

CART Connection

News from the UCLA Center for Autism Research and Treatment

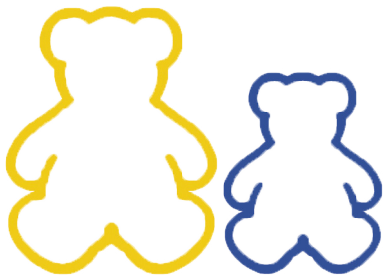
Spring 2015, Vol. 6

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Did you know?

ASD is about 4 times more common among boys (1 in 42) than among girls (1 in 189).



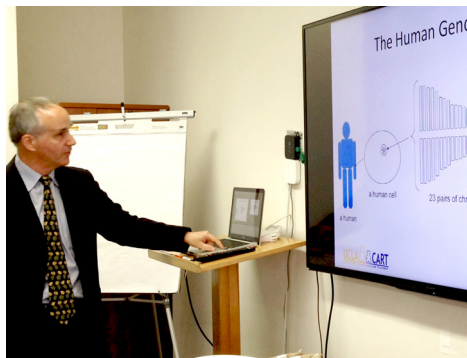
Inaugural Meeting: Community Advisory Board at CART

The UCLA Center for Autism Research and Treatment (CART) and the Special Needs Network have joined together to sponsor a community advisory board. The board will address the issues surrounding individuals impacted by autism spectrum disorders (ASD) in underserved communities and ways to strengthen the partnerships between researchers at CART and the greater Los Angeles community. The board will also focus on ways community partnerships may help further research studies at UCLA CART and in particular, Daniel Geschwind, M.D., Ph.D.'s study, Autism

Genetics and Human Diversity. The community advisory board is chaired by Daniel Geschwind, M.D., Ph.D., Director of UCLA CART, and co-chaired by Areva Martin, Esq., Executive Director and Founder of the Special Needs Network.

The kick-off meeting for this community advisory board was held on March 12, 2015, at the UCLA Center for Autism Research and Treatment located on the UCLA campus in Westwood. We were privileged to have in attendance the honorable Karen Bass, Congresswoman for the 37th District of

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Daniel Geschwind, M.D., Ph.D. presenting at the community advisory board meeting



Members at the community advisory board meeting

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 to develop new, more effective treatments for autism spectrum disorders across the lifespan. We hope to achieve these goals by fostering a strong collaborative environment for basic and applied research, as well as a challenging, but supportive environment for trainees.



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California. Fabian Moreno, District Director at the Los Angeles Unified School District (LAUSD), representing the Office of the LAUSD Board of Education President Richard Vladovic, and Maya Douglass from the Office of Assemblymember Sebastian Ridley-Thomas attended. Local community organizations present at the meeting included CurtisCARE, represented by Jean Davis, Ph.D., P.A. and St. John's Well Child and Family Center represented by President and CEO, Jim Mangia, M.P.H., M.A., and Amanda Specht, B.C.B.A. The parent advocates for the community advisory board in attendance included Earina Davis-Ferguson, M.A.R., M.Ed; Cheryl Green; and Oscar Madrigal. CART faculty and staff in attendance included principal investigators

Connie Kasari, Ph.D. and Amanda Gulsrud, Ph.D.; CART Study Coordinator Erin Graham, Ph.D.; and CART Center Administrator, Monica Belli. The Special Needs Network's Director of Operations, Juan Carlos Garcia also attended. U.S. Representative Karen Bass says, "The work of this committee is critically important and I applaud UCLA and the Special Needs Network for their collaborative efforts to improve the lives of children living with autism." Dr. Geschwind's research studying the genetics of the African American population in Los Angeles is funded by an Autism Center of Excellence (ACE) Network grant from the National Institute of Health (NIH). This grant expands Dr. Geschwind's ongoing genetics investigations to specifically focus on

African American families, an underserved population in autism research. "It is critical to study different populations to understand if current genetic findings in ASD can be generalized to a broader population," says Dr. Geschwind. Families who include an African American child with a confirmed or suspected diagnosis of ASD between ages 3-21 are invited to participate.

If you would like to learn more about the Autism Genetics and Human Diversity study and how to participate, please contact the UCLA Study Coordinator, Erin Graham, Ph.D. at (310) 794-4090 or at egraham@mednet.ucla.edu.



