Journal of NeuroVirology, 10(suppl. 2): 42, 2004

ISSN: 1355-0284 print / 1538-2443 online
DOI: 10.1080/13550280490461886

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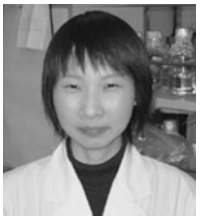

Identification of cell surface molecule as a candidate receptor for JC virus

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JC virus (JCV) is a causative agent of progressive multifocal leukoencephalopathy (PML), a human fatal demyelinating disease. Although the initial interaction of JCV with host cells occurs through direct binding of the viral major capsid protein, VP1 with cellular surface molecules possessing sialic acid, these molecules have not yet been identified. In this study, we established an immunoscreening method to isolate monoclonal antibodies which inhibit attachment of JCV to cellular surface molecules. Initially, the membranous fraction of JCV permissive human neuroblastoma cells was immunized to mice. By using the ELISA screening system, we isolated a monoclonal antibody(MAb-24D2) which inhibits attachment of JCV to the immuno-plate. Furthermore, the MAb-24D2 significantly inhibited JCV infection into cells. In immunoblotting with the antibody, the single band was detected around 60 kDa in purified IMR-32 membrane fraction. Immunopositive signal for the antibody was detected in the membranous regions of JCV permissive cell lines and glial cells of human brain. These results indicate that a 60 kDa molecule is required for JCV infection. To elucidate the functions of this molecule may lead to a greater understanding for JCV infection.