

MOLECULAR BEHAVIORAL RESEARCH IN GREAT APES

M. Inoue-Murayama¹, A. Weiss², K. Kato¹, N. Morimura¹, M. Tanaka¹, J. Yamagiwa¹, G. Idani¹

¹*Kyoto University, Kyoto, Japan*, ²*The University of Edinburgh, Edinburgh, UK*

Presenter's Email: mmurayama@wrc.kyoto-u.ac.jp

Several studies have shown associations between behavioral traits and genetic polymorphisms of neurotransmitter-related proteins in humans. To better understand the evolutionary bases of these genetic polymorphisms, we analyzed homologous genes in nonhuman primates. Nine neurotransmitter/hormone-related genes were surveyed polymorphism in chimpanzees, gorillas, orangutans, siamangs, and Japanese macaques. Comparisons of species revealed that the repeat numbers of variable number of tandem repeats in neurotransmitter-related genes such as dopamine receptor and serotonin transporter increased or decreased from nonhuman primates to humans, respectively. Functional differences of human alleles estimated by cellular expression of different alleles indicate that such differences might have been a factor in human evolution. We also found differences in the allelic distribution between and within species in aggression/affiliation-related candidate genes such as the monoamine oxidase and vasopressin receptor genes. We are presently studying the relationship between personality and genotypes in chimpanzees and gorillas. The findings from these studies will be a useful tool for estimating the susceptibility of nonhuman primates to stress, and thus improving animal welfare in laboratories and zoos.

Keywords: chimpanzee, genetic polymorphism, gorilla, personality evaluation