

Single cell profiling on more samples with no time constraints

Fixed RNA Profiling

Single cell RNA sequencing is increasingly being used to profile larger numbers of samples, corresponding to cohorts of patients or different perturbations, making an efficient and scalable workflow of paramount importance. Fixation with paraformaldehyde (PFA) allows samples to be collected, shipped to a central location, and analyzed without sacrificing integrity or data quality, creating new possibilities for sample accessibility, throughput, and batched analysis. Profile hundreds of thousands of fixed single cells at once, unlocking a massive number of opportunities to bring single cell biology into the future, particularly in translational and clinical labs where fragile samples or time constraints would otherwise preclude analysis.

Highlights

- Fix human or mouse samples at the point of collection to lock in their biological states and preserve fragile cells
- Improve sample collection, preparation, and processing steps to streamline single cell workflows
- Reduce experimental variability and increase efficiency by batching and multiplexing samples
- Generate highly sensitive measurements of gene expression and cell surface proteins simultaneously

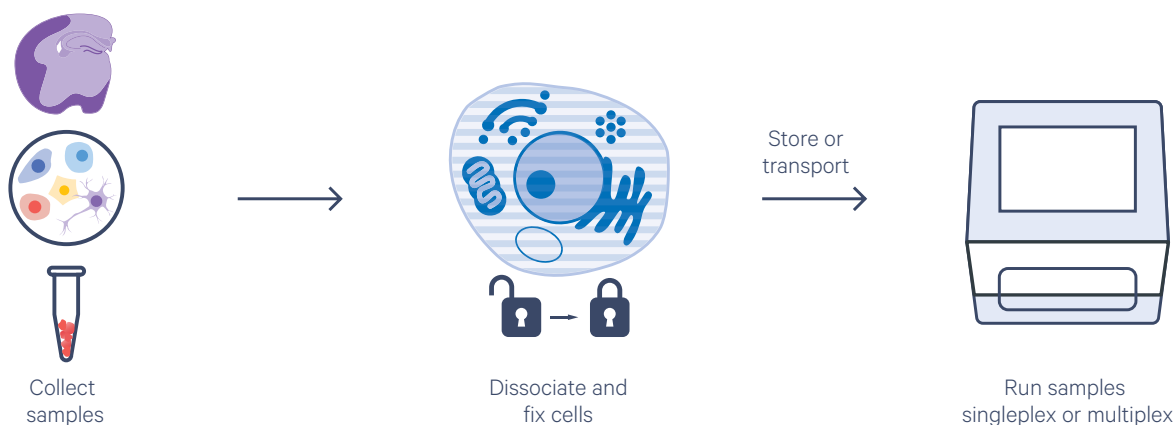


Figure 1. Gene expression profiling on your schedule. Chromium Single Cell Fixed RNA Profiling enables single cell gene expression studies on precious samples that were previously inaccessible because of logistical challenges in sample handling. Fixation at the point of sample collection preserves fragile biology and greatly streamlines workflows to provide critical insights on more samples.

Product features

- Profile gene expression for thousands to hundreds of thousands of cells or nuclei with a sensitive probe-based method that captures the whole human or mouse transcriptome to detect even low-expressing genes
- Store samples without losing data quality, allowing you to batch samples in the same run and minimize experimental variability
- Multiplex up to 16 samples per channel to enable increased throughput, expanding your capabilities to profile large numbers of samples while reducing cost per sample
- Lock in cell state and then combine gene expression analysis with detection of hundreds of cell surface proteins at high resolution for ultra-high parameter multiomic cytometry
- Follow a ready-to-use, robust workflow with optimized, demonstrated protocols for diverse sample types, including cell lines, primary cells, and dissociated tissue containing fragile cells

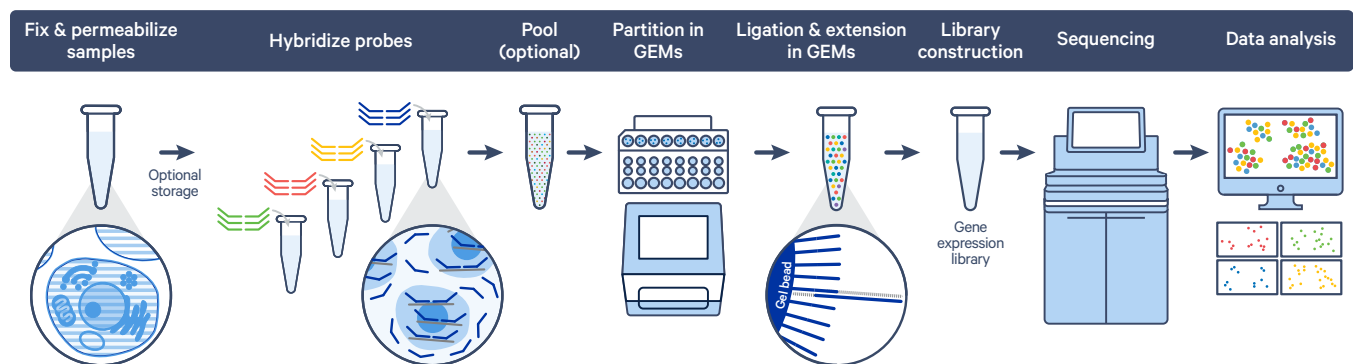


Figure 2. Chromium Single Cell Fixed RNA Profiling enables an efficient and streamlined workflow for sample management and processing.

