

Thesis Title Gender Verification by Polymerase
 Chain Reaction of Human Zinc Finger Y (ZFY)
 Gene

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ABSTRACT

Sex determination for genetic diagnosis, forensic purpose and sport test were investigated in this thesis. A Y-specific sequence human ZFY (Zinc-finger-Y) gene which was considered the best candidate for the human testis-determining gene (TDF) on the human Y chromosome and postulated to initiate testis differentiation during embryogenesis was amplified by an in vitro Nested PCR technique. Varieties of human specimen consisting of 200 peripheral blood samples, 21 amniocyte fluids and 57 single hair roots were tested. This technique was found to permit detection of ZFY gene DNA sequence in as few as a single male cell among 100,000 female cells. The results of the amplification of ZFY gene DNA sequence from different types of human specimen were

compared statistically with the real sex using two by two analysis indicated 100% sensitivity, 100% specificity, 100% positive predictive value, 100% negative predictive value and 100% efficiency for sex determination from DNA of whole blood and amniocytic fluids, 100% specificity, 100% positive predictive value but only 40% sensitivity, 55% negative predictive value and 60% efficiency for sex determination from DNA of a single hair root. The results herein demonstrated the usefulness of PCR detection of Y-specific sequence in different types of human specimen.