

Streamline nuclei isolation for single cell assays

Nuclei Isolation Kit

Translational and clinical research often utilize samples which may be biobanked or are not amenable to fresh processing and, therefore, require nuclei isolation for use in single cell sequencing. Outside of these logistical sample challenges, nuclei isolation is also necessary to obtain additional layers of cellular information, such as chromatin accessibility. Streamline your nuclei isolation workflows with the Chromium Nuclei Isolation Kit, specifically designed for use with 10x Genomics single cell assays. This all-in-one kit ensures reliable assay performance for gene expression or epigenetic studies with little to no optimization for most tissues.

Highlights

- Make the most of precious samples with an optimized kit and protocol that takes the guesswork out of nuclei isolation
- Consolidate your experimental workflows with a single kit for all of your nuclei isolation needs
- Have confidence in your sample prep and quality by using reliable, standardized reagents designed for 10x Genomics single cell sequencing assays
- Get started immediately by leveraging an easy-to-use kit that does not require expertise in single cell sequencing



Figure 1. Simplified nuclei isolation. Starting with frozen tissue, a wide range of sample types can be dissociated with a single kit. This all-in-one system and streamlined cleanup protocol yields a nuclei suspension optimized for 10x Genomics single cell assays, from gene expression to chromatin accessibility.

Product features

- Unified workflow for a wide range of tissues simplifies sample processing
- Kit and protocol validated for 10x Genomics single cell assays minimizes the need for sample prep optimization, saving time and resources
- Complete kit includes all consumables and reagents needed for nuclei isolation, removing logistical constraints for reagent sourcing
- Built-in cleanup step reduces sample preparation time and eliminates the need for additional reagents or equipment
- Capacity to prepare samples in parallel, enabling sample batching and scaling up of experiments

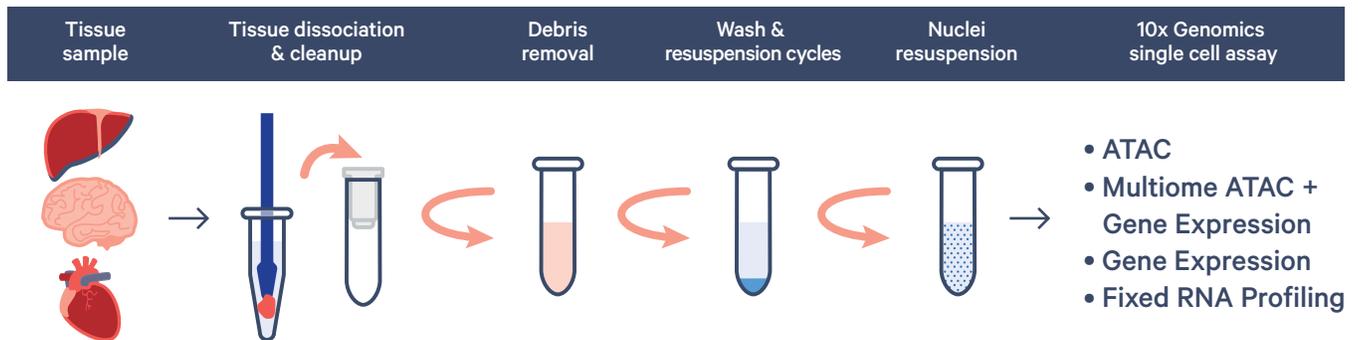
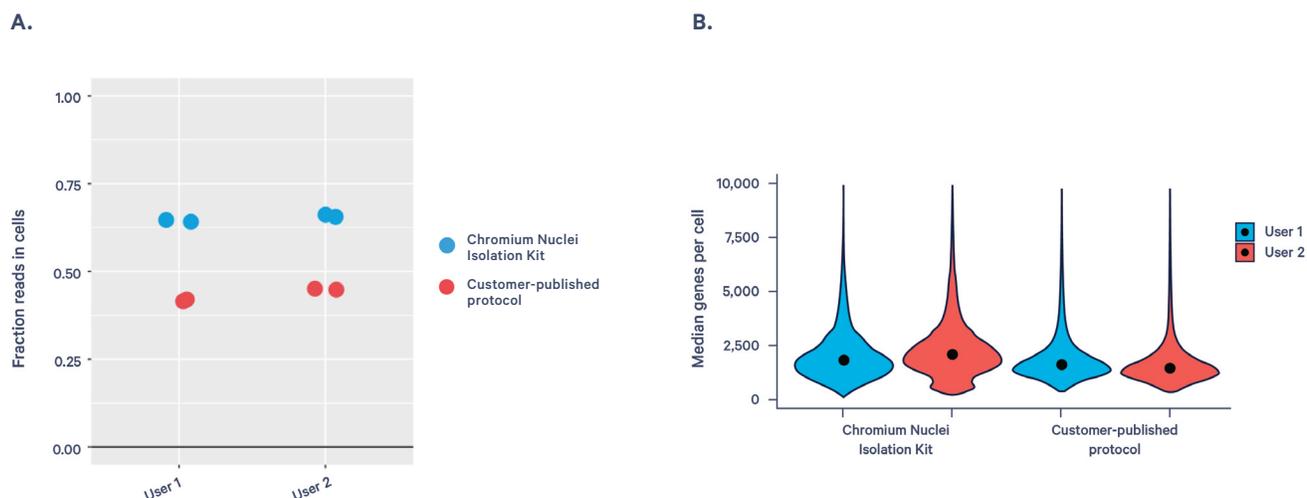