From left to right: Monica Belli; Oscar Madrigal; Fabian Moreno; Cheryl Green; Amanda Specht, B.C.B.A.; Earina Davis-Ferguson, M.A.R., M.Ed. and Earina's daughter; Erin Graham, Ph.D.; Jean Davis, Ph.D., P.A., D.C.; Daniel Geschwind, M.D., Ph.D.; Maya Douglas; Areva Martin, Esq.; Connie Kasari, Ph.D.; Congresswoman Karen Bass; Jim Mangia, M.P.H., M.A.; Amanda Gulsrud, Ph.D.; and Juan Carlos Garcia

A Day at the Game

On Sunday, February 22, 2015, the UCLA Center for Autism Research and Treatment (CART) and the Simons Foundation hosted an event at a UCLA Women's Basketball game for families who have participated in research or treatment at UCLA CART. This was the third year CART and the Simons Foundation have hosted an appreciation event for families involved in the Center. This year's event attendees included CART faculty and staff and over 20 families who have participated in one or more of the UCLA CART and Simons Foundation sponsored research studies and/or treatment programs offered at the Center. Also supporting the event were volunteers from the UCLA Bruin Belles, a philanthropic organization at UCLA dedicated to university and community service and the promotion of women's leadership.

The CART and Simons Foundation pre-game activities were held in the UCLA Morgan Center's Press Room, adjacent to the UCLA Sports Hall of Fame and Trophy Room, a space regularly used for UCLA team meetings. Families arrived at the Press Room before game tip-off to enjoy light snacks and craft activities, including decorating snack bags filled with treats for the game. Our group visited the displays in the Sports Hall of Fame and the Trophy Room, each exhibit capturing the vast history of UCLA sports. A highlight of the Sports Hall of Fame is a peak at John Wooden's Den, a display

recreating Coach Wooden's personal den, his office, and his place of work. For the start of the game, our group headed to Pauley Pavilion and cheered the UCLA Women's team as they defeated the University of Arizona Wildcats 75 to 41 in the last game of the UCLA Women's regular season.

CART and the Simons Foundation would like to thank everyone who has participated in research studies and treatment programs at CART and the studies funded by the Simons Foundation. Your participation in research helps contribute to the many scientific findings occurring at our Center. Our research success is dependent on the valuable time, energy, and effort of everyone involved in our studies.



The UCLA Bruin Belles



A family in the UCLA Press Room before the game



Karin Best, Ph.D.; Tawny Tsung; and Carolyn Ponting

Health Care Transitions Research Network (HCT-RN) for Youth and Young Adults with ASD

The Health Care Transitions Research Network (HCT-RN) for Youth and Young Adults with Autism Spectrum Disorders (ASD) is a three-year project funded by the Maternal and Child Health Bureau of the Health Resources and Services Administration. Partners include the UCLA Center for Healthier Children, Families and Communities, and the A.J. Drexel Autism Institute at Drexel University. Leading this project are Alice Kuo, M.D., Ph.D., Associate Professor of Internal Medicine and Pediatrics in the David Geffen School of Medicine at UCLA, and of Health Policy and Management in the UCLA Fielding School of Public Health, and Paul Shattuck, Ph.D., Director of the Life Course Outcomes Programs at the A.J. Drexel Autism Institute and Associate Professor at the Drexel University School of Public Health.

Outcomes in adulthood among individuals with ASD are bleak with an estimated 50% of young adults on the autism spectrum completely disconnected from any employment or education opportunities during the first two years after high school. The purpose of the HCT-RN is to address this critical issue and to better understand the life course influences at the person, family, community, health system, and policy levels prior to, during, and following the transition to adulthood among individuals with ASD. The network is a forum for experts in the field to connect, collaborate, promote research, and develop innovative projects that will inform and translate into evidence-based practice and policy.

Currently, the network is comprised of an interdisciplinary team of researchers, healthcare professionals, and individuals on the autism spectrum and their families from across the nation.

