

Letter to the Editor

Inaugural Issue

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It is my pleasure to address you as the new Editor of JSM Genetics and Genomics. I have been working out with an interest in biochemical and biomedical research so far. I am also interested in homeostatic mechanism of the body in particular, I have examined gene expression and structure of the reactive oxygen species (ROS) scavenging proteins in primate species. ROS scavenging enzymes, superoxide dismutase (SOD), copper chaperone for SOD (CCS) and glutathione peroxidase (GPX), are present in primate body, and these proteins distributed in a tissue specific manner [1-5]. When a molecular evolutionary was carried out in primate ROS scavenging proteins, copper and zinc containing SOD (Cu,Zn-SOD) shown to have evolved differently between primate lineages. The significant high ratio of a nonsynonymous/synonymous (d_N/d_S) rate was found in the lineage leading to great apes and human, showing that this lineage underwent positive Darwinian selection. Cu,Zn-SODs were shown in this study to have evolved rapidly in the lineage leading to great apes and humans. Cu,Zn-SOD is an enzyme that has experienced significant changes in its evolutionary rate [6-8], with very-marked change in mammals [9]. The present results indicate that such acceleration is extremely marked in great apes and humans, whereas in other primate lineages, including Old World monkeys and New World monkeys, the accelerated evolution was not significant. The significant high d_N/d_S ratio for the lineage leading to great apes and humans is incompatible with the neutral theory of evolution [10] and the Cu, Zn-SOD gene might have been under the influence of positive Darwinian selection. Similar adaptive evolution has been found in other primate genes such as those for lysozyme [11] growth hormone receptor and interleukins 6 and 7 [12], although the timing of the outbreak of positive selection seems to be different among these genes. Considering the long generation time and small population size of great apes and ancestral humans, the positive selection of Cu,Zn-SOD gene in these primate lineages is noteworthy and might be correlated with human evolution. Various resulting amino acid substitutions were observed in human and great ape Cu,Zn-SODs which might affect the function of the enzyme. Although, as mentioned previously, the role of Cys111Ser mutation has been addressed, most other substitutions remain to be specified. Genome sequencing of many organisms currently being done, and there is a possibility that is hidden a mutation is a very significant event in the evolution of life also in it. My interest is such a case and how that mutation is influenced for the organism.

I am also interested in biodiversity on the other hand. Okinawa Island, Japan, where I live belongs to the subtropical current,

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many endemic species is habit. However, its uniqueness is being lost by invasive alien species, small Indian mongoose (*Herpestes javanica*) are introduced in 1910. We developed sniffer dogs which detected the mongooses and their scats and monitored in Okinawa Island [13]. I am working on genetic diversity analysis of the mongoose using the genomic DNA contained in scats that the mongoose detection dogs found. I will also perform the genetic diversity analysis for the endemic species in the islands of the world.

I am waiting for the new findings from many researchers.

Thank you.

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