

**SHORT TANDEM REPEAT (STR) LOCI IN PRIMATES DETECTED BY FOUR FLUORESCENT-BASED  
MULTIPLEX PCR AMPLIFICATION AND TYPING KITS**

**Toshimichi Yamamoto<sup>1</sup>, Hiroyuki Ohtaki<sup>1</sup>, Uchihi Rieko<sup>1</sup>, Takashi Yoshimoto<sup>1</sup>, Masaki Mizutani<sup>1</sup>, Li Shi-Lin<sup>1</sup>, Keiji Tamaki<sup>2</sup>, and Yoshinao Katsumata<sup>1</sup>**

<sup>1</sup>*Department of Legal Medicine & Bioethics, Graduate School of Medicine, Nagoya University, Japan*

<sup>2</sup>*Department of Legal Medicine, Sapporo Medical University School of Medicine*



In nonhuman primates, 17 STR loci were investigated using four commercially available multiplex PCR amplification and typing kits, the Ampf/STR Profiler Plus™, COfiler™, and SGM plus kits and the GenePrint® PowerPlex™ 16 system, and DNA samples of nonhuman primates analyzed were apes (6 species), Old World monkeys (OWM; 8 species), New World monkeys (NWM; 6 species) and prosimians (2 species). DNA samples were amplified and analyzed with the Genetic Analyzer 310. No amplified peaks were observed with prosimians and cotton-top tamarin in NWM. Owl monkey samples in NWM were not amplified except some peaks corresponding to D5S818, D13S317 and the amelogenin X regions. Other NWM samples only showed a peak corresponding to the amelogenin X region in both sexes. All OWM samples of both sexes showed the amelogenin-X-peak and the peaks in and/or near the ranges of the allelic ladders at TPOX and CSF1PO. In all apes, the amelogenin locus clearly showed their gender correctly. A considerable number of STR loci could be typed in apes like humans, and the number tended to increase in phylogenetic order. In general, more loci were amplified using the PowerPlex™ system than the Ampf/STR kits at the same species. For examples, in pygmy and common chimpanzee, 8 out of 15 STR loci were genotyped as same as human, 4 were amplified as off-ladder and/or out-of-ladder alleles, and 3 were not amplified at all using the three Ampf/STR kits. On the other hand, 8 out of 15 STR loci in common chimpanzee but 7 out of 15 in pygmy were genotyped as same as human, and 7 were amplified as off-ladder and/or out-of-ladder alleles in both chimpanzees using the PowerPlex™ system. D13S317 locus in pygmy chimpanzee was not amplified at all.

The present data about the STR loci detected by some kits in primates will be useful for forensic case works, especially when nonhuman primates must be excluded.