Over the next three years, the HCT-RN will be working towards developing a national agenda of research priorities and fostering improved research infrastructure and collaborations to accelerate and advance the field of autism and transition to adulthood. Activities will include identifying gaps in research and programs for youth and young adults with ASD, targeted work groups on research priorities and practice guidelines, and formation of teams to work on research funding proposals and publications. The agenda-setting process will begin at the kick-off HCT-RN Design Meeting on May 28, 2015 in Washington, D.C., where over 30 experts in the field of transition and autism will be joining together to evaluate the current state of field. The HCT-RN is looking forward to shaping our nation's agenda on research and practice in autism and transition for the coming decade.

For more information on this project, please visit our website at www.AutismTransition.net or contact us by phone at (310) 312-9054 or by email at Autismtransition@mednet.ucla.edu.



HCT-RN
HEALTH CARE TRANSITIONS RESEARCH NETWORK
FOR AUTISM SPECTRUM DISORDERS

Research Opportunity: The Infant-Sibling Study

Researchers at CART are studying social communication, behaviorally and neurologically in infants at high and low risk for autism spectrum disorder (ASD). The study is actively recruiting infants with a) one or more siblings with an ASD diagnosis OR b) no family history of ASD.

This study seeks to decrease the age at which autism can be diagnosed by studying early brain development and learning processes. The study is expected to help identify children who will benefit from intervention very early in development when treatment is known to have the greatest impact.

Infants will be evaluated at UCLA at 6 weeks, 3, 6, 9, 12, 18, and 36 months. Visits will include MRI, EEG, eye-tracking, cognitive and behavioral assessments, and genetic testing.

Families will receive valuable feedback on their infant's developmental progress, pictures of their baby's brain, as well as \$30-\$50 for each study visit.

For more information, please contact us at (310) 825-3478 or siblings@autism.ucla.edu.

