



Phylogenetic relationships of the Orang Asli and Iban of Malaysia based on maternal markers

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ABSTRACT. Malaysia remains as a crossroad of different cultures and peoples, and it has long been recognized that studying its population history can provide crucial insight into the prehistory of Southeast Asia as a whole. The earliest inhabitants were the Orang Asli in Peninsular Malaysia and the indigenous groups in Sabah and Sarawak. Although they were the earliest migrants in this region, these tribes are divided geographically by the South China Sea. We analyzed DNA sequences of 18 Orang Asli using mitochondrial DNA extracted from blood samples, each representing one sub-tribe, and from five Sarawakian Iban. Mitochondrial DNA was extracted from hair samples in order to examine relationships with the main ethnic groups in Malaysia. The D-loop region and cytochrome *b* genes were used as the candidate loci. Phylogenetic relationships were investigated using maximum parsimony and

neighbor joining algorithms, and each tree was subjected to bootstrap analysis with 1000 replicates. Analyses of the HVS I region showed that the Iban are not a distinct group from the Orang Asli; they form a sub-clade within the Orang Asli. Based on the cytochrome *b* gene, the Iban clustered with the Orang Asli in the same clade. We found evidence for considerable gene flow between Orang Asli and Iban. We concluded that the Orang Asli, Iban and the main ethnic groups of Malaysia are probably derived from a common ancestor. This is in agreement with a single-route migration theory, but it does not dismiss a two-route migration theory.

Key words: Orang Asli; Iban; Malay; Cytochrome *b*; D-loop