



Identification of polymorphisms and transcriptional activity of the proto-oncogene *KIT* located on both autosomal and B chromosomes of the Chinese raccoon dog

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ABSTRACT. B chromosomes are dispensable and co-exist with autosomal and sex chromosomes. The karyotype of the Chinese raccoon dog (*Nyctereutes procyonoides procyonoides*) comprises 0-4 B chromosomes. The proto-oncogene *KIT* is found on all B chromosomes of the Chinese raccoon dog. In the present study, partial DNA and mRNA sequences of *KIT* were amplified and sequenced from four individuals containing B chromosomes. Sequence analyses revealed that polymorphisms including single nucleotide polymorphisms (SNPs) and inserts/deletions were rich in the *KIT* gene of Chinese raccoon dog at the genomic level. However, no polymorphism was detected at the mRNA level. A comparison of mRNA sequences from Chinese raccoon dogs with the corresponding sequences derived from arctic fox and dog, which do not contain B chromosomes, revealed the mRNA sequences of the 10 SNPs to be identical between these three species. Therefore, these findings suggest that *KIT* located on the B chromosomes in Chinese raccoon dog lacks transcriptional activity.

Key words: Chinese raccoon dog; *KIT* gene; Polymorphism; B chromosome