Brain CLARITY

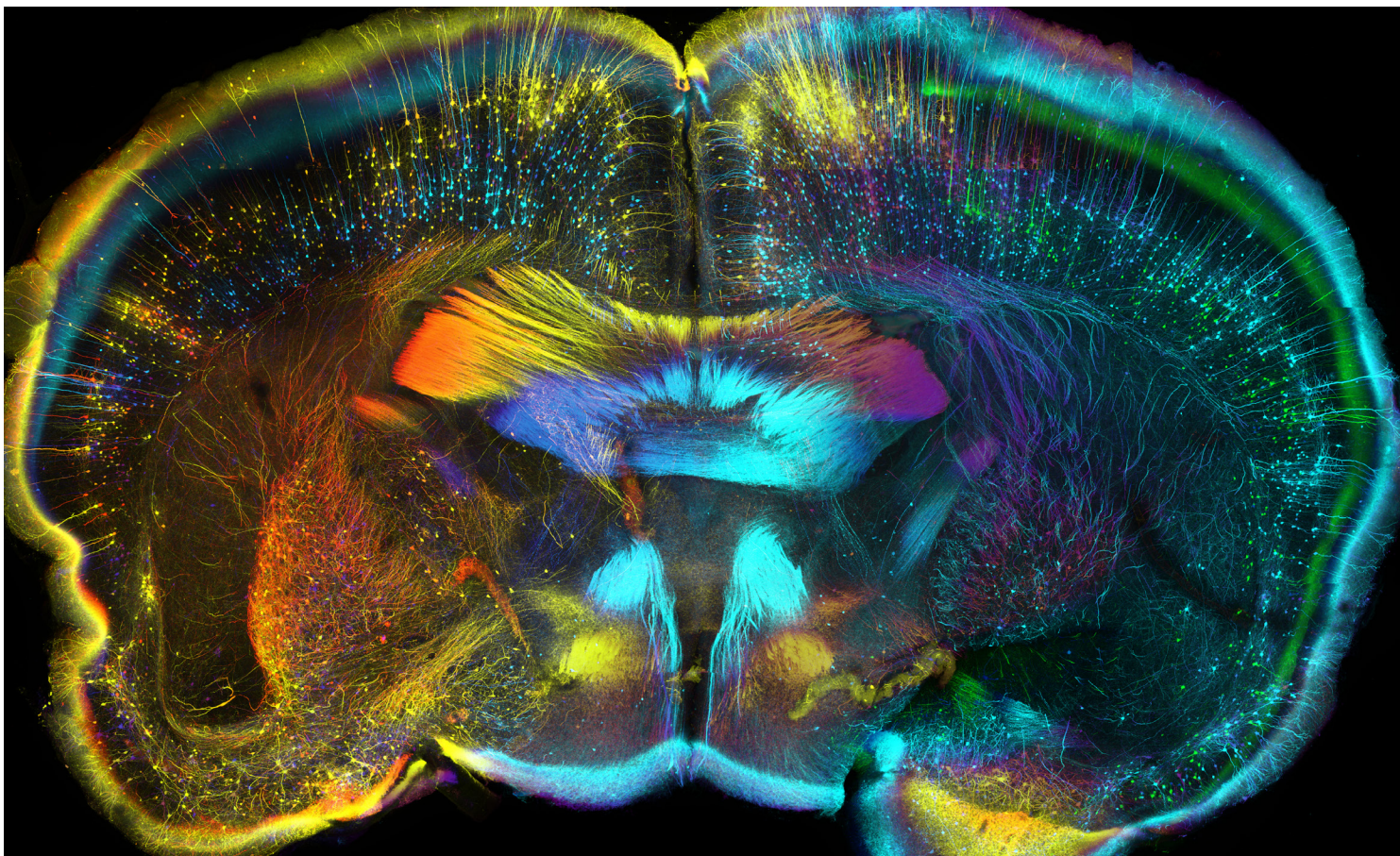


Image credit: Luis de la Torre-Ubieta, Ph.D., Geschwind Laboratory, UCLA, recipient of a 2015 International Wellcome Image Award

By: Jamee Berg, Ph.D. and Luis de la Torre-Ubieta, Ph.D.

Imagine peering inside an entire, intact brain. You observe brain cells lit up in a rainbow of fluorescent hues, connecting to one another in an intricate web, displaying a beautiful signaling network that underlies thought and behavior. Sounds like science fiction, right? Think again! Recently, Chung et al.¹ developed a technique that allows for a molecular snapshot of an entire brain called CLARITY, which stands for Clear Lipid-exchanged Acrylamide-hybridized Rigid Imaging/Immunostaining/In situ hybridization-compatible Tissue-hYdrogel. CLARITY works by forming a gel-water matrix from

within the brain that traps RNA and proteins. The fats of the brain are then removed so that the brain is see-through, allowing both light and macromolecules to permeate. However, the RNA and protein remains intact in its exact location, hanging on this gel matrix at the time of the CLARITY “snapshot.” Through this revolutionary technique, two major advantages are realized, 1) advanced microscopic techniques can now be used to visualize brains as a whole without first having to slice them like a loaf of bread (which can lead to artifacts and loss of tissue) and 2) the

tissue-hydrogel is robust enough that the same brain can be probed multiple times maximizing the use of valuable animal and human postmortem samples.

So how can this technology help us better understand autism spectrum disorders (ASD)? CLARITY allows us to understand how autism risk genes or environmental factors affect the whole brain. Moreover, one could use CLARITY to determine how a particular ASD behavior is associated with brain function. For example, after a mouse performs a specific ASD behavior,

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CLARITY can be used to capture which parts of the brain are activated during this behavior, helping scientists gain a better understanding of brain-behavior associations. For a recent example of this, please see the following link, which demonstrates how CLARITY was used to identify brain circuits that are involved in drug addiction and fear: <http://www.nature.com/news/transparent-brains-reveal-effects-of-cocaine-and-fear-1.16365>.

CLARITY can also be used to examine cellular and molecular differences in the human brain. This is particularly useful when studying brains changes in individuals with brain disorders, such as ASD¹. Interrogating the cellular basis for ASD has yet to be effectively conducted; CLARITY allows for this investigation in postmortem brains. The challenge is that human postmortem brain tissue is limited in availability and with conventional techniques a single piece can only be used once to probe for a restricted number of proteins or RNAs. However, with CLARITY, postmortem tissue can be re-used multiple times, allowing scientists to better manage these precious resources and ask questions about the expression and location of multiple genes at the same time. Moreover, CLARITY makes three-dimensional imaging of thick tissues possible, leading to more accurate measurements of the size, shape and processes of neurons.

