JC polyomavirus

JC polyomavirus (JCPyV) is a type of human polyomavirus that was first discovered in 1971. It is a small, non-enveloped DNA virus that is widespread in the human population, with up to 80% of adults being seropositive for the virus. JCPyV is typically acquired in childhood, and it establishes lifelong persistence in the kidney without causing any symptoms in healthy individuals.

However, in people with weakened immune systems, such as those with HIV/AIDS or undergoing immunosuppressive therapy, JCPyV can cause a rare and often fatal demyelinating disease of the central nervous system known as progressive multifocal leukoencephalopathy (PML).

In addition to its association with PML, JCPyV has also been implicated in the development of certain brain tumors, including anaplastic xanthoastrocytoma (AXA) and glioblastoma multiforme (GBM). The exact mechanism by which JCPyV contributes to tumorigenesis is not well understood, but it is thought to involve the interaction of the viral large T antigen with cellular tumor suppressor proteins and DNA damage response pathways.