Cells are fixed and permeabilized and can be safely stored or transported without compromising data quality. Once ready to proceed, samples are hybridized to probe sets and may be processed individually (singleplex workflow) or pooled with up to 16 samples in a single lane of a Chromium chip (multiplex workflow). During GEM generation the probe sets are ligated and extended to incorporate unique barcodes. Sequencing libraries are then prepared, sequenced and analyzed using 10x Genomics Cell Ranger and Loupe Browser software tools.

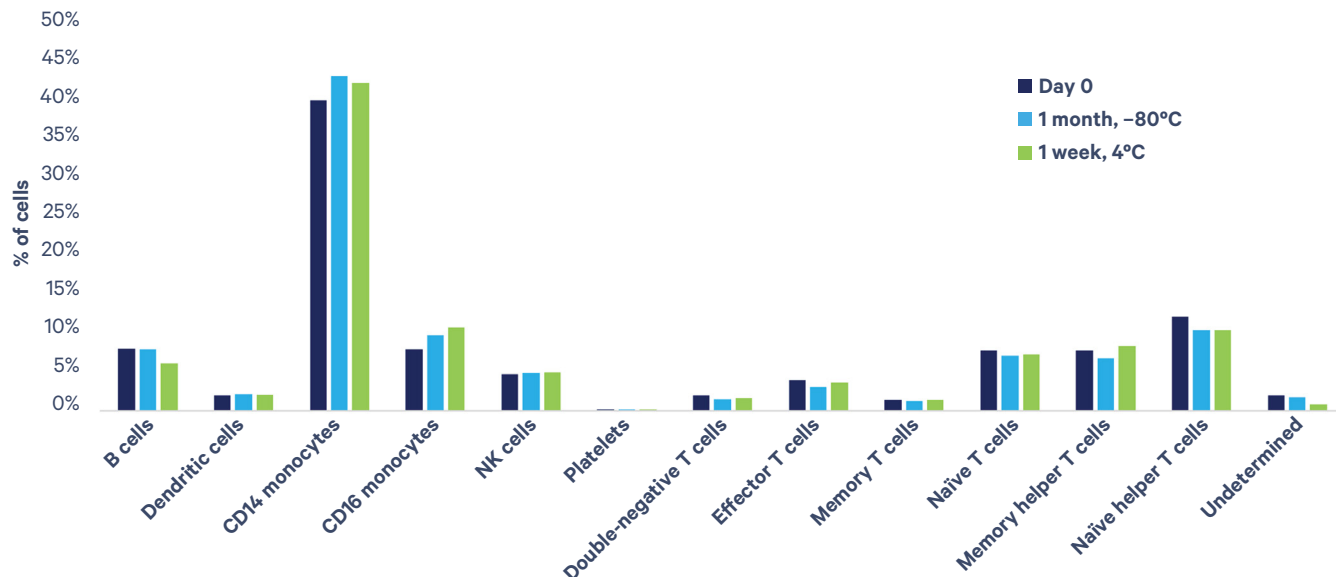


Figure 3. Storage stability of fixed samples. Single cell gene expression profiling of human PBMCs, fixed and run immediately (Day 0), after storage at 4°C for one week, or after storage at -80°C for one month. Key populations of cell types are stable over time, demonstrating that the biology can be locked in with PFA fixation to enable transportation and storage, relieving constraints of running single cell experiments.