Although CLARITY is a promising technique already being used to help us better understand the brain, more

refinement is still needed. For example, the time required to process a given brain is long (on the order of several weeks), there is a lack of microscopy techniques that can adequately image an entire brain quickly, and there is the computational challenge of concatenating hundreds of microscope images into an entire three dimensional space and segmenting out individual cells in these images. The Geschwind Lab, along with collaborators in physics (the Arikasaka Lab) and imaging (the Shattuck Lab), has obtained an NIH BRAIN Initiative grant to further develop the technique. In all, CLARITY promises to be a game-changing technique in unraveling and understanding ASD as scientists, including those from multiple disciplines at UCLA, continue to solve these technical puzzles and move CLARITY into the future.

To find out more about CLARITY visit <http://clarityresourcecenter.org/>.

Image caption:

The complex connections neurons make with each other shape how our minds work and who we are. This confocal image of a mouse brain was taken after using the CLARITY method to make the tissue optically clear, which allows us to image thicker volumes of brain tissue and visualize cells at high resolution. This brain came from a mouse engineered to express a fluorescent molecule in a subset of its neurons. The fluorescent marker allows us to see the location and shape of each neuron as well as to trace the fibers that connect each neuron to different parts of the

brain. Neurons are color coded by depth from top to bottom: red, orange, yellow, purple, blue and green as you look deeper into the image. The final image is assembled from over 8500 individual images digitally stitched together over a 750um thick piece of brain.

As one can see, these fibers can make very long-range connections, a detail which is easily lost using conventional imaging techniques that require thin sectioning of the tissue. Using this approach, we have the unprecedented opportunity to image intact brains at cellular resolution, preserving those delicate connections that underlie complex neurological processes.

Image credit: Luis de la Torre-Ubieta, Ph.D. Geschwind Laboratory, UCLA, recipient of a 2015 International Wellcome Image Award.

1 Chung, K. et al. Structural and molecular interrogation of intact biological systems. *Nature* 497, 332-337, 2013.



*Jamee Berg, Ph.D.
from the Geschwind
Lab.*



*Luis de la Torre-Ubieta,
Ph.D. from the Geschwind
Lab.*

Research at CART

Are you interested in participating in a research study?

Research studies advance our knowledge of autism spectrum disorder (ASD), leading to earlier diagnosis and better treatment. Research at CART focuses on a variety of topics surrounding ASD, including early identification of brain and behavioral signs underlying autism and effective treatment and intervention practices for people with ASD.

Participation in research studies is free. When you participate, you will be assisting our researchers develop a better understanding and determine better treatment for ASD.

To learn more about our research projects, including how to enroll, please visit the CART website: www.autism.ucla.edu or call (310) 825-9041 or contact the study coordinator directly.



Studies currently at CART:

AGE RANGE	STUDY NAME	CONTACT
Infants under 6-weeks	Identifying Early Signs of Autism in High-Risk Infants	(310) 825-3478
12 - 21 months	Joint Engagement in Infants at Risk for ASD: Integrating Treatment with Biomarkers	(310) 206-1268
33 - 39 months	Identifying Children With Autism Spectrum Disorders And Developmental Delays	(310) 825 5797
3 months - 17 years	Typically Developing Toddler Study	(310) 825-0180
3 - 21 years	Autism Genetics and Human Diversity Study	(310) 794-4090
5 - 8 years	Adaptive Intervention for minimally verbal children with ASD in the Community	(310) 825-0445
5 - 11 years	EEG biomarkers of language and literacy abilities in minimally verbal children with ASD	(310) 825-0180
5 - 11 years	Treatment with Aripiprazole and Behavior Intervention for Children with Autism who have Low Language Ability	(310) 825-6170
7 - 17 years	Brain Imaging in Children with Autism	(310) 206-4482
8 - 16 years	Treatment with Risperidone for Repetitive Behaviors in Children with Autism	(310) 825-6170
15 - 20 years	Brain Wave Study of Autism Spectrum Disorder	(310) 206-9012
18 - 35 years	Treatment of Social Disability in Young Adults with Autism Children with Autism	(310) 825-6170



“Our research is important because we provide free cognitive behavior therapy for families who are willing to participate.”

Rebecca Dehnel
TAASD UCLA Program Coordinator, Wood Lab

Treatment Services at CART

Read more about research and treatment programs at CART on the CART website: www.autism.ucla.edu.

