The serotypes of rotavirus are determined by neutralization epitopes in their outer capsid proteins, VP4 and VP7. In the past 5 years, we have conducted P (VP4) and G (VP7) serotype determinations and have reported in previous works the patterns of rotavirus epidemics in Nara Prefecture (1,2). The present report describes the case of a rare P[9]G3 type A rotavirus strain showing the sequence in the VP7 region. It was isolated in Nara Prefecture and was named Nara/2003/12.

The patient, a male infant aged 1 year and 11 months living in Nara City, developed severe vomiting, diarrhea and a fever of 39°C on March 1, 2003. No other family members showed similar symptoms. Determination of the P- and G-types of rotavirus isolated from a fecal specimen was conducted by reverse transcriptase-polymerase chain reaction (RT-PCR) using type-specific primers reported previously (1,2), and a P[9]G3 type rotavirus was identified. To determine the nucleotide and amino acid sequences, the VP7 gene segment (1,062 bp) was amplified by RT-PCR and cloned in a TA cloning vector (Novagen pSTBlue-1 AccepTor Vector Kit; Merck Biosciences, Darmstadt, Germany). DNA sequencing was conducted with a sequencing kit (Thermo Sequenase Cy5.5 Dye Terminator Cycle Sequencing Kit; Amersham Biosciences Corp., Piscataway, N. J., USA). Sequence homology was searched using the Basic Local Alignment Search Tool (BLAST). The determined nucleotide and amino acid sequences are shown in Figs. 1 and 2. The standard strain AU-1 (accession no. D86271) was used as a reference strain.

AU-1 was first isolated and identified as P[9]G3 type human rotavirus in Akita, Japan in 1982 (3). Nucleotide and amino acid sequences between AU-1 and Nara/2003/12 were well conserved; 904 of 976 bases (93%) and 311 of 321 amino acids (97%) were identical.

The high relevance of the AU-1 strain to feline rotavirus has been previously demonstrated (3), however, we interviewed the parents of the patient and confirmed that the patient had no obvious contact with cats. AU-1-like rotaviruses have
been observed in Akita, Yamagata and Tokyo in Japan, as well as in other parts of the world such as the United States, Israel, Brazil, India and China, and Gunasena et al. (4) report that the AU-1-like rotaviruses circulate among humans with low frequency (range: 3.2 to 0.0%). We believe that the case of strain Nara/2003/12 was not a cross-species infection but a rare case of human rotavirus infection.

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REFERENCES