Nuclei Isolation Bundle with RNase Inhibitor V2

Nuclei Isolation Cartridge
P/N 100-063-287

Designed for the rapid isolation of high-quality nuclei for single-nuclei genomic applications.

Description

The **Nuclei Isolation Bundle with RNase Inhibitor V2** is designed for seamless integration with the Singulator™ Platform and offers a highly efficient and rapid solution for nuclei isolation from solid tissue samples. This bundle includes all the consumables required for using the Singulator Platform to isolate nuclei: **Nuclei Isolation Cartridges, Nuclei Isolation Reagent, Nuclei Storage Reagent**, and **RNase Inhibitor V2**. With the ability to process tissue samples ranging from 20 to 300 mg in as little as 6 minutes, this bundle guarantees high-yield, high-quality nuclei, making it ideal for downstream genomic applications.

Key Features

1. **Reproducible and Precise:** When used with the Singulator Platform, the Nuclei Isolation Bundle with RNase Inhibitor V2 delivers consistent results across different users and days. The bundle isolates nuclei from diverse cell populations with minimal bias, which is critical for the accuracy and integrity of single-cell genomics applications.
2. **Automated:** Streamlines the workflow, reducing manual steps, saving time and minimizing opportunities for mistakes.
3. **Versatile:** The Nuclei Isolation Bundle with RNase Inhibitor V2 is compatible with fresh, frozen and OCT-embedded tissues, and most tissue types, enabling broad single-cell genomics applications.
4. **Compatible:** Seamlessly integrates with downstream single-cell genomics applications.

Protocol

1. **Select Protocol:** Select desired Nuclei Isolation protocol and precool the Singulator Platform.
2. **Prepare Sample and Load Cartridge:** Insert the whole tissue sample into the chilled Nuclei Isolation Cartridge along with RNase Inhibitor V2. Place the Nuclei Isolation Cartridge into the Singulator Platform.
3. **Run Protocol:** Initiate the hands-off automated isolation protocol on the Singulator Platform.
4. **Collect Nuclei:** After 6 minutes, retrieve the isolated nuclei from the cartridge for immediate use or further processing.

Performance

The **Nuclei Isolation Bundle with RNase Inhibitor V2** has been validated for use with fresh, frozen, and OCT-embedded samples, efficiently generating single-nuclei suspensions suitable for downstream genomic analysis. This bundle ensures the isolation of high-quality nuclei from various tissue types, providing sufficient yield for single-nuclei RNA-seq applications.

Nuclei obtained using **Nuclei Isolation Bundle with RNase Inhibitor V2** and the Singulator Platform following the "Demonstrated Protocol – Nuclei Isolation from Frozen Tissue for Single Nuclei Sequencing Applications" (100-318-092) provided yields ranging from 8,000 to 1,000,000 nuclei per mg of tissue depending upon the tissue type tested. As expected, dense elastic tissues, such as heart and muscle, yield less nuclei per mg of tissue in comparison to tissues with higher cell density such as brain, kidney, and spleen **(FIGURE 1)**.

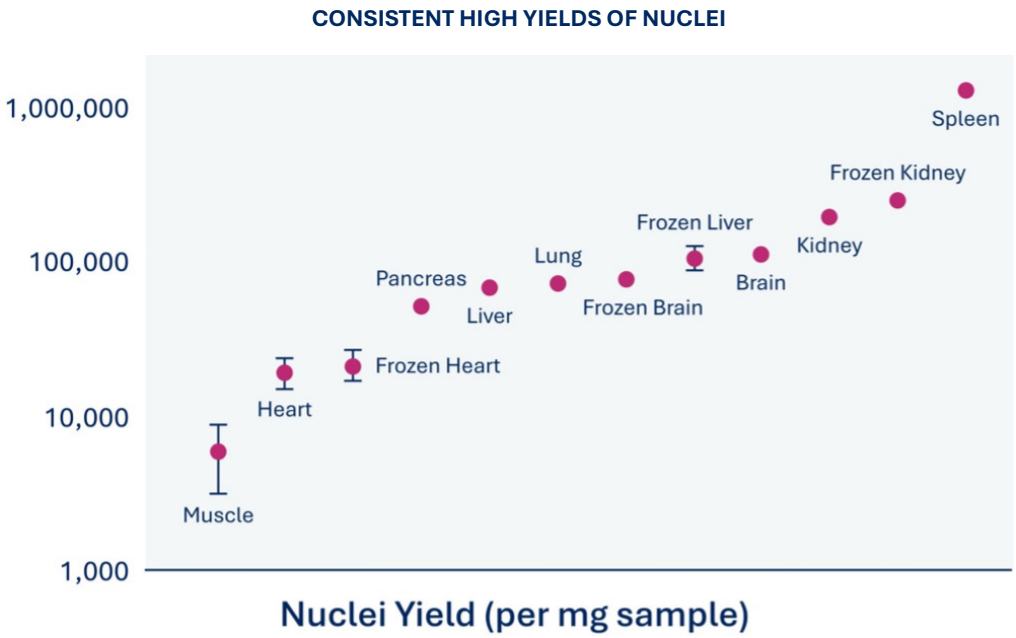

FIGURE 1: Yield of single-nuclei suspension isolated using the Nuclei Isolation Bundle with RNase Inhibitor V2 is sufficient for single-cell genomics applications from a wide variety of tissue types. Nuclei were isolated using the Nuclei Isolation Bundle with RNase Inhibitor V2 and the Singulator Platform's nuclei isolation protocols. Yields are consistent with the cell density of tissue.