Currently UCLA offers the following treatment programs and services:

All Ages

Child and Adult Neurodevelopmental Clinic (CAN Clinic)

The UCLA Child and Adults Neurodevelopmental Clinic (CAN Clinic) is our outpatient clinic located at UCLA's Westwood Medical Campus. The CAN Clinic provides a multidisciplinary evaluation and treatment for individuals with suspected disorders of social, cognitive, language, and motor development, including ASD.

The services provided at the CAN Clinic include:

- Evaluation
- Treatments
- Long-term medical and psychiatric care
- Referrals for genetic testing

Contact: 310-794-4008

Young Children

Early Childhood Partial Hospitalization Program

The ECPHP is a short-term integrated day treatment program for young children who have been diagnosed with, or may have, autism, developmental disabilities, and behavior disorders. ECPHP is a five-day a week, six-hour a day program. All aspects of the program are fully integrated and coordinated to create an individualized, comprehensive, consistent, interdisciplinary, and therapeutic environment.

Contact: (310) 206-2695

Elementary School & Early Adolescents

Parenting and Children's Friendship Program

The program offers parent-assisted social skills group programs for children in elementary school (beginning at end of 1st grade) who are having problems making and/or keeping friends. We also offer parent training/behavior modification programs for parents with children (starting at age 2) and early adolescents (age 12½-15½).

Contact: (310) 825.0142

Ages 6 - 12

ABC Partial Program

The Achievement, Behavior, Cognition (ABC) Child Programs in the Neuropsychiatric Hospital at UCLA provides psychiatric services through the Partial Hospitalization Program and the Intensive Outpatient Program. ABC Child Programs are time-limited, integrated programs dedicated to assisting children ages 6-12 and their families to promote positive emotional and behavioral health.

Contact: (310) 825-0415

Ages 8- 12

Secret Agent Society (SAS)

The Secret Agent Society (SAS) is evidence based social skills intervention program for children ages 8-12. This 10-week program has been validated as an effective program to teach social skills to children who have a variety of social challenges in a school setting.

Contact: (310) 206-2210

Preschool, Teens & Young Adults

Program for the Education and Enrichment of Relationship Skills (PEERS)

PEERS is a manualized, social skills training intervention for adolescents and young adults. It has a strong evidence-base for use with teens and young adults with autism spectrum disorders, but is also appropriate for teens and young adults with ADHD, anxiety, depression, and other socioemotional problems.

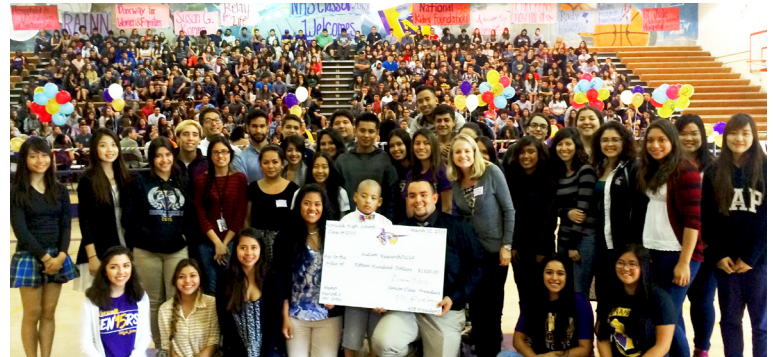
Contact: (310) 267-3377



Models used for illustrative purposes only.

Charity for Charities

UCLA Center for Autism Research and Treatment (CART) would like to thank the senior class at Norwalk High School for their generous donation to CART. CART was selected by the senior class as one of the organizations to support in the Charities for Charity drive. Norwalk High School's senior class presented CART with the donation during an assembly in late March. Amanda Gulsrud, Ph.D., Director of the UCLA Child and Adult Neurodevelopmental (CAN) Clinic and CART co-investigator, attended the assembly and accepted the donation on behalf of CART. Dr. Gulsrud says, "I was so impressed by the dedication and hard work in support of all the organization's represented at the assembly. UCLA CART truly appreciates this gift. This gift will directly help the children and families seeking services for autism spectrum disorder." Thank you, Norwalk High School!



Giving to CART



CART depends greatly on philanthropy to sustain its cutting-edge research, treatment, and education programs now and into the future.

The establishment of CART in 2003 marked an exciting advancement, particularly for the new and upcoming generation of autism researchers. Since then, CART has concentrated its efforts on 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 CART continue as well as expand its research, treatment, and community outreach activities to improve the lives of countless children and young adults and their families affected by autism spectrum disorders.

