

INTERNAL VALIDATION OF POWER PLEX® Y23 SYSTEM AND YFILER® PLUS KITS FOR GENETIC STUDY

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Y-chromosomal STRs (Y-STR) are widely used for investigating cases of sexual or violence crime. It is also useful for genetic paternity test. The analysis of Y-STR can show the male-specific profile from the male-female mixture as well as it reveals paternal lineages, because the characteristic of Y chromosome is usually transmitted from fathers to sons without mutation. Recently, the new kits for Y-STR are released. They are Yfiler®Plus(Y-Plus) and Power Plex® Y23 System (Y23) Kits, and they target 27 loci and 23 loci, respectively. The internal validation was carried out by Sensitivity Test, Mixture Test and Inhibitor Test before using in a laboratory. Sensitivity Test was performed with 1ng to 31.25 pg of 2800M DNA. As results, both Kits generated full Y-STR profile until 125 pg of DNA. For the Mixture Test, 2 of different groups are compared which are male-male mixture and male-female mixture. The 3 types of inhibitors, Tannic Acid, Humic Acid and Hematin, were used for Inhibitor Test. Both of the Kits produce successful Y-STR profile under condition of 500 µg/ml of Tannic Acid or Humic Acid. Result of validation test suggests that Y-Plus and Y23Kits will very useful to analyze male-specific profiles and paternal lineages.