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Massively parallel sequencing of microRNA in bloodstains and evaluation of environmental influences on miRNA candidates using realtime polymerase chain reaction

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Highlights

- MiRNA profile of bloodstain was established with massively parallel sequencing
- Novel miRNAs identified in bloodstains represent candidate identification markers
- Freezing/thawing and high concentration of oxidant affect the expression of miRNA significantly
- MiRNA profiling with massively parallel sequencing would be beneficial for forensics analyses

Abstract

MicroRNAs (miRNA) are small (22–24 nucleotides) non-coding RNAs with potential application in forensic science because of their anti-degradation property and tissue specificity. Recent studies on the use of miRNA in forensic applications have mainly focused on body fluid identification using realtime polymerase chain reaction or microarray analysis. However, the exploration of miRNA in bloodstains, which are the most valuable source of biological evidence during a case investigation, is