Figure 2. Efficient and streamlined nuclei isolation workflow using the Chromium Nuclei Isolation Kit. Starting with frozen tissue, samples are dissociated using a pestle and then passed through a nuclei isolation column. Isolated nuclei are resuspended in a debris removal buffer, and washes are performed to remove debris. The final nuclei suspension is counted prior to use in a 10x Genomics single cell assay to profile gene expression or chromatin accessibility.



Chromium Nuclei Isolation Kit improves ease of use, workflow repeatability, and data quality. Nuclei were isolated from adult mouse kidney using the Chromium Nuclei Isolation Kit and a commonly used customer-published protocol. The resulting single nuclei suspensions were used as input for the Chromium Single Cell Gene Expression assay, targeting 5,000 nuclei for each preparation method. Sequencing depth was comparable between the two methods. **A.** Fraction of reads in cells, an indicator of signal-to-noise ratio, is greater for nuclei isolated using the Chromium Nuclei Isolation Kit as compared to the customer-published protocol. **B.** Number of median genes detected using the Chromium Nuclei Isolation Kit protocol is greater than those detected using the customer-published protocol. Both fraction of reads in cells and genes detected were consistent across users, demonstrating kit reproducibility.

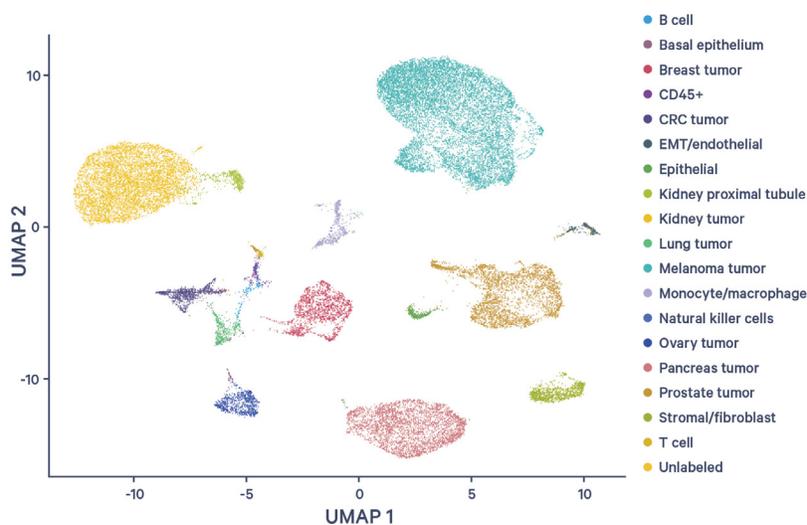


Figure 4. Generating a tumor cell atlas in a single experiment using the Chromium Nuclei Isolation Kit. Nuclei from eight human tumors were isolated in parallel by two users in just 1 hr. For each tumor, single cell gene expression libraries were generated and sequenced. Primary tumor cells represent the majority of captured cells for each tumor, but distinct clusters of cells with representation from each tumor can be observed. These clusters represent immune cells present in each tumor microenvironment. Instead of taking weeks or months to optimize sample preparation for each of these different tumor types and then profiling cell composition, the sample preparation workflow can be shortened to a few hours, expediting experimental discovery.

Product specifications

- Compatible with most frozen [mammalian tissues](#)
- Nuclei isolation starting from 3 to 50 mg of tissue
- Capacity to process up to 8 samples at a time, in one hour
- Optimized for use with the following 10x Genomics assays:
 - Single Cell ATAC
 - Single Cell Multiome ATAC + Gene Expression
 - Single Cell Gene Expression (3' and 5')
 - Fixed RNA Profiling

Products	Product code
Chromium Nuclei Isolation Kit	1000493
Chromium Nuclei Isolation Kit with RNase Inhibitor	1000494

Contact us

10xgenomics.com | info@10xgenomics.com

© 2022 10x Genomics, Inc. FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES.
LIT000163 - Rev A - Product Sheet - Streamline nuclei isolation for single cell assays