Nuclei from four different tissue types and two different preservation methods were successfully isolated using the Nuclei Isolation Bundle with RNase Inhibitor V2, following the "Demonstrated Protocol – Nuclei Isolation from Frozen Tissue for Single Nuclei Sequencing Applications" (100-318-092). The isolated nuclei exhibit intact membrane structures with minimal aggregation and debris, appearing round and smooth with no signs of blebbing across the different mouse tissues and preservation methods **(FIGURE 2)**.

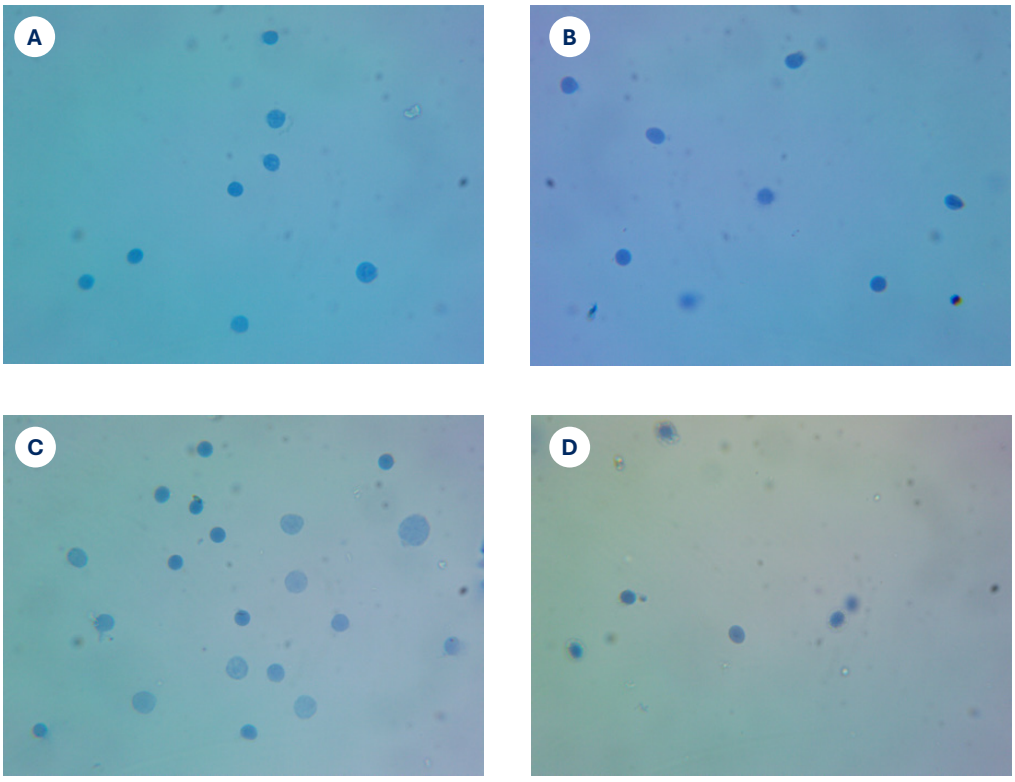

FIGURE 2: Single nuclei suspension generated from four mouse tissue types following the Demonstrated Protocol: Nuclei Isolation and Cleanup from Frozen Tissue for Single Nuclei Sequencing Applications. 40x magnified images of **(A)** frozen brain nuclei, **(B)** frozen kidney nuclei, **(C)** fresh liver nuclei, **(D)** fresh lung nuclei isolated with the NIC+ Isolation Bundle with RNase Inhibitor V2.

Example Bundle: 100-288-807 Nuclei Isolation Bundle with RNase V2 (24 samples)

Nuclei Isolation Cartridge
100-063-287

(Quantity 24)

Nuclei Isolation Reagent (24), 125mL
100-063-396

(Quantity 1)

Nuclei Storage Reagent (24), 125mL
100-063-405

(Quantity 2)

RNase Inhibitor V2, 8 Samples
100-288-916

(Quantity 3)

Specifications

Tissue Input: 20-300 mg
Compatible Preservation Methods: Fresh, Frozen, OCT-embedded tissue

Storage

Nuclei Isolation Cartridge: Room Temperature
Nuclei Isolation Reagent: 4 °C
Nuclei Storage Reagent: 4 °C
RNase Inhibitor V2: -20 °C

ORDERING INFORMATION:

Part Number	Description		Quantity
100-291-422	**Nuclei Isolation Bundle w/ RNase Inhibitor V2 (8 samples)**		
	100-063-287	Nuclei Isolation Cartridge	8
	100-063-396	Nuclei Isolation Reagent (24), 125 mL	1
	100-063-405	Nuclei Storage Reagent (24), 125 mL	1
	100-288-916	RNase Inhibitor V2, 8 samples	1
100-288-807	**Nuclei Isolation Bundle w/ RNase Inhibitor V2 (24 samples)**		
	100-063-287	Nuclei Isolation Cartridge	24
	100-063-396	Nuclei Isolation Reagent (24), 125 mL	1
	100-063-405	Nuclei Storage Reagent (24), 125 mL	2
	100-288-916	RNase Inhibitor V2, 8 samples	3

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