DNA ANCESTRY ANALYZER: AN AUTOMATIC PROGRAM FOR ANCESTRY INFERENCE OF UNKNOWN INDIVIDUALS

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The DNA Ancestry Analyzer Version 1.0, or DAA v1.0, was established based on the probability algorithm, clustering analysis and principal component analysis to infer ancestry for unknown individuals. The basic part of DAA v1.0 was written in Python, R and C; and the front part was written in node.js, HTML, and css. DAA v1.0 can estimate continental ancestry components of unknown individuals and populations. Compared with the traditional analysis method, the consistency of DAA v1.0 is 100%, and the efficiency is improved by about 600%. It can calculate the population assignment match probability (AMP), likelihood ratio (LR), population ancestry component and draw the figure of classification of unknown individual automatically, and has important practical values in the field of human genetics and forensic genetics.

Key words: forensic genetics; ancestry inference; automatic analyzer; DNA Ancestry Analyzer Version 1.0 (DAA v1.0); bioinformatics