



ddSEQ™ Single-Cell 3' RNA-Seq Kit

The ddSEQ Single-Cell 3' RNA-Seq Kit and Omnitron Analysis Software version 1.1 deliver reproducible whole transcriptome analysis at a single-cell level. Benefit from a streamlined workflow, flexible analysis, and high-quality results.

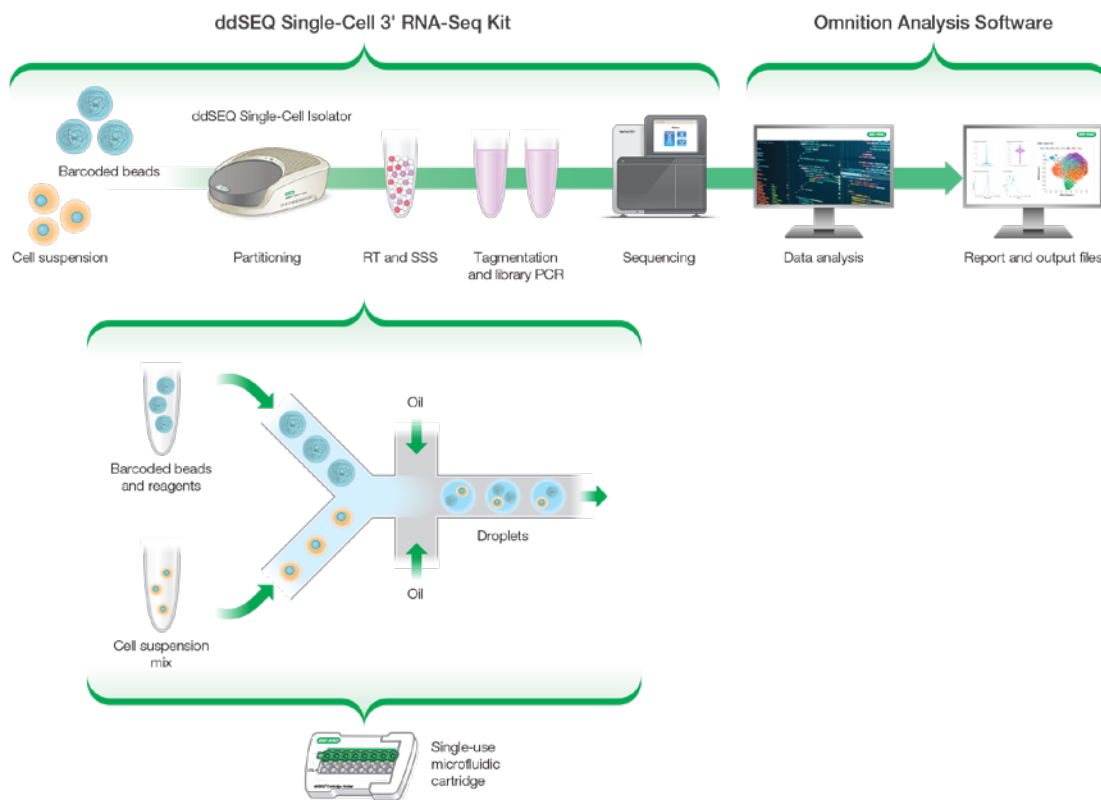
- **Performance:** detect thousands of genes per cell with a low multiplet rate
- **Cell output:** 500–5,000 cells per sample, up to 4 samples in parallel
- **Cell utilization:** $\geq 50\%$ and up to 75% of cells utilized by leveraging bead overloading to ensure most droplets are occupied with at least one bead
- **Workflow:** 7-hr workflow, which is simplified by using tagmentation for library preparation with multiple stopping points and <5 min cartridge run time
- **Batch processing and reporting:** Omnitron Analysis Software can process multiple samples simultaneously and is open-source



Droplet-Based Whole Transcriptome Analysis with the ddSEQ Single-Cell 3' RNA-Seq Kit

The ddSEQ Single-Cell 3' RNA-Seq Kit employs a droplet-based method to create single-cell 3' RNA-Seq libraries with a low multiplet rate. This rapid and streamlined workflow results in the detection of thousands of genes per cell and generates highly reproducible results.

