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## Alternative splicing of MOBP gene by the insertion of LTR33 element and its conservation in primates

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Myelin-associated Oligodendrocyte Basic Protein (MOBP) is abundantly expressed specifically in oligodendrocytes at the mRNA level and their abnormality of expression level have been investigated in the schizophrenia patient. From the bioinformatic analysis, we found the association of LTR element in transcript variant of MOBP gene. The LTR33 is belonging to ERV1 family and their sequences contribute to the change of coding region of MOBP gene by the production of splicing variants. Two of L1 elements are inserted in the 3′ untranslated region (UTR) of transcript variants. The LTR transcript variant is dominantly expressed in the Alzheimer′s disease brain, whole brain, and spinal cord tissues. To investigate the evolutionary conservation of LTR element of the MOBP gene, primate genomic DNA samples (gorilla, oranutan, gibbon, Japanese monkey, rhesus monkey, and mandril) were used for the PCR and sequencing analyses. Their splicing donor sites (GT) are completely conserved, and the number of tandem repeated element which could be translated are increased (three to four) during the hominoid evolution.

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## Repeat elements and dual coding genes in human genome

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Dementia is progressive disease of increasing the dysfunction of intellectual and physical ability. In the aging society, many families are suffering from the caring the patients who are diagnosed by dementia. However, dementia is complex disease affected the genetic and environmental agents. In most organisms, transcript variants and different proteins were generated from one cellular gene. Among them, a few transcript variants and different proteins could be implicated to disease specific markers through the preventing the original transcript and protein generation. From the analysis of dementia EST sequences, we found six dual coding genes, and analyzed expression profiles and repeat elements using bioinformatics tools. Their coding regions were diversified by the integration of different repeat elements (LTR50, AluY, Alusg, and MER52) during the primate evolution. Integration event of different repeat elements in the ancestor genome could be a trigger for de nove transcript variants with different coding sequence.