

Study on the stop codon recognition of eRF1 in *Loxodes striatus*

Ying LI¹, Do Thi HONG¹, Oanh T.P KIM.² and Terue HARUMOTO³

(¹Dept. Biol. Sci., Grad. Sch. Human Culture, Nara Women's Univ., ²Inst. Biotech., Vietnam Acad. Sci. Technol., ³Dept. Biol. Sci., Fac. Sci., Nara Women's Univ.)

SUMMARY

The genetic code of nuclear genes in some ciliates was found to differ from that of other organisms in the assignment of UGA, UAG, and UAA codons, which are normally assigned as stop codons. In this study, we examined the release activity of *Loxodes striatus* eRF1. Eukaryotic release factor 1 (eRF1) is a key protein in stop codon recognition; thereby, the protein is believed to play an important role in the stop codon reassignment in ciliates. Actually, eRF1 comprises three domains. The stop codon recognition site is located in domain 1. We constructed a hybrid gene that contained eRF1 domain 1 from *Loxodes* fused to eRF1 domain2 and 3 from *Homo sapiens*. An *in vivo* complementation test in yeast was conducted to examine whether eRF1 domain 1 of *Loxodes* recognizes only UGA. The chimeric eRF1 was cloned into a yeast expression vector; then transformed to yeast strains containing the mutated eRF1. Our result suggests that *Loxodes striatus* eRF1 recognizes the stop codon UGA, but not UAA and UAG.