TipNovus Validation - PCR Pipette Tips

Purpose

To validate the Grenova TipNovus tip washing and drying system to ensure that the tips used to add DNA and/or TAQ can be used multiple times following a wash and dry cycle on the Grenova TipNovus System.

Materials used:

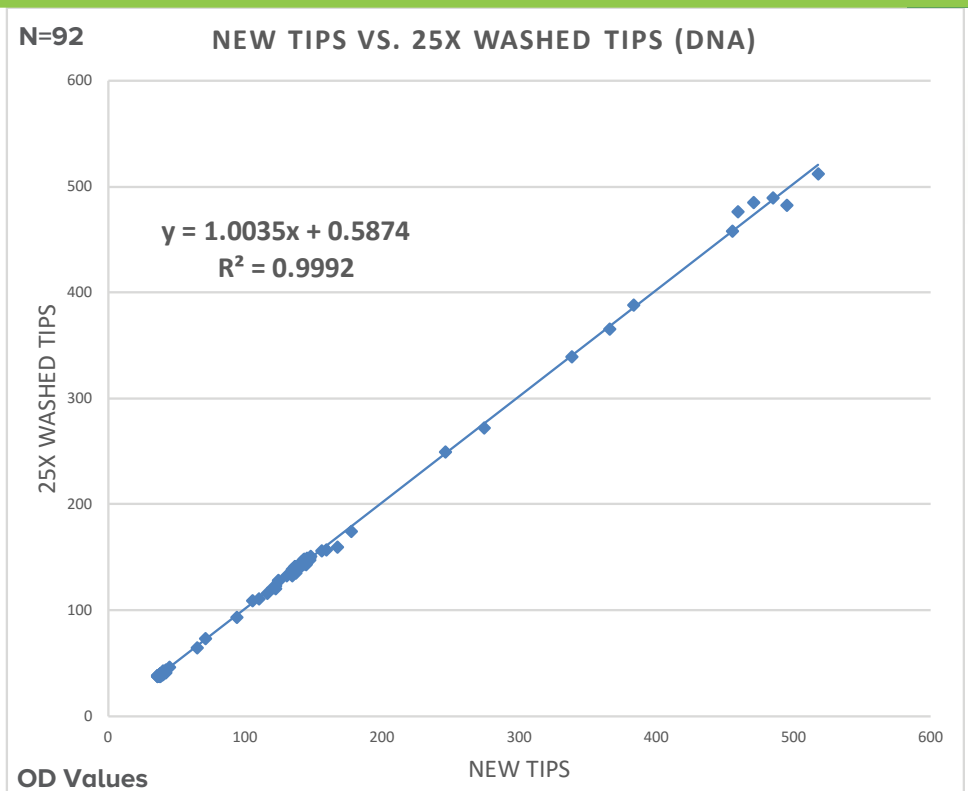
- Grenova TipNovus
- 50uL Hamilton Tips
- Hamilton STARlet
- Thermocyclers
- Deep Well Plates filled with previously tested diluted DNA
- Deep well plates filled with Molecular Grade Water
- MMix ()
- Taq
- Fluorescein Solution
- Synergy Plate Reader

Procedures:

DNA Pipette Tips Washing:

PCR plates were placed on the Hamilton STARlet and ran with water and new tips. Taq was then added by the Hamilton STARlet with new tips. This was done to give a baseline (blank) data for the tips. The plates where then loaded on the thermocyclers and once completed the plates were read. The next step was to test that the Grenova TipNovus could remove any residual DNA after washing and drying the tips. The Grenova tip carrier was loaded onto the Hamilton STARlet with the tip blister pack (DI water was added to the blister pack bottom that was placed in the Grenova tip carrier to help with washing). The plates with MMix were placed on the Hamilton STARlet, along with the deep well plates. The PCR set up program (with modifications to allow the reracking of tips into the Grenova tip carrier) was selected on the Hamilton STARlet and DNA was added to the PCR plates with new tips. Taq was added by the Hamilton STARlet using new tips. Plates were sealed, shaken and placed on the thermocyclers. The tips that were re-racked back on the Grenova tip racking tray were taken off the Hamilton STARlet and placed in the Grenova TipNovus and the wash and dry cycles were ran. To test for residual carryover of DNA, the cleaned tips were used to add water in place of DNA on the Hamilton STARlet to the PCR plates containing MMix. New tips were used to add Taq to the plates on the Hamilton STARlet. Plates were sealed, shaken, and placed on the thermocyclers. This was repeated for 25 runs washing the tips each time after patient DNA was added to the plates and always using new tips to add Taq to the water and patient DNA plates. All plates were read on Synergy Plate Reader.

