

# Viral Agents in Marmoset Colitis

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Since Doctors Russell and Brian have identified coronavirus in stools of cotton-topped marmosets with colitis, the role of viral agents in colitis in general merits attention. Initial viral studies in human ulcerative colitis (UC) were negative (1-3) but in 1973 Farmer et al (4) observed cytomegalovirus in explant cultures of tissue from UC patients. Shortly thereafter other investigators (5-7) reported a cytopathic agent in cell cultures inoculated with filtrates of UC tissue and other specimens. The agent(s) had some characteristics of small RNA viruses and such particles were thought to be seen by electron microscopy. Subsequent work (8, 9) indicated these cytopathic agents were nonliving, nonspecific cytoplasmic cytoxins.

Coronaviruses are fastidious pleomorphic RNA viruses. They are enveloped and 80-110 nm in diameter. In humans they infect respiratory and intestinal epithelial cells. Coronaviruses occur in the feces of normal subjects and in those with gastroenteritis (10, 11). These agents have also been implicated in neonatal necrotizing enteritis by French investigators (12). Up to 50% of human sera contain antibody to bovine coronavirus (13), indicating widespread exposure to these agents. Coronavirus has not been implicated in the pathogenesis of human ulcerative colitis.

Coronaviruses are also widespread in animals and cause enteritis in the mouse, turkey, pig, calf, dog, and cat (14). The agents are also identified in subhuman primates, including orangutans, gorillas, gibbons, rhesus monkeys, baboons, chimpanzees, capuchins macaque, and several species of marmo-

sets (15). Nonbacterial ulcerative colitis occurs in the gorilla (16), orangutan (16), gibbon (17), and marmoset (18). The finding of coronavirus in a high percentage of marmosets with colitis raises the possibility that the virus may play an etiological role. However, it is just as plausible that the agent is an opportunistic secondary invader of no primary pathogenic significance. However, in this event, the organism could serve to perpetuate inflammation initiated by another agent, or it could be completely innocuous. To define the role of coronavirus in marmoset colitis, prospective studies correlating the incidence of colitis with the occurrence of these viruses will be required, and immunofluorescent and/or nuclear probe techniques will have to be utilized to determine *in vivo* infectivity.

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