

NIEHS grantee honored for autism research at White House ceremony

By Nancy Lamontagne

NIEHS grantee Young-Shin Kim, M.D., Ph.D., received a prestigious Presidential Early Career Award for Scientists and Engineers April 14 for her groundbreaking autism research and commitment to community service. NIEHS nominated her for the award, which is the highest honor the United States government gives to early-stage scientists and engineers. By studying the role of environmental risks and gene-environment interactions, [Kim](https://medicine.yale.edu/childstudy/faculty_people/young-shin_kim.profile) (https://medicine.yale.edu/childstudy/faculty_people/young-shin_kim.profile) seeks to understand why the prevalence of autism spectrum disorder (ASD) is increasing.

Kim joined 102 scientists and engineers receiving the awards at a ceremony in Washington, D.C. John Holdren, Ph.D., director of the White House [Office of Science and Technology Policy](http://www.whitehouse.gov/administration/eop/ostp), (<http://www.whitehouse.gov/administration/eop/ostp>) gave the keynote address. President Obama then greeted the group at the White House and thanked them for their outstanding achievements.

"It is a great honor to be chosen for this acknowledgment that my research is changing the field and also contributing to the community," said Kim, an associate professor in the Child Study Center at the Yale University School of Medicine. "I want my work to benefit the community right now, not just in the future. I try hard to educate the community about autism, help teachers understand the importance of identifying children with autism, and find ways to provide services to children experiencing any type of difficulties."

Are more children developing autism?

The latest [study](http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6302a1.htm?s_cid=ss6302a1_w)

(http://www.cdc.gov/mmwr/preview/mmwrhtml/ss6302a1.htm?s_cid=ss6302a1_w) from the Centers for Disease Control and Prevention (CDC) estimates that 1 in 68 children have ASD. The prevalence has more than doubled in a decade, and scientists aren't sure why. Kim explains that looking at prevalence, or the number of children with autism at a given time, isn't the best approach to determine if more children are really developing autism. "Prevalence can change because of increased public awareness, better screening, study design, and other reasons," Kim said. "The way to understand if more children are developing autism is to use a prospective study to look at incidence." A prospective incidence study looks at new cases in a healthy population over time.

In 2012, Kim received NIEHS funding to conduct a 5-year prospective, incidence study in South Korea. Each year, her research team directly screens all 7-year-olds - about 7,000 children - who were born in Goyang city, South Korea. Children confirmed to have ASD, as well as their families, are invited to join the study and donate blood samples. Screening all the children born in the city, even if they have moved, ensures a truly representative sample of children with ASD. For comparison, the researchers are also enrolling children without autism, matched in terms of sex and IQ.

Environmental influences

The researchers will use the blood samples to identify genes and exposures that are involved in ASD. They will look at a wide variety of preconception and prenatal factors, including exposures that parents encounter at work, the age of the father, alcohol and tobacco use, medications, and exposures to environmental contaminants, such as pesticides. "Because the influence of genetic factors is unlikely to change from year to year, if we find an increase in cases of autism, then it is strong evidence that environmental factors are at work," Kim said.

Cindy Lawler, Ph.D., lead of the NIEHS autism research program, recommended Kim for the award. "Education and advocacy are an integral part of Kim's daily work," Lawler said. "She has shown that delivering reliable, evidence-based knowledge and skills to the broad community can lead to reductions in stigma, changes in policy, and improvement in the lives of youth and families facing bullying, ASD, and other conditions."

"In short," Lawler concluded, "Kim remains an active clinician and educator, as well as community activist and advocate."

(Nancy Lamontagne is a science writer with MDB Inc., a contractor for the NIEHS Division of Extramural Research and Training.)



The Presidential Early Career Awards recognize pursuit of research at the frontiers of science and technology, and commitment to community service, as demonstrated through scientific leadership, public education, or community outreach. Kim credits the support she received from all her mentors for helping her to advance her career. (Photo courtesy of Young-Shin Kim)

Understanding autism prevalence

In 2011, Kim published a [study](http://www.ncbi.nlm.nih.gov/pubmed/21558103) (<http://www.ncbi.nlm.nih.gov/pubmed/21558103>) in which her research team directly screened all children aged 7-12 - about 55,000 - in a South Korean community. She found that 1 in 38 children had autism, much higher than the CDC estimates.

Kim explained that most studies use clinics and special education programs to identify children with autism, because scientists assume that autism is severe enough for children to need services. She found that those studies were missing children with autism who were high-functioning and didn't use services.

Kim plans to use her award for a pilot study that will follow children from the 2011 study into adulthood. She wants to better understand the differences between high-functioning children with autism and those who used services, and whether environmental factors can predict outcomes in these two groups.

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