

Significant Paper Published in JAMA on the Effect of Transcranial Pulsed Current Stimulation

SINGAPORE, April 28, 2025 /EINPresswire.com/ -- Singapore-based AscenZion Neuromodulation Co announced the publication of a significant paper on the 'Effect of transcranial pulsed current stimulation on social functioning in children with autism' in JAMA, Journal of the American Medical Association. JAMA, published continuously since 1883, is an international peer-reviewed medical journal and the most widely circulated general medical journal in the world.

The paper's findings demonstrate that transcranial pulsed current stimulation (tPCS), a type of non-invasive brain stimulation technique, is a safe and well-tolerated, and when targeting prefrontal-cerebellar connections can significantly improve social functioning in children with autism spectrum disorder (ASD). In the largest, multi-centre, double-blind, sham-controlled randomised clinical trial of non-invasive brain stimulation in ASD, 312 children, aged 3 to 14 years old with ASD, underwent 20 sessions of prefrontal-cerebellar tPCS over a duration of four weeks. The study results demonstrate significantly improved social functioning following real compared to sham stimulation, and importantly, tPCS was not associated with any serious adverse events.

ASD is a common, heterogeneous neurodevelopmental disorder. According to a 2020 survey in the United States, there is one case of ASD in every 36 children aged 8 years old. Clinical presentation is often characterised by core deficits in social functioning, communication, and the presence of restricted interests and repetitive behaviours.

"ASD can be extremely disabling and current standard of care encompasses a combination of behavioural therapies and anti-psychotic medications to manage challenging behaviours. Unfortunately, treatment effects are variable and often small, particularly for social functioning. In addition, pharmacological interventions may lead to side-effects while behavioural therapies are expensive and time-consuming which negatively impacts treatment compliance", said Prof Alvaro Pascual-Leone, professor of neurology at Harvard Medical School, a world-expert in brain stimulation, and a co-investigator of the study. He added, "in the face of a pressing need for a scalable and effective treatment, the present large, well-designed and controlled study demonstrates that prefrontal-cerebellar tPCS is safe, well-tolerated, and leads to improvements in social functioning among children with ASD many of whom achieving clearly meaningful clinical effects".

tPCS has received regulatory approval in Singapore for treatment of spasticity in children with cerebral palsy, supporting its safety in paediatric populations and encouraging the exploration in other pathologies.

Sandra Zhong, Founder and Chief Executive Officer, AscenZion Neuromodulation said, "At AscenZion, we are deeply committed to advancing solutions that can support children with ASD, and their families. Through our work both locally and internationally, we have witnessed first-hand the profound emotional, social, and financial strain that ASD places on families. Parents and caregivers often endure heightened stress and anxiety, which can disrupt family dynamics. When a child's developmental progress is slow or stagnant, it can lead to profound discouragement and despair. The findings that tPCS enhances social functioning go to the heart of these challenges, offering renewed hope for children with ASD and their families."

"Although the exact prevalence of ASD in Singapore has yet to be determined, it is estimated that at least 400 new cases of ASD are diagnosed annually. Currently, there is no known cure for ASD. Early intervention and behavioural therapies remain the cornerstone of treatment," says Dr. Jeremy Lin, Senior Consultant at the Division of Paediatric Neurology, Department of Paediatrics, Khoo Teck Puat – National University Children's Medical Institute, National University Hospital, and one of the researchers in the study. He added, "The study's findings that prefrontal-cerebellar tPCS is safe and effective in enhancing social functioning and sleep in children with ASD highlight its potential as a promising adjunct therapy. It has the potential to raise the standard of care available to these children."

The study was lead by Zhenhuan Liu, MD, PhD¹ ; Sandra Zhong, MsC^{2,3} ; Roger C.M. Ho, MD, PhD^{4,5} ; Xuguang Qian, MD¹ ; Yan Tang, MD, PhD⁶ ; Hui Tian, MD, PhD¹ ; Chuntao Zhang, MD¹ ; Nuo Li, MD¹ ; Yong Zhao, MD¹ ; Yuqiong Zhang, MD⁷ ; Huituan Liu, MD⁷ ; Meifeng Wu, MD⁸ ; Yingjie Zhan, MD⁹ ; Min Li, MD¹⁰ ; Zhihai Lv, MD¹¹ ; Fengyi Hao, MD, PhD^{4,12} ; Wilson Tam, MD, PhD¹³ ; Jeremy Lin Bingyuan, MBBS, MRCPCH^{14,15} ; and Alvaro Pascual-Leone, MD, PhD^{16,17}.

Further details and footnotes of the paper published in JAMA can be found via:

https://www.dropbox.com/scl/fo/kj6zj9ua2e2qocg6a6sg0/APROxGWNaoBCdmku_9iYW3Q?rlkey=yw6wk2n7o7loyqg1st2cndgrw&st=f8ck8ql2&dl=0

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About AscenZion Neuromodulation

AscenZion Neuromodulation is a Singapore-based MedTech company dedicated to advancing non-invasive neuromodulation technologies for the treatment of chronic neurological and psychiatric conditions, including cerebral palsy, autism spectrum disorder, ADHD, mild cognitive impairment, Alzheimer's disease and related dementias, stroke, Parkinson's disease, cerebellar ataxia, sleep disorders, and chronic pain. Our vision is to empower individuals and families affected by brain disorders to live life triumphantly and with dignity. By delivering innovative, research-driven therapeutic solutions, AscenZion aims to enhance functionality, improve quality

of life, and restore hope for a brighter, healthier future.

Details available at <https://ascenzion.com.sg/>.

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Released by The Rainmaker Marketing Group Pte Ltd on behalf of AscenZion Neuromodulation Co Pte Ltd.

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