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Genetic polymorphisms of loci D18S53, D18S59, and D18S488 in fetuses from a Chinese Tianjin Han population

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ABSTRACT. We investigated the genetic polymorphisms of three short tandem repeat (STR) loci, D18S53, D18S59, and D18S488, on chromosome 18 in fetuses from a Chinese Tianjin Han population. Sixty-four villus samples and 374 amniotic fluid samples were collected from fetuses. Quantitative fluorescence polymerase chain reaction was performed to amplify the STR loci, followed by scanned electrophoresis and quantitative analysis of the fluorescence signals. Hardy-Weinberg equilibrium (HWE) analysis was performed based on the genotype distributions of the STR loci to obtain the following population genetic data: genotype frequency, heterozygosity of observation (H_O), polymorphism information content (PIC), probability of discrimination power (PD), and probability of exclusion (PE). We detected 15, 13, and 15 alleles of D18S53, D18S59, and D18S488, respectively. The genotype frequencies were found to be in line with HWE. The H_O values of the three loci, D18S53, D18S59, and D18S488, were 0.797, 0.847, and 0.792; the PIC values were 0.81, 0.75, and 0.73; the PD values were 0.944, 0.901, and 0.881; and the PE values were 0.593, 0.689, and 0.585, respectively. D18S53, D18S59, and D18S488 loci are

good genetic markers of chromosome 18, and show potential for use in the prenatal genetic diagnosis of Edwards' syndrome.

Key words: Genetic polymorphisms; Fetus; Chromosome 18; Short tandem repeat

