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Autism wizzes go with their guts

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Chinese University has developed a novel, non-invasive autism screening tool that analyzes a person's gut microbiome using only a small stool sample.

The advanced screening tool has shown an impressive 90 percent diagnostic accuracy for autism spectrum disorder, a significant advancement compared to conventional behavioral assessments used by psychologists for autism diagnosis.

The research team developed a diagnostic model based on a panel of 31 multi kingdom and functional gut microbial markers, using machine learning.

They recruited around 1,600 children aged one to 13, both with and without autism, between 2021 and 2022. By analyzing stool samples, the researchers discovered that the gut's microbiome ecosystem was significantly different in children with autism compared to their neurotypical peers.

"Diagnosis is often delayed especially in younger children who may only have mild symptoms, and this could lead to delayed intervention," said Croucher Professor in Medical Sciences, Ng Siew-chien.

"This, to our knowledge, is the first study to demonstrate the robustness and utility of a non-invasive biomarker to diagnose and predict ASD across different ages, gender and settings."

The researchers believe that this screening tool can be used for formal clinical application for autism diagnosis as early as the end of this year.

Oscar Wong, left, and Ng Siew-chien, third, are among those showing the screening tool's possibilities. SING TAO

By simply collecting stool samples at home and sending them to a laboratory for testing, a report can be obtained within a week, enabling early diagnosis and reducing the waiting time for assessment.

Also, the team has developed a gut microbiome modulator, a novel synbiotic formula called SCM06, that boosts the abundance of the neurotransmitter γ-Aminobutyric acid in patients.

In a pilot study with 30 autistic children, the 12-week treatment with this powder formula has proven to result in a 15 to 20 percent reduction in sensory sensitivity and anxiety symptoms, with no reported side effects.

"Given that there are limited therapeutics for ASD and some of the drugs have side effects, our results are encouraging and suggest that modulation of the gut microbiome represents a new, safe approach to ASD. We will conduct a larger randomized controlled study to confirm these findings," said psychiatry professor Oscar Wong Wing-ho.