

Genetic Diversity of Five Native Populations (Dusun, Rungus, Sonsogon, Murut and Sungai-Lingkabau Paitan) of North Borneo, East Malaysia based on 17 Y-chromosomal Short-Tandem Repeats Polymorphism

ABSTRACT

In this study, we typed 51 male individuals from North Borneo using 17 Y-chromosome STRs contained in the AmpFLSTR® Yfiler® kit (Applied Biosystems). These individuals constitute five indigenous ethnic populations representing the three major linguistic groups (Dusunic, Murutic and Paitanic): the Dusun (n=7), Rungus (n=12), Sonsogon (n=12), Murut Paluan (n=12), and Sungai Lingkabau Paitan (n=8). A total of 37 haplotypes were identified, of which 30 individuals were represented by a single haplotype. The mean \pm S.D. haplotype diversity was 0.600 ± 0.181 and the discrimination capacity was 0.725. The results also showed that the haplotype H33 was the most frequent haplotype observed in the sampled male populations occurring exclusively in the Murut population. Comparative analysis between Y-haplotype populations of North Borneo and the ethnic populations (Bidayuh, Iban, and Melanau) of neighbouring Sarawak (East Malaysia) i.e. indicated that the Sungai Lingkabau Paitan was more closely associated with the Melanau with respect to Y-haplotype descent ($RST = -0.0023$). In addition, the Multidimensional Scaling (MSD) analysis managed to clearly differentiate the eight groups from Borneo. We concluded that the 17 Y-chromosome STRs data of North Bornean populations are valuable resources in the applications of forensic and population genetics of the ethnic groups.