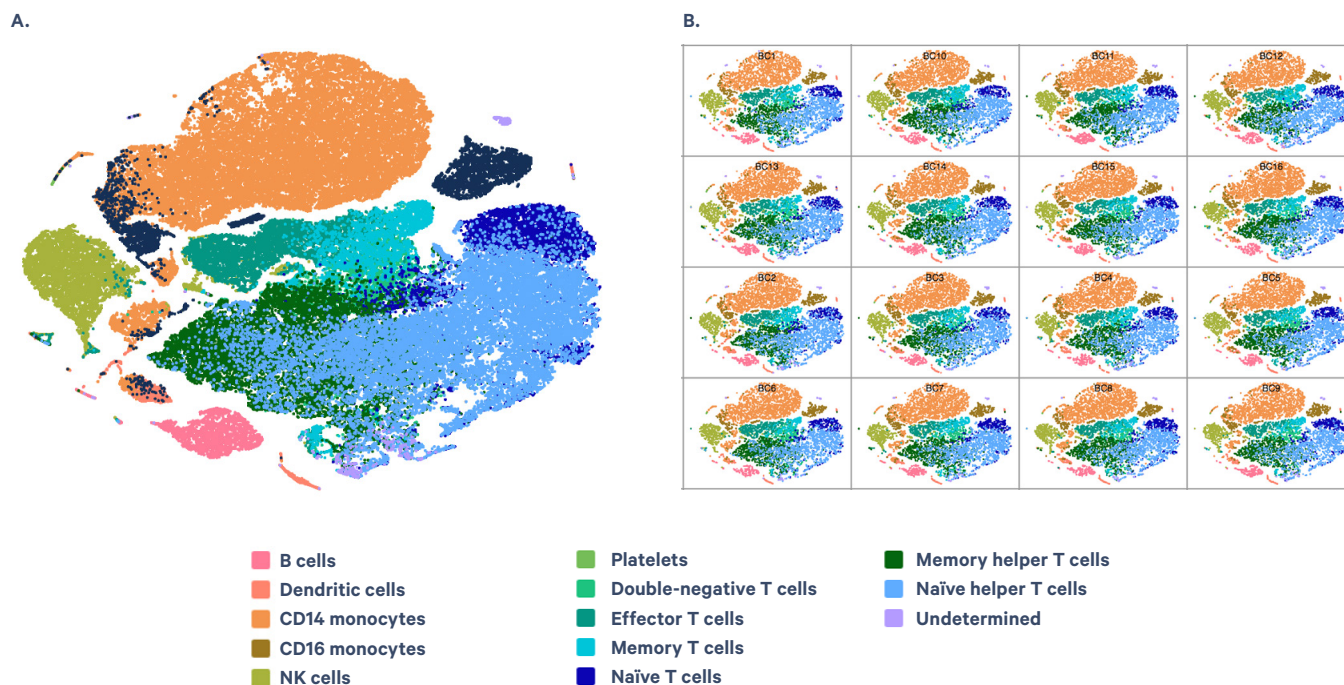


Figure 4. Cell clustering of gene expression data from fixed samples. Human PBMCs were fixed and split into 16 samples, each hybridized with a barcoded set of probes. Samples were pooled together and run on a single lane of a Chromium X chip. **A.** t-SNE plot showing 80,000 cells from all pools, overlaid together, with distinct clusters representing each cell type. **B.** t-SNE plots showing the same data split by barcode to demonstrate that there are no batch effects and that multiplexing is an effective strategy for reducing experimental variability while vastly increasing sample throughput for single cell experiments.

Product specifications

- Singleplex samples: Efficiently partition 500–10,000 cells per channel and run up to 8 samples and 80,000 cells per chip
- Multiplex samples: Multiplex up to 16 samples and 128,000 cells per channel; run 128 samples and over 1 million cells per chip
- Cell size flexibility, no lower limits
- Compatible with cells and nuclei
- High cell capture rates of up to 65%
- Low multiplet rates of 0.8% per 1,000 cells; up to 8% multiplet rate when a channel is fully multiplexed

Sample preparation products	Product code
Chromium Next GEM Single Cell Fixed RNA Sample Preparation Kit, 16 rxns	1000414
Chromium Nuclei Isolation Kit with RNase Inhibitor (optional)	1000494
Gene expression profiling products	Product code
Chromium Fixed RNA Kit, Human Transcriptome, 4 rxns x 1 BC	1000474
Chromium Fixed RNA Kit, Human Transcriptome, 4 rxns x 4 BC	1000475
Chromium Fixed RNA Kit, Human Transcriptome, 4 rxns x 16 BC	1000476
Chromium Next GEM Chip Q Single Cell Kit, 16 rxns	1000422
Chromium Next GEM Chip Q Single Cell Kit, 48 rxns	1000418
Dual Index Kit TS Set A, 96 rxns	1000251
Feature Barcode technology	Product code
Fixed RNA Feature Barcode Kit, 16 rxns	1000419
Dual Index Kit TT Set A, 96 rxns	1000215
Instrument compatibility	Product code
Chromium iX & Accessory Kit, 12 Mo. Warranty	1000328
Chromium iX & Accessory Kit, 24 Mo. Warranty	1000329
Chromium X & Accessory Kit, 12 Mo. Warranty	1000331
Chromium X & Accessory Kit, 24 Mo. Warranty	1000332
Software	
Cell Ranger	Coming soon
Loupe Browser	Coming soon
Compatible partner products	
Biolegend TotalSeq™-B www.biolegend.com/totalseq	Learn more

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