Bile Sample Collection for the analysis of extracellular RNA

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Abstract

This protocol describes how to collect bile samples from patients in a clinical setting in order to detect, identify and quantify extracellular RNA.

Introduction

Extracellular RNAs (exRNAs) have been identified in every biofluid that has been tested. They have been found in extracellular vesicles, ribonucleoprotein complexes and lipoprotein complexes. exRNAs are interesting because they may serve as signalling molecules between cells, they have the potential to serve as biomarkers for prediction and diagnosis of disease, and exRNAs or the extracellular particles that carry them might be used for therapeutic purposes.

The Sample and Assay Standards Working Group of the Extracellular RNA Communication Consortium (ERCC) is a group of laboratories funded by the U.S. National Institutes of Health to develop robust and standardized methods for collecting and processing of biofluids, separating different types of exRNA-containing particles and isolating and analyzing exRNAs. In our first joint endeavour, we held a series of conference calls and in-person meetings to survey the methods used among our members, placed them in the context of the current literature and used our findings to identify areas in which the identification of robust methodologies would promote rapid advancements in the exRNA field.

A full list of the protocols developed during this effort is available at the exRNA Portal, the ERCC's website ("http://exrna.org/resources/protocols/":http://exrna.org/resources/protocols/). This protocol for collecting bile is one of the biofluid collection and processing methods compared in "the associated publication":http://www.journalofextracellularvesicles.net/index.php/jev/article/view/26533.

Procedure

1. Bile is collected from drainage bags from patients with an indwelling biliary tube into a sterile collection bottle.
2. Centrifuge for 10 minutes at 3000g at 4°C to remove any cellular sediment and debris.
3. Aliquot into 1 ml aliquots in microcentrifuge tubes.

4. Store at -20°C.

Meeting report: discussions and preliminary findings on extracellular RNA measurement methods from laboratories in the NIH Extracellular RNA Communication Consortium

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