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PCR Based ABO Blood Typing and Gender Determination

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Using PCR amplification, ABO blood genotype and the gender of unknown specimen could be determined. The genomic fragments coding ABO related enzymes, 3-N-acetylgalactosaminyl transferase and 3-galactosyl transferase, were amplified and subsequently digested with corresponding restriction enzymes. Comparing restriction pattern of each fragment, ABO blood genotype was determined. The intron part of amelogenin gene located on sex chromosome was also amplified in order to verify the gender of specimen. The male showed heterozygote band pattern while female showed homozygote due to the length variation of intron in each X and Y chromosome. These results will provides useful tools for the forensic identification and genetic analyses.

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Estabilishment of Transgenic *Drosophila* Bearing Metallothionein-LacZ Fusion Genes

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Metallothioneins (MTs) are small, cystein-rich metal binding proteins. Expression of the MT genes increases at transcriptional level in response to heavy metals and other adverse treatments. To obtain experimental system for roles of MT and for biosensor of environmental heavy metal pollution at the level of the whole organism, we established transgenic flies carrying MT-lacZ fusion genes by the P-element mediated transformation method with the reporter plasmid pMT-lacZ, in which lacZ gene is located under the control of MT promoter fragment (-320 to + 76 with respect to the transcription initiation site). We examined spatial pattern of the MT-lacZ expression during development and in adult tissues. And we also confirmed that expression of the lacZ gene under the MT promoter in transgenic larval tissues is induced in response to $\geq 30\mu M$ $CdCl_2$. The MT-lacZ transgenic flies obtained in this study promise to be useful for studying roles of MT genes and for biosensor of heavy metal pollution.