

EXTRACTING DNA FROM BLOOD AND SALIVA WITH THE SOLO AUTOMATED PIPETTOR

Introduction

Extracting DNA from Blood and Saliva is an essential but time consuming task required to support a variety of downstream processes. DNA extractions typically require manual processing, significant capital equipment, or implementation of single-purpose instrumentation with limited capability.

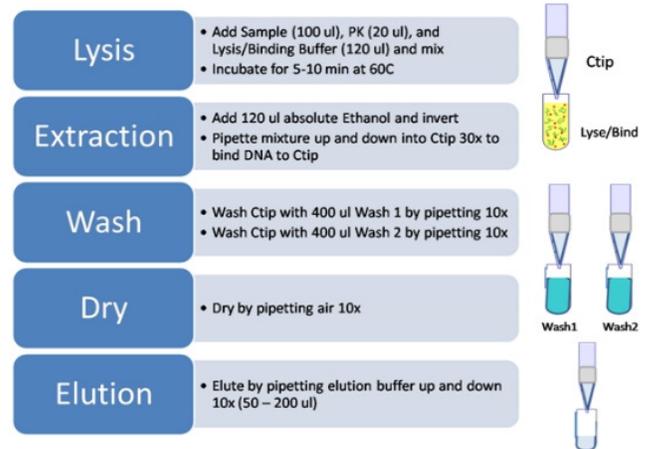
Hudson Robotics has developed a fully automated, turnkey solution for DNA extractions using the Solo automated pipettor. Hudson's automated solution utilizes the proven SingleTip DNA extraction technology. SingleTip is a simplified DNA extraction process that utilizes an adapted pipette tip to capture the desired DNA and facilitates washing and elution of the product.

Features

Automating the SingleTip process removes variability in protocol execution and can facilitate precise sample tracking.

- 1-8 samples per run
- 30 mins per run
- Easy to use
- No columns, magnetic beads or centrifuges needed

Method



Results

DNA yields from blood can be patient dependent. We selected two patients (A and B) for our DNA from blood extraction test. In one experiment, 4 DNA extractions from Patient A were run in parallel. The resulting average DNA yield was 7.5ng/uL, with a standard deviation of 1.3ng/uL. In a second experiment, 2 samples from Patient A and 2 samples from patient B were processed in parallel. The samples extracted from Patient A averaged 8ng/uL and the Patient B samples averaged 11ng/uL. Performance for DNA extractions from Saliva was tested with four samples from patient A. The average yield was 19.75ng/uL with a standard deviation of 1.5ng/uL.

These results are summarized in the following tables:

Blood Extractions

100 µl input, 100 µl elution

Blood Set	DNA Reading	Estimation Concentration	Cq Value (qPCR)
Patient A	15799	8 ng/µl	
	18630	9 ng/µl	
	13906	7 ng/µl	
	13268	6 ng/µl	
	41886 (Ref 20 ng/µl)		
Patient A	18056	8 ng/µl	26.07
	16347 (duplicate)	8 ng/µl	26.34
Patient B	23898	11 ng/µl	25.64
	24191 (duplicate)	11 ng/µl	25.48
	42819 (Ref 20 ng/µl)		

Figure One: Blood extraction results

Saliva Extractions

100 µl input, 100 µl elution

Saliva Set	DNA Reading	Estimated Concentration
Patient A	32851	19 ng/µl
	33107	19 ng/µl
	32770	19 ng/µl
	42606	22 ng/µl
	35509 (Ref 20 ng/µl)	

Figure Two: Saliva extraction results

Cq Values

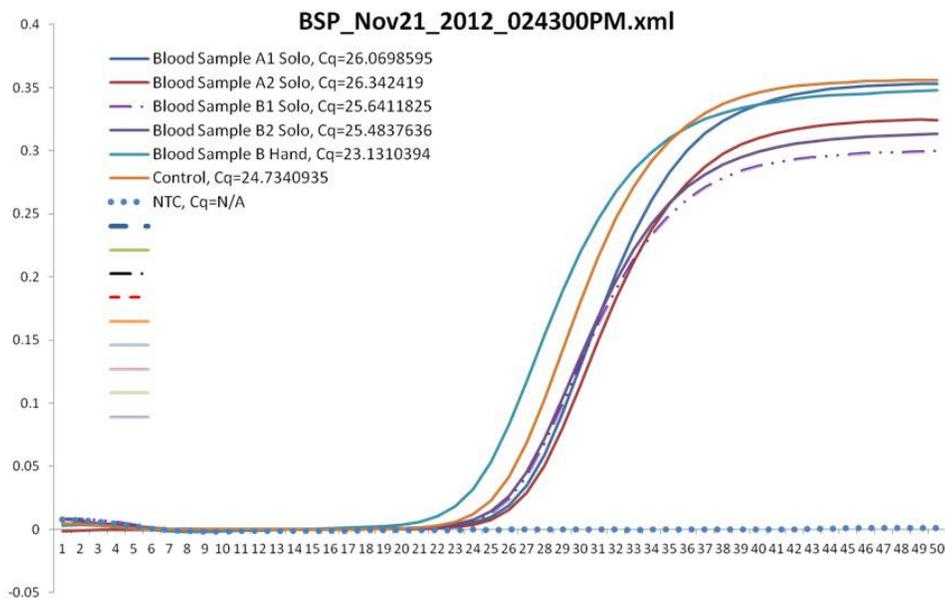


Figure Three: Cq results from qPCR

Conclusion

The Solo provides a repeatable and reliable platform for performing SingleTip DNA extractions. To learn more about this application or how the Solo can work for you, please contact us.

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