Radiation-induced brain injury is a major concern for survivors of intracranial neoplasms. There are two major forms of late-onset radiation-induced brain injury with distinct symptoms and radiological characteristics. There is a diffuse injury which is restricted to the white matter and leads to cognitive impairment and a focal injury that resembles tumor recurrence radiologically and in symptoms. Pre-clinical models are important for testing therapeutic approaches and understanding of the mechanism of injury. However, it is critical that these models accurately reflect the human condition. This talk will focus on considerations for generating mouse and pig models of radiation-induced brain injury. Dr. Pérez-Torres will present data on the dose response of the mouse and pig brain to radiation and how he approaches these models to establish accuracy to the clinical scenario.