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Identification and phylogeny of L1PA4 elements belonging to the LINE-1 family in primates

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L1(LINE-1) elements are mammalian long interspersed nuclear elements that replicated by retrotransposition. Five major families (L1PA5, L1PA4, L1PA3B, L1PA2, and L1PA1) of elements have succeeded each other from common ancestor. Here, we investigated evolution dynamic of primate L1PA4 elements from LINE-1 family. The L1PA4 elements of the LINE-1 family were detected in hominoids and Old World monkeys. One hundred fifty-one L1PA4 elements from hominoid and Old World monkeys showed a high degree of sequences similarity to those of humans. Deletion or insertion events of the L1PA4 elements were severely appeared in primates, especially chimpanzee and rhesus monkey. Phylogenetic analysis showed that L1PA4 elements have evolved independently during primate evolution. The data could be of great use for future studies primates speciation and human evolution.

다음과 같은 분석을 통하여 포스트 발표를 준비 할 것입니다.

Fig. 1. Structure of LINES

Fig. 2. Phylogenetic tree for the L1PA4 of the LINE-1 family in primates obtained by the neighbour-joining and maxim parsimony method.

Fig. 3. Amino acid sequence alignment of L1PA4 elements.

Fig. 4. PCR analysis of genomic DNA for the presence of the L1PA4 of the LINE-1 family in primates.

Fig. 5. Evolutionary tree for the putative integration of times of L1PA4/retrotransposons in primates.

Table 1. Percentage identity of 151-nucleotide sequences of L1PA4 elements in primates.

Table 2. Percentage identity of ()-amino-acid sequences of L1PA4 elements in primates.

Table 3. Synonymous and non-synonymous substitutions in L1PA4 elements.

Table 4. Pairwise divergences among L1PA4 elements sequences of primates.