

Insertion-Deletion Polymorphisms (INDELS) – Utilization on forensic analysis

Pablo Francez

Technical-Scientific Police, Brazil

INDEL markers are very frequent in the human genome and present several advantages for population and forensic studies, such as low mutation rates, easy interpretation, small amplicons, easy genotyping and the possibility of using multiplex PCR. The great adaptability of INDELS for amplification of low copy number or degraded DNA allows its using as an interesting platform of genetic identity by DNA in forensic cases. In the present study, we tested the ability of 48 diallelic INDEL markers on genotyping forensic samples collected from different biological samples (vaginal secretion, cartilage, tooth, bone, blood, dried blood spot and oral mucosa cells) related to criminal cases. Moreover, we evaluated the lowest DNA concentration with which there was amplification of all markers from each one of the Indel-Plex panels. When comparing the performances obtained by three Indel-Plex panels described in this study with results obtained using Identifiler® kit (Applied Biosystems), related to forensic samples as well as to control samples with different concentrations of DNA, we observed superior efficiency on samples with low-copy number or in the presence of inhibitors.

pabdon@uol.com.br