Research:

With the prognosis for childhood brain cancer patients constantly improving, renewed attention has been placed on the long-term effects of radiation therapy, such as progressive and irreversible brain lesions that manifest at least 6 months post-treatment. To create treatments for this radiation-induced brain injury (RIBI), animal models are critical to understanding its pathological development. Although prevalently used to study RIBI, rodent brains do not accurately replicate the diagnostic radiological changes seen in human patients. Therefore, we chose to develop a mini-pig model to replicate this clinical injury in a more biologically comparable system. Our preliminary data demonstrates that a swine model can replicate the development of RIBI similarly to the clinical injury seen in humans. Our future studies will utilize this preclinical animal model not only to investigate the pathogenesis of RIBI, but also to evaluate noninvasive biomarkers for early diagnosis.