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Singapore: A joint study by researchers at the National Neuroscience Institute (NNI), National University of Singapore (NUS), and Singapore Institute for Clinical Sciences (SICS), A*STAR, has discovered the role of a new tumor suppressor, known as parkin, in brain cancer. The findings promise to provide insights into why certain brain tumors are more aggressive than others.

This multi-institutional collaborative work was led by Associate Professor Lim Kah Leong at the NUS Yong Loo Lin School of Medicine's Department of Physiology, and Dr Carol Tang, a research scientist at NNI, with Associate Professor Ang Beng Ti, consultant at the Department of Neurosurgery at NNI and senior principal investigator at SICS.

Forming the majority of adult malignant brain tumors, gliomas affect a significant number of individuals globally, including here in Singapore. The NNI sees about 50 new cases of malignant glioma each year and continues to manage its existing glioma caseload by means of a multi-disciplinary neuro-oncology clinic. The prognosis for the majority of these tumors remains grim, particularly for patients with glioblastoma multiforme (GBM), the most aggressive form of brain tumor.

"With this understanding, instead of generalising malignant brain cancer patients, we can now differentiate their tumors based on their molecular characteristics" said Assistant Prof Lim and Dr Tang. Agreeing, Assistant Prof Ang added, "This is significant as the stratification would allow us to formulate the most appropriate treatment for each patient."

Importantly, the investigators also found that the restoration of parkin expression in parkin-deficient cells can slow down their proliferation rate and decrease their tumor size significantly. They are currently testing drugs that can mimic parkin's protective function against the aggression of brain tumors.