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Hong Kong identifies novel gut microbiome biomarkers to facilitate diagnosis of autism spectrum disorders

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Pilot clinical study shows modulation of gut microbiome alleviates anxiety symptoms

The Chinese University of Hong Kong (CUHK)'s Faculty of Medicine (CU Medicine) has conducted a large cohort study among 1,627 children with and without autism spectrum disorder (ASD) and found alterations in four kingdoms of the gut microbial species in children with ASD.

Using machine learning, they developed a panel of 31 multikingdom and functional markers that showed high diagnostic performance for ASD and has great potential as a clinical diagnostic tool. The findings were published in*Nature Microbiology*. In a pilot study, the researchers also found that modulation of the gut microbiome helped alleviate symptoms of anxiety in children with ASD, introducing the possibility of a new therapeutic paradigm for the condition.

ASD is a neurodevelopmental condition characterised by impairment in social communication, and restrictive and repetitive behaviour. Genetic and environmental factors contribute to the pathogenesis of ASD but emerging evidence suggests that impaired cross-talk between gut microbiome and central nervous system, dubbed the gut-brain axis, may contribute to the development of ASD.

The CU Medicine research team has recently completed a pilot clinical study to investigate the use of a gut microbiome modulator that aims to boost the abundance of ?-Aminobutyric acid (GABA) in children with ASD. GABA is a neurotransmitter that, when depleted, can be associated with sensory hypersensitivity and anxiety. 30 children aged 4- 11 years old with ASD were recruited to receive the novel synbiotic formula SCM06 for 12 weeks.