truCOLLECT® - Blood
A Novel Whole Blood Collection, Preservation and Biomarker Extraction System

Abstract & Introduction

Recent developments in diagnostic technologies such as next generation sequencing (NGS) and other molecular diagnostic techniques have resulted in an increased demand for biomarkers that offer high sensitivity and specificity. To this end, the use of blood-based biomarkers has gained significant attention due to their potential to detect early-stage disease stages and monitor responses to therapy. However, traditional blood collection methods have several limitations that need to be addressed, such as contamination, high cost, and difficulties in long-term storage. Magnetic bead-based extraction kits are an attractive alternative due to their ability to achieve high yields and purity of DNA, RNA, and proteins. The truCOLLECT®-Blood system is designed to meet these needs by providing a simple and efficient method for blood collection, preservation, and biomarker extraction.

Background

- Limited availability of fresh whole blood
- Non-amplification and non-targeted based NGS analysis
- RNA quality from DBS specimens is poor and restricts studies to expression analysis
- Nucleic acid yield is frequently insufficient for routine molecular diagnostics
- Repeated freeze-thaw cycles impact yield and quality of extractable nucleic acids
- Currently, storage and archiving of blood specimens is cumbersome, expensive and requires large scale facilities with freezers and cold storage

Methods

20 healthy volunteers from the cystic fibrosis population (3 females and 17 males) were enrolled in the study. The specimens stored in the truCOLLECT AFA-TUBE were sent in a padded envelope to Covaris. RNA was extracted from DBS using the Covaris truXTRAC viral RNA kit. The RNA content in whole blood is inheritably unstable as soon as the tissue is being collected. Therefore, it is crucial to ensure the integrity of the RNA during collection and storage.

Results

- RNA extracted from DBS is of sub-standard quality and low quantity
- The RNA content in whole blood is inheritably unstable

Conclusion

The truCOLLECT®-Blood system provides a novel approach for the collection and preservation of whole blood samples, offering significant benefits over traditional methods. It allows for the collection of high-quality biomarkers that can be used for diagnostic and research purposes. The system is designed to be user-friendly, cost-effective, and scalable, making it an attractive option for a wide range of applications.

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References


For more information, contact: techsupport@covaris.com | www.covaris.com

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