X-RESIN® TECHNOLOGY - DNA

"Pipetting error" is a phrase that is commonly heard in research laboratories. When preparing reagents and master mixes, pipetting error is accommodated for. What is not typically discussed or published are the causes and ramifications of pipetting error.

Pipetting error can lead to inconsistent results especially with low abundance molecules. Researchers waste hours of time, reagents, and valuable samples accounting for inconsistent results. User error is a common problem. However one variable that many laboratories do not consider is the pipette tip.

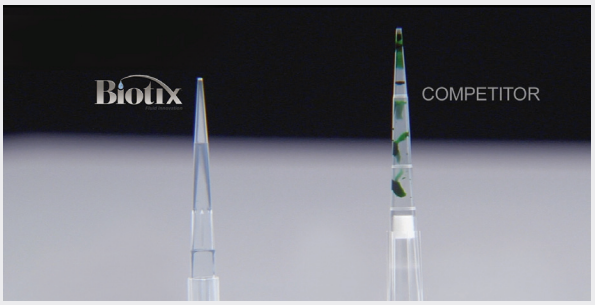
While barrier tips or "filter tips" can reduce sample carryover, they do not address the issue of molecules sticking to the plastic or sample retention. In Figure 1, sample retention by non-low retention tips is demonstrated with green dye compared to Biotix® low-retention tips with X-Resin® technology.

Biotix tips with X-Resin technology provide:

- **Naturally low retentive qualities**
- **Superior tip clarity**
- **Maximal sample uniformity and improved CV values**
- **Prevention of sample loss during pipetting**

To further examine the effects of pipette tips on sample retention, a comprehensive study (validated by an independent third party research institute) was conducted to measure sample loss after dispensing fluorescently labeled human DNA in three tip brands: Biotix; Competitor A (low retention tip); Competitor B (non-low retention tip).

FIGURE 1: BIOTIX LOW RETENTION PIPETTE TIP COMPARED TO NON-LOW RETENTION PIPETTE TIP



Methods:

1. 100 µl of fluorescent DNA solution was drawn up and down 3 full times with final dispense to original tube
2. 100 µl of dH_2O was drawn up and down 3 full times and dispensed into fresh 0.5 ml tube
3. Steps 1 & 2 were repeated for all tip brands
4. DNA solutions were analyzed for residual fluorescent signal originating from retention of DNA solutions on pipette tip

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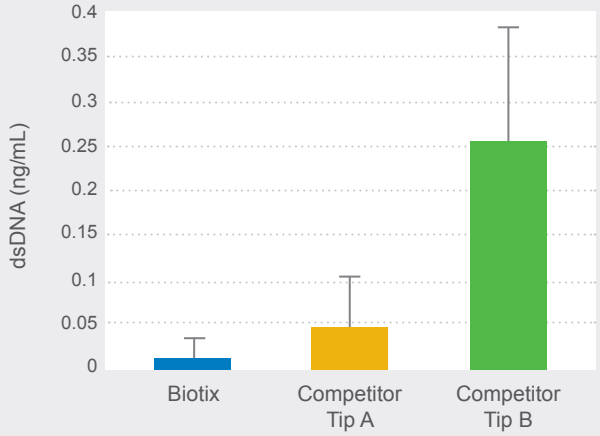
TABLE 1: RESIDUAL DNA CARRYOVER

Sample	5 µl	10 µl	Mean (µg/ml)	SD
Negative Control	Too Low	Too Low	Too Low	Too Low
DNA 20 µg/ml	22.000	11.000	16.500	7.778
Biotix - 1	0.036	0.047	0.042	0.008
Biotix - 2	Too Low	Too Low	Too Low	Too Low
Biotix - 3	Too Low	Too Low	Too Low	Too Low
Competitor Tip A - 1	0.119	0.115	0.117	0.003
Competitor Tip A - 2	Too Low	Too Low	Too Low	Too Low
Competitor Tip A - 3	0.028	0.426	0.035	0.010
Competitor Tip B - 1	0.130	0.448	0.289	0.225
Competitor Tip B - 2	0.367	0.203	0.285	0.116
Competitor Tip B - 3	0.205	0.185	0.195	0.014

Results:

There was a significant difference among the three tips in the volume of sample loss due to residual DNA solution left in the tips. As seen in Table 1 & Figure 2, Biotix tips demonstrated the best consistency and efficiency of delivering DNA samples.

FIGURE 2: GRAPH OF RESIDUAL DNA CARRYOVER IN TIPS



Why risk your results!

Additional benefits of Biotix pipette tips that enhance the efficiency and accuracy of assay results include:

- FlexFit® technology is engineered with flexible proximal tip ends to reduce pressure from insertion and ejection forces
- Exclusive Delta Filter® technology to instantly detect contamination and reduce sample carryover – filter turns blue
- Blade® technology to minimize surface area on distal end of tips leading to better precision

DARE TO TEST YOUR ASSAY? TAKE THE TIP CHALLENGE!

Order your first sample and see the difference.
Visit www.biotix.com for fun videos and to learn more.

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