Single cells and beads are paired within the droplets on the ddSEQ Single-Cell Isolator. Each droplet is loaded with one or more beads, and cells are lysed within the droplets. Following cell lysis, the droplets are transferred to a plate for reverse transcription (RT) and second-strand synthesis (SSS). The droplets are then disrupted and the sample is recovered for library preparation.



The ddSEQ Single-Cell 3' RNA-Seq Kit workflow is streamlined and offers users:

- Rapid cell and library prep time, <7 hours from cell loading to a sequencing-ready library
- Rapid cell encapsulation time (for 4 samples), <5 minutes
- Flexible workflow with multiple safe stopping points
- Up to 50% less hands-on time compared to other kits

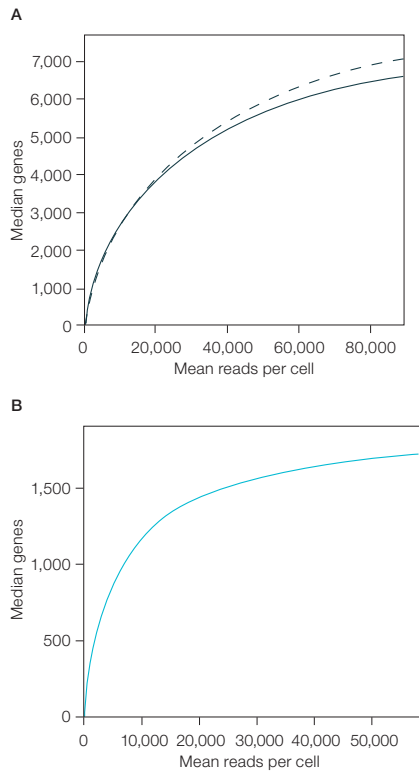


Fig. 1. Gene sensitivity of the ddSEQ Single-Cell 3' RNA-Seq Kit. Median genes per cell detected over the sequencing depth (reads/cell) in **A**, mouse cell line NIH3T3 (solid) and human embryo kidney 293 (HEK 293) cell line (dashed); **B**, human peripheral blood mononuclear cells (PBMCs).

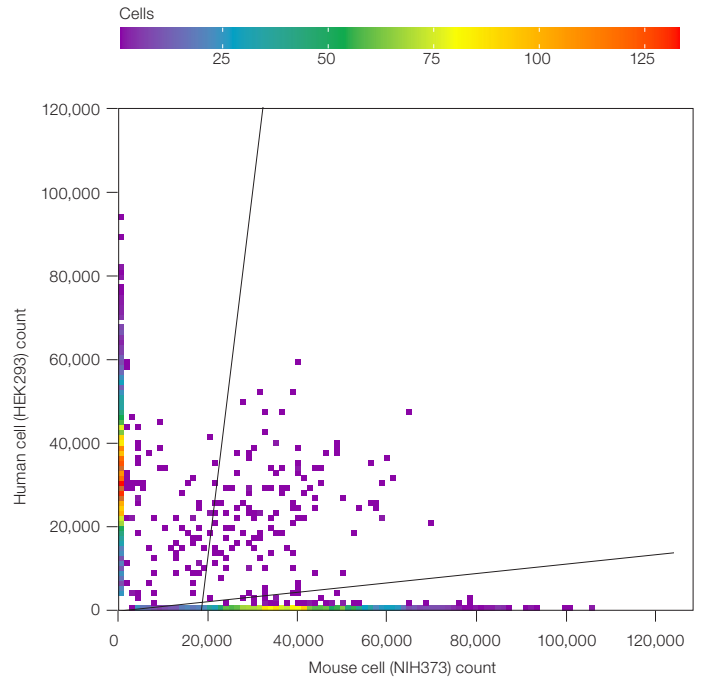


Fig. 2. Multiplet rate using the ddSEQ Single-Cell 3' RNA-Seq Kit. A 1:1 barnyard experiment was performed with human (HEK 293) and mouse (NIH3T3) cells (5,390 total output). Each axis represents the number of unique molecular identifiers (UMIs) for its respective species. Each dot represents one detected cell. The color density represents the number of overlapping cells in the plot and the threshold lines represent 90% of the reads mapped to the same species. A 3.4% multiplet rate was observed, resulting in an estimated 6.9% of total crosstalk.

