Use of common marmosets has been a marked increase in neuroscience and infectious disease research programs. There are often differences from facility to facility in the frequency of distinct entities, however, diarrhea, pulmonary involvement and kidney failure are the major disorders in captive marmoset colony. The poor physical condition of the highest frequency is diarrhea, which is often associated with hemorrhagic. Temporary diarrhea in adults is not severe influence due to opportunistic infection, however, chronic disorder of flora together with bloody stool, vomiting, anemia and myopathy may progress to “marmoset wasting syndrome”. In young animals, trichomonas induces diarrhea resulting growth delay. Pulmonary disorder and kidney failure are detected in some autopsy cases, when they revealed no critical appearance. In death of newborn, pneumonia is relatively frequent. Periodontal disease is also major health problem. Tooth root abscess is a consequence of the gingivitis, with pulp exposure and bacterial invasion of the root. Staphylococcus aureus and anaerobes are in the most occasions. Marmosets are useful primate model of some virus infections; GBV-B which related to hepatitis C virus develops long-term infection with fluctuated viremia, increase of ALT/AST and high titers of antibodies comparable to chronic hepatitis C in humans. Marmosets are also highly sensitive to Dengue viruses. They demonstrated high levels of viremia and antibody reaction similar in human patient. These studies suggest that marmosets could be a reliable primate model not only for pathogenesis but the evaluation of candidate vaccines.
Diarrhea and *Clostridium difficile* infection in common marmosets

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Diarrhea is an important health problem in common marmoset colonies. Although the exact cause of diarrhea is unknown in most cases, intestinal pathogens must be considered as a possible cause. The Central Institute for Experimental Animals (CIEA) investigated intestinal microbes in marmosets and reported that *Pentatrichomonas hominis*, a commensal trichomonad protozoan, and enteropathogenic *Escherichia coli* (EPEC), a causative agent of hemorrhagic diarrhea, are prevalent in marmoset colonies. A survey by the CIEA also revealed that *Clostridium difficile* is prevalent and can cause colitis in marmosets. *C. difficile* is a Gram-positive spore-forming anaerobic bacillus naturally found in the intestinal tracts of humans and animals, and also in the soil and other environments. The bacteria increase in number due to an imbalance of intestinal microbiota, and produce toxins that cause diarrhea and colitis in hosts. It is known as a common cause of antibiotic-associated diarrhea and is a nosocomial pathogen in humans. According to the survey conducted by the CIEA, a marmoset case of pseudomembranous colitis after antibiotic treatment was encountered, and a *C. difficile* toxin was detected in its feces. Then, a survey of the colony revealed that *C. difficile* with toxin genes *tcdA* and *tcdB* was prevalent and that its toxin detection in feces was related to acute diarrhea in the animals, despite lack of antibiotic treatment. These diarrhea cases associated with *C. difficile* were cured by administration of metronidazole or vancomycin, which are primary antibiotics for treatment of infections with the bacteria. These results suggest that *C. difficile* is a cause of diarrhea in marmosets, and careful antibiotic treatment is needed.

Enteropathogenic *Escherichia coli* infection in common marmosets

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In this study, survey of Enteropathogenic *Escherichia coli* (EPEC) were performed for fecal and rectum samples of common marmosets in various condition (bloody stools, diarrhea without blood, clinically healthy) to reveal the association of EPEC with hematochezia. In addition, experimental infection study was performed to reveal actual figure of EPEC infection in common marmosets. In total 230 stool/rectal swab samples were collected from 230 common marmosets (98 clinically healthy samples, 85 diarrheal samples and 47 bloody stool samples) and tested by culture-based detection and PCR test for VT1, VT2, LT, ST, eae and bfp genes. In experimental study, clinically healthy common marmosets were divided into 3 groups (4 animals for high dose, 4 animals for low dose, 2 animals for negative control). Two animals in each experimental group were sacrificed and investigated on 3 and 14 days post inoculation (DPI), respectively. In the result of survey, EPEC was isolated 10 out of 98 clinically healthy samples (10.2%), and was isolated 17 out of 85 diarrheal samples (20%) and all of 47 bloody stool samples (100%) and significant difference (*P* < 0.01) between presence of EPEC and sample status was observed. In the result of experimental study, acute hematochezia was observed for all animals in high dose group on 1 or 2 DPI but not for animals in other groups. Histopathological examination revealed attaching of gram-negative bacilli to epithelia apical membranes and desquamated epithelial cells in cecum for the animals in high dose group on 3 DPI. These findings suggested that EPEC is a causative agent of hemorrhagic typhlocolitis in common marmosets.