
Title: The information gain from peak height data in DNA mixtures

Author: K. Slooten

PII: S1872-4973(18)30330-2
DOI: https://doi.org/doi:10.1016/j.fsigen.2018.06.009
Reference: FSIGEN 1907

To appear in: *Forensic Science International: Genetics*

Received date: 1-11-2017
Revised date: 23-5-2018
Accepted date: 7-6-2018

Please cite this article as: K. Slooten, The information gain from peak height data in DNA mixtures, <*[CDATA[Forensic Science International: Genetics]]*> (2018), https://doi.org/10.1016/j.fsigen.2018.06.009

 

**Title: The information gain from peak height data in DNA mixtures**

**Authors: prof. dr. K. Slooten (corr. author)**

Affiliation: VU University Amsterdam, Netherlands Forensic Institute (NFI)

Email: k.slooten@nfi.minvenj.nl

Abstract: We present the results of a comparison of likelihood ratios obtained from DNA mixture data, obtained either by a peak height model (EuroForMix) and by a discrete model, using probabilities of dropout and integrating over them (MixKin). We use the mixture data that have been published in \cite{bleka2016} and were made publicly available. We show that, for mixtures for which replicate analyses were available in this set, there is almost no difference in weight of evidence, suggesting that the additional information in the peak heights is limited. On the other hand, for mixtures for which only a single replicate is available, the weight of evidence for true donors can be substantially higher with the peak height model, especially so for major donors and also for minor donors provided they are the only minor contributor to the mixture. False positive rates were very low with both methods, but for related non-contributors the risk of a false positive is much higher with the discrete method unless kinship is taken into account in the likelihood ratio calculation.

Keywords: DNA mixtures, Weight of evidence