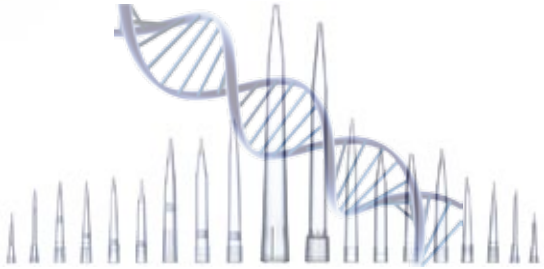
Results: New Tips vs. 25x Washed Tips (DNA)



OD Values

Conclusion

The Grenova TipNovus operated in a way that will allow the use of washed and dried tips to be used multiple times in the Molecular Biology Department.



Outcomes

Reduce Pipette Tip Cost and Waste by up to 96%

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TipNovus Validation - PCR Pipette Tips

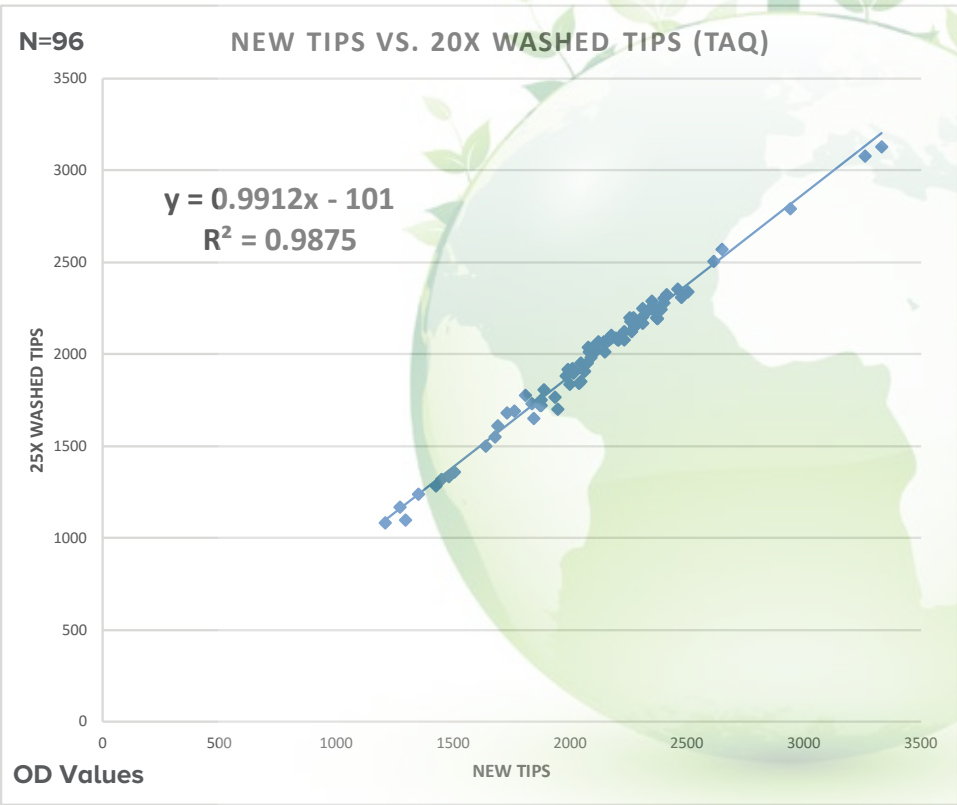
TIPNOVUS

PROCEDURES:

TAQ Pipette Tips Washing:

To test the tips for washing Taq the same 3 analytes were tested The Grenova tip carrier was loaded on the Hamilton STARlet with the tip blister pack (with DI water in the blister pack placed in the Grenova tip carrier). The plates with MMix were loaded onto the Hamilton and new tips were used to add patient DNA to the MMix. These tips were discarded and new tips were used to add Taq to the plates. The plates were sealed, shaken, and placed on the thermocyclers. The Taq tips were kept and placed in the Grenova TipNovus; washed and dried. The Hamilton STARlet was loaded with plates containing MMix. New tips were then used to add water to the PCR plates. The washed Taq tips were loaded onto the Hamilton STARlet and used to add Taq to the PCR plates containing MMix and water. Plates were sealed, shaken, and loaded on the thermocyclers. This was repeated 20 times each time using new tips to add patient DNA and water to the PCR plates and washed Taq tips were used to add Taq to the water plates. All plates were read on Synergy Plate Reader..

Results: New Tips vs. 20x Washed Tips (TAQ)



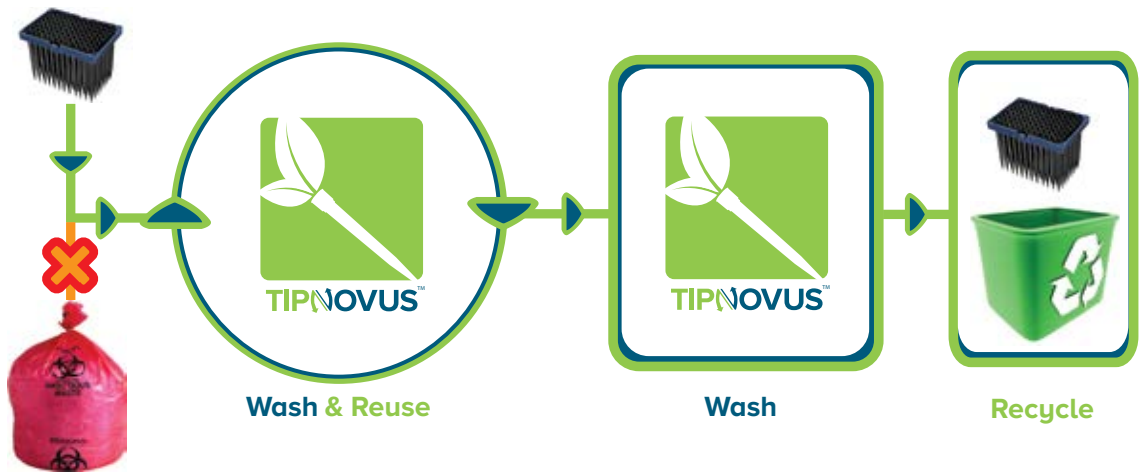
Precision and Accuracy

New and Used tips were used to test the precision and accuracy of the washed tips to ensure they maintain their integrity through multiple wash/dry cycles on the Grenova TipNovus system. The DNA addition program was tested by using a dilution of fluorescein (diluted to a dilution similar to high dilution plates) and 2uL of this solution was added to the wells of a previously used diluted DNA plate; the Hamilton STARlet was then used to add this DNA mixture to a PCR plate containing TE with new tips and washed tips from the DNA Tip Washing step above; this was done to mimic the different DNA addition volumes. The plates were then read on Synergy Plate Reader. The diluted fluorescein solution was used to test the TAQ addition program. The Hamilton STARlet used this dilution to add "TAQ" to plates containing 60uL of TE to mimic the different TAQ addition volumes with new tips and washed tips from the TAQ Tip Washing step above. The plates were then read on Synergy Plate Reader.

Conclusion

The Grenova TipNovus operated in a way that will allow the use of washed and dried tips to be used multiple times in the Molecular Biology Department.

STOP WASTING | **START SAVING** | **BECOME GREEN**



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