

STRmix Team Releases DBLR™ v1.4, Updated Tool for Calculating Likelihood Ratios in DNA Evidence

DBLR™ v1.4 Enables Kinship Analysis, Rapid Database Searches, Mixture-to-Mixture Matches

WASHINGTON, DC, UNITED STATES, June 14, 2024 /EINPresswire.com/ -- DBLR™ v1.4, the latest version of an investigative application designed for [Kinship analysis](#) and rapidly calculating

millions of likelihood ratios (LRs) in DNA evidence, has been released by the same team that created groundbreaking [forensic software](#) STRmix™.



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DBLR™ developer Dr. Maarten Kruijver

When utilized in conjunction with STRmix™ – which is being used worldwide to resolve mixed [DNA profiles](#) previously regarded as too complex or degraded to interpret – DBLR™ enables forensic laboratories to expedite database searches, visualize the value of DNA mixture evidence, carry out mixture-to-mixture matches, determine whether there is a common donor between samples, and evaluate support for any conceivable family relationship.

The new version of DBLR™ allows the Amelogenin locus to

be included in LR calculations across all DBLR™ modules.

“In addition, a change has been made to DBLR™ v1.4’s kinship LR calculations to take into account the sex of pedigree members in calculations,” explains Dr. Maarten Kruijver, developer of DBLR™. “This was ignored in previous versions of DBLR™ because data at the Amelogenin locus was not used in the calculations.”

Noting that STRmix™ deconvolutions for the Amelogenin locus can also be used in DBLR™ v1.4, Dr. Kruijver adds, “Since having gone live in casework, laboratories have found DBLR™ to be extremely useful for multiple applications, including performing unidentified human remains identification, saving analysts hours of manual kinship calculations. It is also effective in generating intelligence for cold cases when looking at profiles that span multiple items and may contain related or common DNA donors.”

DBLR™ enables forensic laboratories using STRmix™ to explore the interpretation results from a DNA profile given different hypotheses. Thousands of LRs can be calculated and plotted to determine the expected range for different hypotheses, quickly helping to inform whether a profile is suitable for comparison with a person of interest or suitable for entry onto a database for matching.

Like prior versions of the software, DBLR™ v1.4 allows STRmix™ users to:

- Apply population stratification and utilize sequence-based data from STRmix™ NGS in the Kinship, Search Database, and Explore Deconvolution modules;
- Leverage probabilistic links within the Kinship module to probabilistically condition on the presence of a sample donor;
- Undertake direct comparison of one or many components of a forensic DNA mixture to a database of known individuals;
- Determine the most probable genotypes of contributors to a profile;
- Combine multiple evidence profiles under the assumption that there is a common contributor within different samples;
- Build any pedigree imaginable and calculate LRs given different propositions; and
- Model linkage, mutation, and FST in the Kinship module.

STRmix™, DBLR™, and a third software package developed by the STRmix team, FaSTR™ DNA, complete the full workflow from analysis to interpretation and database matching. FaSTR™ DNA rapidly analyzes raw DNA data generated by genetic analyzers and standard profiling kits and assigns a number of contributors (NoC) estimate.

The effectiveness of these solutions, coupled with the highly successful track record STRmix™ has established in producing usable, interpretable, and legally admissible DNA evidence in more than 530,000 criminal cases, has led to their widespread adoption in forensic labs worldwide.

Currently, 85 federal, state, local, and private organizations in the U.S. regularly use STRmix™ for DNA analyses. Internationally, STRmix™ is now being used by a further 27 forensic laboratories, including labs in Canada, the United Kingdom, Europe, Asia, the Middle East, and the Caribbean, as well as all state and territory forensic labs in New Zealand and Australia.

For more information about STRmix products, visit www.strmix.com.

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