

Penn Speaks for Autism



Welcome to Our Monthly Newsletter!

About Our Club:

Welcome for the Penn Speaks for Autism monthly newsletter. PSFA is excited to welcome all of our new members!

Our club seeks to raise awareness throughout Penn's campus regarding autism spectrum disorders, as well as provide opportunities to engage with the autism community of Philadelphia through various volunteer opportunities.

Through our **YouToo Tennis** Program, we give tennis lessons to children on the spectrum. No previous tennis experience is required to participate in this program!

On weekends we host **workshops** for children and young adults on the spectrum – this is an opportunity for our members to get to know the families we work with while playing games, make arts and crafts, etc. Past workshops have also included attending 76ers games, apple picking, bowling, and movie nights.

In addition to volunteer events, we also host **speaker events** and **fundraisers** on Locust throughout the semester!

If you are interested in joining and/or volunteering with us, email us at pennspeaksforautism@gmail.com

Things for Look Out For:

- March GBM
- Huddle Up for Autism
- Hey Day Fundraiser

April is Autism Awareness Month – Look for us out on Locust Walk!



Penn Speaks for Autism

Connect with us!

Email:
pennspeaksforautism@gmail.com

Website:
Pennspeaksforautism.com

Facebook:
Penn Speaks for Autism





CAR is a collaboration between the University of Pennsylvania & Children's Hospital Philadelphia

NDMA & D-Cycloserine: A Combo to Keep an Eye On

By: Alexis Gutierrez, PSFA Newsletter Editor

The University of Pennsylvania is a world renowned research institution. Our campus is home to leading researchers in numerous fields, from political science and public policy to medicine to math and physical sciences, to name a few. Among the many research institutions on campus is CAR – The Center for Autism Research. CAR is a collaboration between the University of Pennsylvania and the Children's Hospital of Philadelphia (CHOP) in which scientists and clinicians are investigating the underlying mechanisms of ASD in order to develop precise treatments. One of the projects currently underway is utilizing mouse models while looking at the effects of certain medications on

social deficits that are characteristic to ASD. Some medications have resulted in a restoration of social deficits in the mice.

In the search for an explanation of the mechanisms responsible for ASD symptoms, researchers at the University of Pennsylvania Perelman School of Medicine have been conducting studies with a gene whose function could be associated with the social interaction impairments seen in persons on the spectrum. Dr. Brodtkin's lab at Perelman has been investigating the function of the Protoadherin 10 (PCHD10) gene in mouse models. This PCHD10 gene plays a role in brain development and maintenance of neuron synapses.

The gene naturally occurs in high levels in the amygdala, a brain structure whose role in emotion regulation has been implicated in the social deficits seen with ASD.

Brodtkin's team, along with Penn biology professor and collaborator Dr. Ted Abel, created a knock down of the PCHD10 gene and observed the impact the mice's social behaviors. The reduced PCHD10 levels resulted in social withdrawal behaviors in the mice, which are naturally quite social creatures. Interestingly, these behaviors were seen more among the male mice than the female mice; this trend also rings true for occurrence of ASD in humans – that is, ASD has been observed more in men than women.

Upon further investigation, the team found that in addition to the social withdrawing behavior, the mice were exhibiting low levels of NMDA glutamate receptors. These receptors are a large component of the circuitry within the amygdala, as they bind glutamate, a main excitatory neurotransmitter of the central nervous system) and mediate cell excitation. The research team was able to restore the NMDA levels of the mice by administering the d-cycloserine drug, a drug originally meant for treating tuberculosis. D-cycloserine works by enhancing the signaling of NMDA receptors; when administered, the male mice began exhibiting typical social approach behaviors.

The implications of these studies are significant. The biological mechanisms behind autism spectrum disorders are enigmas that have puzzled researchers for decades. If a target gene or pathway could be identified, researchers could be a step closer to the development of effective treatments.

(continued on next page)



D-Cycloserine was originally a tuberculosis treatment – it has been shown to restore social approach behaviors in mice with social deficits

The PCHD-10 gene has been associated with the socially withdrawing behaviors that are typically seen in autism spectrum disorders

To volunteer for our monthly workshops, contact Community Outreach Chairs: Rose Campbell, Emily Augustine, & Mnali Patel

Brodkin et al. have published these novel findings in Biological Psychiatry, and have continued to investigate the relationship between the PCHD 10 gene and d-cycloserine.

Most recently the research team at Perelman has piloted a small clinical trial with human participants, so determine whether or not the findings of the mouse model are valid in humans. Administration of the D-cycloserine drug thus far has been shown to improve social approaching behaviors in young adults on the spectrum.

Future directions of the study include investigating the mechanisms that results in greater social deficits in male mice with the PCHD 10 knockdown, compared to their female counterparts. Exploration of these mechanisms could provide reasons for the apparent male preponderance of ASD.

For more info on the center for autism research go here <https://www.centerforautismresearch.org/>

February Young Adult Workshop: Feb 19, 2017

This past month Penn Speaks For Autism's Community Outreach Committee held its first young adult workshop of the spring semester. We had four of our usual families come in and hang out with us at Houston Hall for an afternoon. Our young adults had the chance to show us their artistic sides at the arts and crafts station – here we saw some really fantastic canvas paintings. In addition to painting and coloring, we also had a plethora of board games for our families to choose from. A few of our board members participated in an intense game of bingo that lasted for several rounds until we ran out of numbers to call out. We had a great time playing games with our families and look forward to our next workshop!

