

Performance Check of running 3500 POP-4 Polymer on 3130xl Instrument
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Background

The 3130 capillary instruments went end of use December 31st, 2022. Applied Biosystems (ABI) stopped production and sale of the 3130 consumable reagents in 2022. With the end of use of these instruments, Idaho State Police Forensic Services has sped up the validation of the new 3500 capillary instruments. However until both Casework and Database can put their 3500s into service, both sections are continuing to run on the 3130s. While there are third party suppliers that sell POP-4 polymer made for use with the 3130s, for continuity the unit wishes to use the ABI reagents. After confirmation from Applied Biosystems that the 3500 POP-4 is the same polymer as the 3130 POP-4, just packaged differently, it was decided to use the 3500 POP-4 on the 3130s.

Objective

To perform performance check that the 3500 POP-4 will produce similar results as the 3130 POP-4 when used on the 3130s.

Method

The 3500 POP-4 is packaged in a plastic pouch, whereas the 3130 POP-4 is packaged in a plastic bottle. The packaging differences are due to how the polymer is installed upon the instrument. To utilize the 3500 POP-4 on the 3130, an empty polymer bottle was reserved and rinsed out with nanopure water, wiped down with a kimwipe, and allowed to air dry. A corner of the 3500 POP-4 was cut and the polymer squeezed out into the empty 3130 bottle. The polymer bottle was then labeled with the lot number and expiration dates of the 3500 POP-4. This polymer was then installed onto the 3130xl (Bernie).

After installing the polymer, a plate was set up to be injected to confirm that the same results are obtainable with both polymers. The samples from Database plate 041823JLC were utilized. This plate had six database samples, a reagent blank, a negative control, and a positive control – for a total of 9 samples. The remaining wells were filled with Allelic Ladder for a total of 16 samples injected. Samples were injected at 3 seconds. The reset plate was labeled 050223JLC_3500.

The data from this injection was analyzed in GeneMapper ID v3.2.1 along with the data from the original injection of the 041823JLC data. Only the 3 second injection of the 041823JLC data was used.

Results

The 050223JLC_3500 data had one bad injection of a DB sample due to low ILS and one bad injection of an Allelic Ladder due to broad peaks. The remaining samples performed as expected. A comparison of each sample was made and there were no differences in allelic calls, though some differences in RFUs which is to be expected as the amplified product had been stored for two weeks.

Conclusion

The 3500 POP-4 polymer performed the same as the 3130 POP-4 polymer and is fit for use on the 3130 capillary instruments.



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