med Page Today, Asian News International, Indo-Asian News Service, Press Trust of India and the blog Left Brain Right Brain reported Nov. 4 on a UCLA study that is the first to illustrate how an autism risk gene rewires the brain. The stories quoted CART Scientists: Susan Bookheimer, Ph.D., a professor of psychiatry who holds the Joaquin Fuster Chair in Cognitive Neurosciences; Dr. Daniel Geschwind, a professor of neurology and psychiatry who holds the Gordon and Virginia MacDonald Distinguished Chair in Human Genetics; and former UCLA graduate student Ashley Scott-Van Zeeland.

The study, published in the journal Science Translational Medicine, showed that children with autism who carry a common autism risk gene (CNTNAP2) show greater brain connectivity in the frontal lobe as compared to children without autism and the gene variant. Interestingly, this increased brain connectivity in the frontal lobe was associated with fewer connections to the other brain areas. This same pattern was also seen in some of the children without autism but who carried the same gene variant. As Dr. Bookheimer explains, these risk genes are fairly common, but “in most cases, a single gene does not cause autism.” Instead, autism is caused by a variety of factors, including other gene variants and gene-to-gene interactions, as well as environmental factors.

CART in the NEWS:

Each year Autism Speaks selects 10 significant advances in autism science from the many publications that emerged over the year. The Autism Speaks staff and the Scientific Advisory Committee compile and vote on the Top 10. Please join us in our applause for Dr. Connie Kasari’s exceptional research achievements in 2010! Summaries of the Top 10 advances are available at www.autismspeaks.org.
FACES OF CART—getting to know us

Marian Sigman, Ph.D. CART co-founder; CART celebrated her outstanding career with an honorary symposium on 2-13-2009 upon her retirement.

Ted Hutman, Ph.D. & Mirella Dapretto, Ph.D.

Connie Kasari, Ph.D., Marian Sigman, Ph.D. & Jim McCracken, M.D.

Marian Sigman, Ph.D. & Candace J. Wilkinson, Ph.D.

Candace J. Wilkinson, Ph.D., Susan Bookheimer, Ph.D. & Dan Geschwind, M.D., Ph.D.

SIGMAN LAB research team

Shafali Jeste, M.D. & Dan Geschwind, M.D., Ph.D.

Kathy Suzuki, CART Center Administrator

Elizabeth Laugeson, Psy.D.

Susan Bookheimer, Ph.D.
Autism not only affects a child, and it not only affects a family. Autism affects our community.

Through research, education, clinical practice and community outreach, the Center for Autism Research and Treatment (CART) in the Semel Institute for Neuroscience and Human Behavior at UCLA strives to provide useful information to community members who are either affected by, or interested in, autism and its related disorders. CART scientists work tirelessly and passionately to investigate the underlying mechanisms of autism spectrum disorders (ASD) and thereby identify best practices and treatment interventions that bring hope to the many families and individuals affected by this complex neurodevelopmental disorder. Most CART researchers also are active as autism expert clinicians who can provide consultation, evaluation and interventions for individuals with ASD.

**AUTISM affects our community**

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**The UCLA Program for the Education and Enrichment of Relationship Skills (PEERS)** is a parent-assisted social skills training program for adolescents and young adults with autism spectrum disorders.

**Directed by CART Researcher, Elizabeth Laugeson, Psy.D.,** the evidence-based PEERS provides group sessions to allow participants to learn and practice social skills, while in simultaneous separate sessions the parents are taught how to assist their teens and young adults by providing feedback and coaching during weekly socialization homework assignments. Targeted skills include: verbal, nonverbal, and electronic communication, online safety, methods for resolving peer conflict, strategies for handling rejection, and developing and expanding friendships, among other important skills.

**Dr. Laugeson received a CART Pilot Grant Award** in 2007 to study the efficacy of PEERS; she currently directs The Help Group—UCLA Autism Research Alliance.

**AUTISM Treatment - Clinical Resources at UCLA:**

Details and full contact information for the following clinical programs can be found at the websites listed below *(with links)*:

- **Autism Evaluation Clinic**
  310-794-4008

- **Early Childhood Partial Hospitalization Program**
  310-206-2695

- **ABC Program for the Enhancement of Achievement, Behavior, and Cognition**
  310-825-9989 (ACCESS Center)

- **Parenting and Children’s Friendship Program**
  310-310-825-0142

- **PEERS program for Teens & Young Adults**
  310-267-3377

**PEERS** is generously supported by the Shapell Guerin Family Foundation.

**APRIL is national AUTISM AWARENESS month**

**CALL 310-267-CART to see if you are eligible to participate in a research study**
The establishment of UCLA CART in 2003 marked an exciting advancement, particularly for the new and upcoming generation of autism researchers. Since then, CART has concentrated its efforts, developing strong collaborations across disciplines and making major scientific breakthroughs to clarify the mechanisms underlying autism and related disorders. CART has also led the field in designing evidence-based treatment interventions. Your support will help UCLA CART continue as well as expand its research, training, and community outreach activities to improve the lives of countless children and their families affected by autism.

You may make an online gift to CART at https://giving.ucla.edu/cart or at the CART website’s home page (to access the donation form). If you would like more information about making a gift to CART (Fund #618040), please contact:

Fernanda Valentino,
Associate Director of Development for Neuroscience
at 310-206-7038 or email: fvalentino@support.ucla.edu

Autism Research at UCLA and CART

UCLA has played a unique role in the history of autism research. In the 1950’s, well before other major universities, UCLA had an active research program concerned with characterizing children with autism. The research and treatment conducted over the past 50 years at UCLA has set the standard for many of the models used today to better understand autism and design optimal treatments for individuals with autism spectrum disorders.

The UCLA Center for Autism Research and Treatment (CART) was established in 2003 as one of eight national centers in the National Institutes of Health (NIH) funded research initiative, Studies to Advance Autism Research and Treatment (STAART).

In 2007, the Center was awarded two NIH Autism Centers of Excellence (ACE) grants - as one of six national ACE Centers and as the lead research site in one of five national ACE Network projects. CART’s founding co-directors were Dr. Marian Sigman (who retired in 2009) and Dr. Daniel Geschwind, CART Director.

Currently, Dr. Susan Bookheimer leads the CART ACE Center grant and Dr. Geschwind leads the CART ACE Genetics Network.