STEMprep™ Homogenization Protocol

For tissue homogenization using the STEMprep™ Tissue Dissociation System

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Description

The following protocol describes how to perform tissue homogenization using the STEMprep™ Homogenization Protocol available on the STEMprep™ Tissue Dissociator (Catalog #100-2112). The STEMprep™ Homogenization Protocol enables quick and easy tissue homogenization suitable for extraction of nucleic acids from various tissues. The STEMprep™ Tissue Dissociator facilitates complete mechanical homogenization of desired tissue samples when used in combination with a lysis buffer. This process yields a homogenized sample that can be used immediately for downstream nucleic acid extraction applications and molecular analysis.

Materials Required but Not Included

PRODUCT NAME	CATALOG #
EasySep™ Total Nucleic Acid Lysis Buffer* OR Lysis buffer of choice	100-1090
STEMprep™ Sample Tubes	200-0800
STEMprep™ Tissue Dissociator	100-2112

* This component is sold as part of EasySep™ Total Nucleic Acid Extraction Kit (Catalog #100-1079) and is not available for individual sale.

Directions for Use

1. Transfer 2.5 mL of EasySep™ Total Nucleic Acid Lysis Buffer (or lysis buffer of choice) into the STEMprep™ Sample Tube.

   NOTE: Some lysis buffer formulations can be prone to significant foaming that may interfere with downstream applications. To mitigate excessive foaming, an anti-foam agent (e.g. Anti-foam L-30 Emulsion; Millipore Sigma; Catalog #STS0100-100ML) can be included in the lysis buffer at an appropriate concentration. If using EasySep™ Total Nucleic Acid Lysis Buffer, a concentration of 0.01 - 1% (v/v) is recommended.
2. Transfer tissue into the STEMprep™ Sample Tube containing lysis buffer. Place tissue directly into the buffer to avoid adherence to the tube wall.

   NOTE: Plastic Rack for Centrifuge Tubes, 50 mL (Catalog #200-0651) is provided with each STEMprep™ Tissue Dissociator System to manage STEMprep™ Sample Tubes while loading or removing tissues.
3. Tightly close the STEMprep™ Sample Tube lid (ensuring proper closure) and insert it into a slot on the STEMprep™ Tissue Dissociator. For complete instructions on using the instrument, refer to the Technical Manual: STEMprep™ Tissue Dissociator (Document #10000030598), available at www.stemcell.com, or contact us to request a copy.
4. Select and run the “Homogenization” protocol on the STEMprep™ Tissue Dissociator.

   NOTE: If the tube will not be removed immediately after protocol completion, add a 4°C hold to preserve RNA integrity.
5. After the protocol is complete, remove the STEMprep™ Sample Tube from the slot and place it on ice.
6. Remove the lid from the STEMprep™ Sample Tube and transfer the homogenized sample to an appropriate tube.
7. Proceed with nucleic acid extraction according to the manufacturer's recommended procedure. For complete instructions on using EasySep™ Total Nucleic Acid Extraction Kit following tissue homogenization, refer to the Product Information Sheet (Document #10000034079), available at www.stemcell.com, or contact us to request a copy.

Data

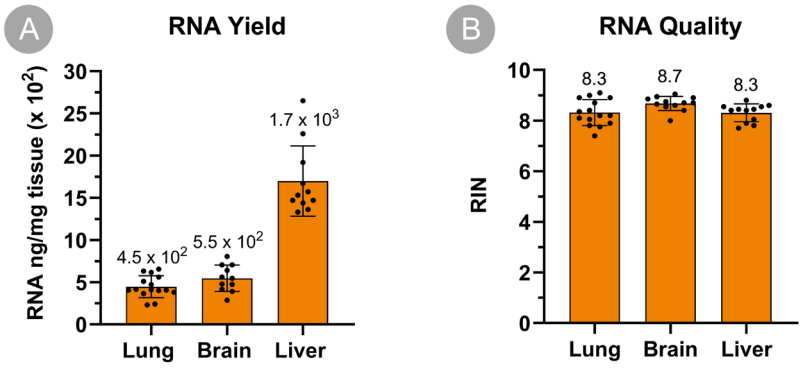

Figure 1. STEMprep™ Tissue Homogenization Achieves High-Quality RNA

Tissues were homogenized using EasySep™ Total Nucleic Acid Lysis Buffer and the STEMprep™ Homogenization Protocol. RNA was subsequently extracted using the EasySep™ Total Nucleic Acid Extraction Kit (with DNase I treatment). (A) RNA yield was measured per mg of homogenized mouse tissue, using input masses of 12 - 49 mg for lung, 41 - 106 mg for brain, and 25 - 109 mg for liver. Yield of extracted RNA per mg of homogenized tissue was assessed using the Qubit Flex Instrument and Qubit RNA Broad Range Assay kit. (B) The quality of the extracted RNA was assessed using the 2100 Bioanalyzer Instrument and Agilent RNA 6000 Nano Kit. Data are presented as mean ± SD.

Notes and Tips

- Do not process hard material, such as bone, as it may damage the STEMprep™ Sample Tubes.
- RNA can be susceptible to degradation by ubiquitous RNases. It is recommended to rapidly lyse samples and immediately proceed with nucleic acid extraction to minimize RNA degradation.

Related Products

For more information about STEMprep™ kits and protocols, visit www.stemcell.com/stemprep, contact us at techsupport@stemcell.com.