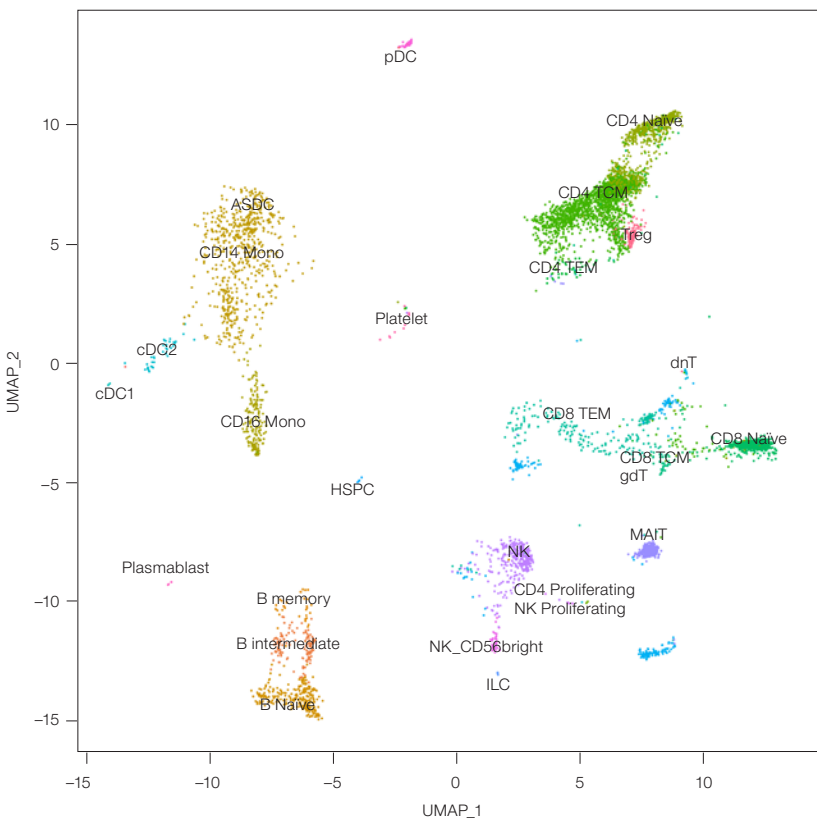


Fig. 3. Identify heterogeneous cell populations with the ddSEQ Single-Cell 3' RNA-Seq Kit. Using differential gene expression as markers, immune cell populations were identified from 6,756 human peripheral blood mononuclear cells (PBMCs) and projected on a uniform manifold approximation and projection (UMAP) plot. Data were processed and reported using Omnition Analysis Software version 1.1 with default settings, then clustered and annotated using the Azimuth* web application with a sequencing depth of 55,000 reads per cell.

* Hao Y et al. (2021). Integrated analysis of multimodal single-cell data. Cell 184, 13.

Research Areas

- Immunology
- Stem cell biology
- Developmental biology
- Cancer biology
- Neuroscience
- Translational research

Applications

- Cell atlasing
- Tumor heterogeneity
- Disease mechanisms
- Drug and/or therapeutic target discovery
- Biomarker discovery

Ordering Information

Catalog # Description

Library Preparation

17009671	ddSEQ Single-Cell 3' RNA-Seq Kit
17010272	ddSEQ Single-Cell 3' RNA-Seq cDNA Module
12020413	ddSEQ Single-Cell 3' RNA-Seq Library Module
12020461	ddSEQ Single-Cell 3' RNA-Seq Dual Index Module

Additional Accessories

12004336	ddSEQ Single-Cell Isolator
12009359	ddSEQ M Cartridges



Visit [bio-rad.com/3scRNA-seq](https://www.bio-rad.com/3scRNA-seq) for more information.

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