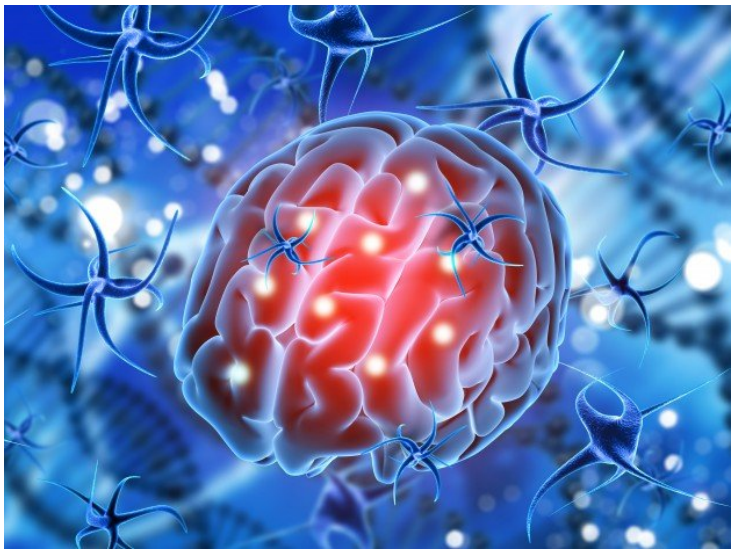
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Singapore discovers protein that causes neurological complications in HFMD

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The finding could aid in the prevention of the severe consequences through drug development



Hand, Foot & Mouth Disease (HFMD) is a generally mild, contagious viral infection common in young children. In Singapore, HFMD is endemic and is most commonly caused by intestinal viruses known as coxsackieviruses and enteroviruses.

While most HFMD patients experience common symptoms such as sore throat, fever, ulcers inside the mouth and blisters and lesions on the palms and soles, infection with EnterovirusA71 (EV-A71) may lead to serious neurological complications that can be potentially fatal or lead to long-term neurological deficits (cognitive and motor deficits). These complicated HFMD cases are mainly seen in young children.

Researchers from Singapore's NUS Yong Loo Lin School of Medicine's Infectious Diseases Translational Research Programme have identified two new proteins that play a critical role in the ability of EV-A71 to invade the central nervous system. One of these proteins is a druggable target, which means that there are drugs available that target this protein and which could potentially be used to limit the neurological complications associated with this illness.

Since there are currently no antiviral treatments available for HFMD, only symptomatic relief is available to patients. This new discovery could allow for the development of more effective treatment of the disease, particularly for such severe cases. A number of compounds that have been developed to target this discovered protein have mainly been studied in the context of cancer. However, this finding is likely to change the course of the advancement of some of these compounds.

"This exciting finding will bring us one step closer to preventing EV-A71-infected HFMD patients from experiencing potential neurological complications. As this virus is considered to be endemic in Singapore, with cyclical epidemics every two to three years, our discovery is likely to have a significant impact on the country's public health," said Associate Professor Sylvie Alonso, Principal Investigator of the study and Co-Director of the Infectious Diseases TRP at NUS Medicine.

"The new data reported contributes to a better understanding of the molecular mechanisms of EV-71 neuroinvasion that may lead to neurological complications of HFMD caused by EV-A71. This is a step towards identifying possible targets for

interventions to reduce/prevent EV-A71 complications," shared Dr Chan Si Min, the Head and Senior Consultant of the Division of Paediatric Infectious Diseases at National University Hospital.