

# Researchers organize to decipher possible role of gut bacteria in autism

May 8 2015

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Autism: for a condition that continues to confound researchers and physicians alike, Dr. Richard E. Frye, Director of Arkansas Children's Hospital (ACH) autism research program, believes that research into the role of the microbiome could hold a key to new treatments and understanding of autism.

Last summer, Dr. Frye led a group of international, pioneering physicians and scientists, as well as parents, at the 1st International Symposium on the Microbiome in Health and Disease with a Special Focus on Autism. At this historic conference [autism](#) researchers called for a new frontier in science and autism research: the connection between the enteric (gut) microbiome and autism.

"Mounting evidence shows us that there is a link between the gut and brain; that the gut may have previously under-recognized influences on cognition and possibly even behavior," said Dr. Frye, a leading autism researcher who serves as Director of both ACH's Integrated Autism Research Program and Autism Multispecialty Clinic. "Several lines of research also point to the possibility that changes in the gut either cause or are highly associated with driving core ASD ([autism spectrum disorder](#)) symptoms." The microbiome-autism connection is one of several promising avenues being examined as part of their integrated research program at Arkansas Children's Hospital Research Institute.

The gathering included a first-of-its-kind conference to discuss topics related to autism and the microbiome, as well as a separate

interdisciplinary working group session that examined how to best design a clinical trial to further elucidate the potential role of the microbiome in autism.

The results of the meeting have been published as a collection of articles in the international, peer-reviewed journal "Microbial Ecology in Health and Disease". Dr. Frye is co-author of multiple articles in the special issue, including one that came directly out of the working group session being published today titled: "Approaches to Studying and Manipulating the Enteric Microbiome to Improve Autism Symptoms."

While an increasing number of studies have shown a deviation in the composition of the bacteria found in the gut of children with ASD, when compared to that found in typically developing children, to date, no clear consensus exists explaining why, according to John Slattery, CCRP. Slattery is the clinical research program manager at ACHRI's autism research program, and co-author of the article.

"This paper lays the groundwork for clinical trials intended to determine if some children with ASD respond to therapy aimed at modulating or manipulating the gut microbiome (GM) and if so, why?," said Slattery. "If the GM truly plays a causative or even contributory role in ASD, then we could be potentially talking about a new therapeutic approach to improve ASD symptoms". Reaching that point, though, requires "highly controlled clinical trials in which the GM is systematically manipulated," wrote Dr. Frye and Slattery in the article.

Slattery is hopeful recent findings will lead to more funding for autism research, generally speaking, as well as more funding related to the possible microbiome-autism connections specifically. "When talking about autism research – and the potential these new discoveries represent—the most pressing issue is funding. Historically speaking funding for [autism research](#) that looks beyond the conventional view that

autism is an inherited disorder of the brain is next to impossible to obtain".

"Without funding, we are left speculating and wondering "what if?" and as the clock ticks by more and more children and their families continue to suffer. We truly believe a major breakthrough is right around the corner, but funding this type of research is a tremendous challenge that crosses many medical disciplines and is very complex. We think we may be honing in on a possible final common pathway that may "tip the ship" so to speak for certain children at critical time points during development to increase their risk for going on to develop an ASD. The exciting thing about this view is that, if we are right, we may be able to intervene and really change things in a major way," Slattery says.

Frye went on to say, "Fortunately for us we were able to have this ground breaking conference and working group through a joint sponsorship by the Arkansas Autism Alliance, Arkansas Children's Hospital, and the N of One: Autism Research Foundation, but this is hopefully only the beginning, as much more work needs to be done to better the lives of children with autism and their families."

**More information:** "Approaches to studying and manipulating the enteric microbiome to improve autism symptoms," *Microbial Ecology in Health & Disease* 2015, 26: 26878 - [dx.doi.org/10.3402/mehd.v26.26878](https://doi.org/10.3402/mehd.v26.26878)

Provided by Co-Action Publishing

Citation: Researchers organize to decipher possible role of gut bacteria in autism (2015, May 8) retrieved 7 May 2024 from <https://medicalxpress.com/news/2015-05-decipher-role-gut-bacteria-autism.html>

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