Please make your donation by check payable to The UCLA Foundation and specify CART Fund #618040 in the memo line. Mail the check to Alan Han, Director of Development for Neuroscience: UCLA Health Sciences Development, 10945 Le Conte Avenue, Suite 3132, Los Angeles, California 90095-1784.

You may also donate to CART online at <https://giving.ucla.edu/CART>. If you have more questions about making a gift to CART, please contact: Alan Han, Director of Development for Neuroscience at (310) 825-1546.

Upcoming Events at CART

Autism Affinity Distinguished Lecture Series

UCLA CART offers the distinguished scientific lecture series on the first Friday of each month from October through June. This lecture series brings scientific experts from around the country and internationally to present and discuss multidisciplinary topics of autism spectrum disorders (ASD). The lectures are free and open to the public.

Location:

UCLA Gonda (Goldschmied)
Neuroscience & Genetics
Research Center
1st Floor Conference Room
695 Charles E. Young Drive South
Los Angeles, CA 90095

Time:

Coffee Served: 8:30AM
Lecture: 9:00AM–10:00AM
Questions & Discussion:
10:00AM–10:30AM

RSVP: (310) 825-9041**May 1, 2015**

Speaker: Daniel Messinger, PhD
Prof of Psychology (Developmental
Area Head, Pediatrics, Music
Engineering, & Electrical and
Computer Engineering, University of
Miami

Title: "Emotions, Interaction, and
Autism: Timing and Development
in the community"

June 5, 2015

Speaker: David Mandell, ScD
Director, Center for Mental Health
Policy and Services Research;
University of Pennsylvania
Perelman School of Medicine

Title: "Storming the Ivory Tower:
What we need to do to improve
autism intervention"

CART Symposium: "Advances in Autism 2015"

Friday, May 22, 2015**UCLA Campus - NRB Auditorium, Los Angeles, CA 90095**

We invite you to attend the "Advances in Autism 2015" symposium on Friday, May 22, 2015 at the NRB Auditorium, UCLA Campus, Los Angeles, CA.

This full-day symposium is for physicians, psychiatrists, psychologists, health professionals, teachers, autism services providers, and any one interested in learning about the latest breakthroughs in research and treatment in autism spectrum disorders (ASD). Nationally renowned UCLA Center for Autism Research and Treatment (CART) faculty (including Drs. Daniel Geschwind, Susan Bookheimer, and James McCracken) will present on a variety of topics from multidisciplinary perspectives regarding ASD.

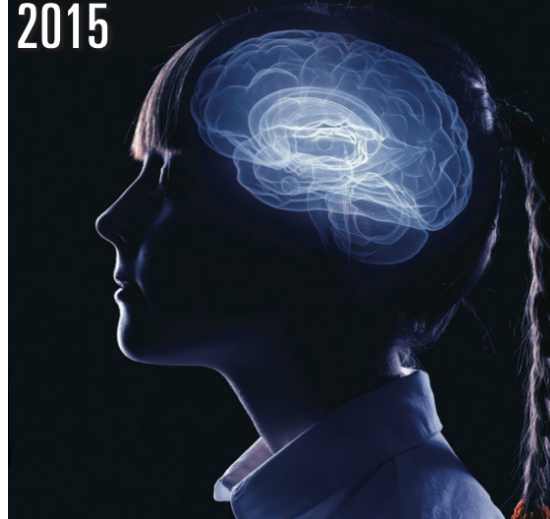
The presentations will provide an update of the latest scientific findings of the genetic, neurobiology, behavioral health, and clinical practice for ASD. Biomarkers for early identification and assessment of intervention outcomes, public health matters, and medication will also be reviewed. This continuing education symposium is designed to equip community practitioners to apply the most effective "best practices" for assessment and treatment to families, children, and young adults with ASD.

Registration

Go to: www.cme.ucla.edu/courses, click on Advances in Autism 2015, and click on the registration button or call the CME office at (310) 794-2620.

This course is approved for AMA PRA Category 1 Credit™.

Advances in Autism 2015





760 Westwood Plaza, Semel 68-225A
Los Angeles, CA 90095

UCLA CART

*A leading center for multidisciplinary ASD
research, treatment, and education.*