

## OBSERVATIONS OF NON-HUMAN PRIMATE DIARRHEA VIRUSES BY NEGATIVE STAIN ELECTRON MICROSCOPY

C. D. Humphrey\*, B. Jiang\*\*, H. McClure\*\*\*

\*Infectious Disease Pathology Activity,

\*\*Viral Gastroenteritis section, Respiratory and Enterovirus Branch, Division of Viral and Rickettsial Diseases, CDC, Atlanta, GA 30333

\*\*\*Yerkes Regional Primate Research Center, Emory University, Atlanta, GA 30322

Diarrhea is among the most common maladies in man and other animals. Rotavirus is a leading cause of human infantile diarrhea and is known to cause diarrhea in many animal species [1]. Rotavirus and other viruses have been detected by electron microscopy (EM) in fecal specimens of monkeys with diarrhea [2-3], but the role of these viruses in non-human primate viral gastroenteritis has not been established. In an on-going effort to determine the burden of viral gastroenteritis in non-human primates and isolate challenge virus strains for use in the development of an animal model, we examined more than 50 fecal specimens from 4 monkey species and chimpanzees with diarrhea. Negative stain EM was used to make a presumptive identification of the infectious agent in each specimen. Rotavirus was observed by EM in several specimens (Fig. 1) and confirmed by an enzyme immune assay (EIA) for group A rotavirus. Other viruses observed by EM included adenovirus, small round structured (perhaps a Norwalk-like virus variant) (Figs. 2a,b), small round "featureless" (enterovirus-like) particles (Fig. 2c), and occasional suspect retrovirus-like particles. Small featureless particles were the virus-like particle most frequently seen, followed in frequency by rotaviruses and small round structured particles. Studies are under way to examine additional specimens to facilitate an estimate of viral gastroenteritis impact in non-human primates and to characterize these viruses. These studies should increase our understanding of the etiology, epidemiology, and burden of viral gastroenteritis in non-human primates and assist in strategies for prevention and treatment of diarrhea in animals and humans.

### References

- [1] A.Z. Kapikian, Y. Hoshino, R.M. Chanock in *Fields Virology* Vol. 2, 4<sup>th</sup> ed. Lippicott Williams & Wilkins (2001) 1787.
- [2] C.R. Ashley, et al., *Lancet* (1978) 2:477.
- [3] G. Stuker et al., *Lab Anim Sci* (1979) 29:610.

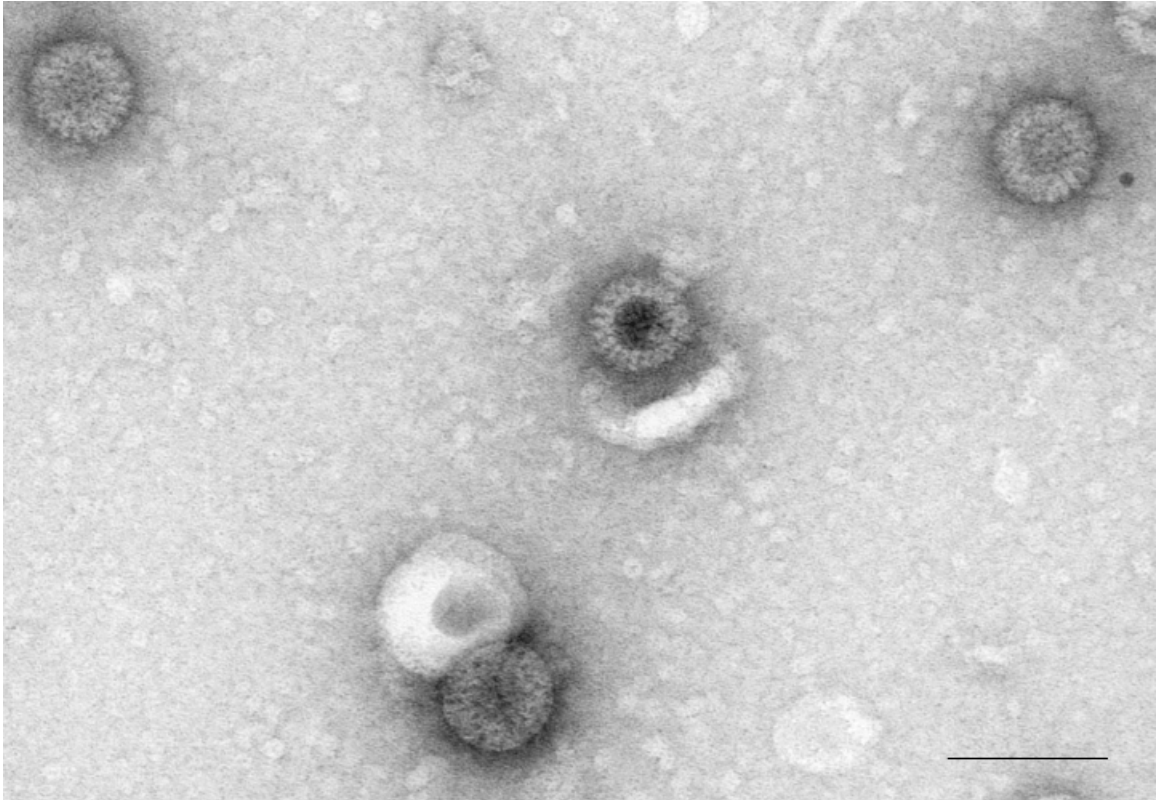


Fig. 1

FIG1. Negative stain electron micrograph of rotavirus in stool from non-human primates. 2% PTA stain, pH 6.5. Bar represents 100 nm.

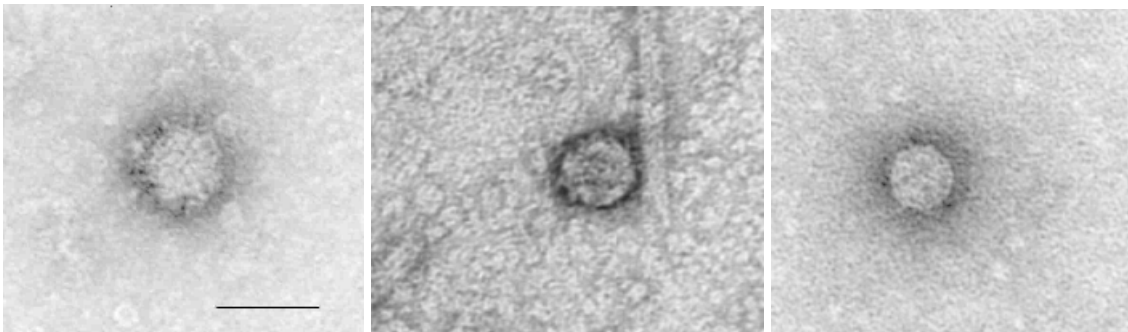


Fig. 2a

b

c

FIG.2. Negative stain electron micrographs of small round structured (a,b) and small round “featureless” virus-like particles (c) in stool from non-human primates. 2% PTA stain, pH 6.5. Bar represents 50nm.