

ヒトサイトメガロウイルス潜伏, 持続感染の実験的 pursuit

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1987 Fiscal Year Final Research Report Summary

Experimental studies of latency and persistence in vitro by human cytomegalovirus

Research Project

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61570226

Research Category

Grant-in-Aid for General Scientific Research (C)

Allocation Type

Single-year Grants

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Virology

Research Institution

Cancer Research Institute, Kanazawa University

Principal Investigator

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Keywords

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Research Abstract

Human cytomegalovirus (HCMV) is capable of establishing both persistent and latent infections after a primary infection in vivo. For study of the mechanisms of HCMV latent and persistent infections in vivo, I have attempted to establish and characterize an in vitro HCMV latency and persistence model system using human cell cultures. When a human thyroid papillary carcinoma cell line (TPC-1) was infected with HCMV and incubated at 37 or 40.5 , persistently or latently infected cultures could be established, respectively. The virus latent and persistent states were reversible by shifting the incubation temperature. Although HCMV-specific immediate early proteins and antigens were detectable during the latent period, a detectable level of virus-specified DNA polymerase was not induced, suggesting that the blockage of HCMV replication in the latently infected cultures occurs at the early stages of the HCMV replicatin cycle. The latently infected cells were shown to be susceptible to superinfection with homologous and heterologous strains of HCMV and to be resistance to complement-mediated immune cytolysis. The latent HCMV was reactivated by reducing the incubation temperature from 40.5 to 37 . However, when the latently infected cultures were treated with inhibitors of prostaglandin synthesis (indomethacin and tetracatine) immediately after being shifted to 37 , reactivation of the latent virus was not observed.

Research Products (11 results)

All Other

All Publications (11 results)

- [Publications] Shigeru Kamiya: Archives of Virology. 91. 175-181 (1986) 
- [Publications] Tsutomu Ogura: Journal of General Virology. 67. 2605-2616 (1986) 
- [Publications] Junji Tanaka: Virology. 161. 62-72 (1987) 
- [Publications] Junji Tanaka: Virology. 163. in-press (1988) 
- [Publications] Junji Tanaka: Submitted to Virology. 
- [Publications] Junji Tanaka: Submitted to Virology. 
- [Publications] Shigeru Kamiya: "Latent infection of human ovarian teratocarcinoma cells with human cytomegalovirus" Archives of Virology. 91. 175-181 (1986) 
- [Publications] Tsutomu Ogura: "Human cytomegalovirus persistent infection in a human central nervous system cell line: Production of a variant virus with different growth characteristics" Journal of General Virology. 67. 2605-2616 (1986) 
- [Publications] Junji Tanaka: "Establishment and biological characterization of an in vitro human cytomegalovirus latency model" Virology. 161. 62-72 (1987) 
- [Publications] Junji Tanaka: "Inhibitors of prostaglandin synthesis inhibit growth of human cytomegalovirus and reactivate latent virus in a productively and latently infected human cell line" Virology. 163. (1988) 
- [Publications] Junji Tanaka: "Persistent human cytomegalovirus infection in a human thyroid papillary carcinoma cell line: Recovery of variant viruses" Virology. 

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