

Automated Single-cellDroplet Generator

DNBelab C-TaiM 4

Why Choose

| ATACA1, | ACA | CA1 | ATACATA | ACA | ATACATA | ACA | ACA | ATACATA | ACA |

Single-cell Droplet Generator

MGI DNBelab C-TaiM 4 Single-cell Droplet Generator provides stable and precise cell and cell nucleus separation and labeling. This instrument equips with four independent microfluidic channels, supporting single-cell ATAC library and 3' RNA library preparation. DNBelab C-TaiM 4 is compact, lightweight, and plug-and-play, it can operate at altitudes of 2.5 km or below, with the flexibility to handle 1-4 samples at once.

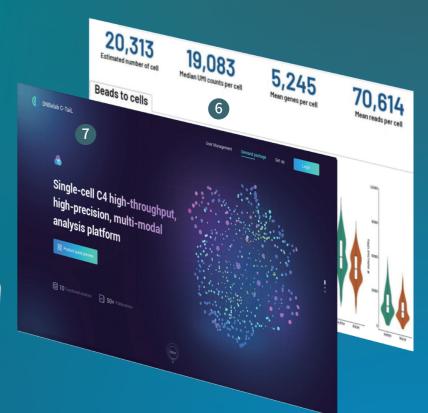


Product Components

- ① Box 1 Droplet Formation Kit (Chilled)
- ② Box 2 Droplet Formation Kit (Frozen)
- ③ Box 3 Library Preparation Kit
- Box 4 Sample Loading Microfluidic Chip

- ⑤ DNBelab C-TaiM 4 Single-cell Droplet Generator
- © C4Tools Single-cell Analysis Software
- ⑦ DNBelab C-TaiL Multi-modal Analysis Platform





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Automated Single-cell Library Preparation Platform

- Four independent microfluidic channels, enabling 1-4 samples' cell separation and labelling.
- 6 minutes for cell nucleus separation and labelling during single-cell ATAC library prep.
- 9 minutes for cell or nucleus separation and labelling during single-cell 3' RNA library prep.



5,000~20,000

Nuclei Input

3,000~15,000

Nuclei Recovered

>10,000

Median Fragment per cells

~6 min

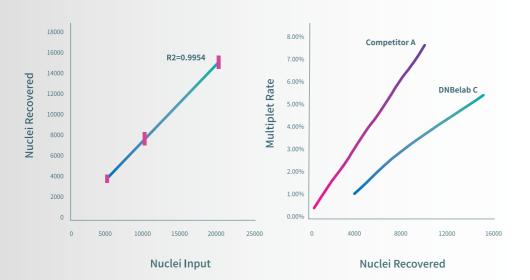
Droplet Generation Time

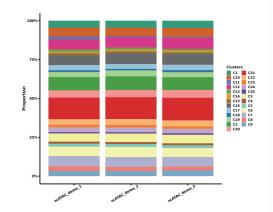
>60 %

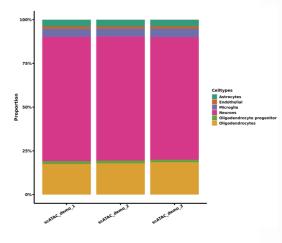
Capture Rate

<6%

Multiplet Rate



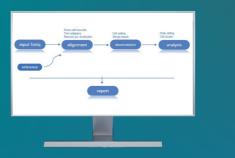




DNBelab C-scATAC

Performance

By utilizing the DNBelab C-TaiM 4 single-cell droplet generator in conjunction with the DNBelab C series high-throughput single-cell ATAC library preparation set and the C4Tools data analysis process, input nuclei range from 5,000 to 20,000. The recovered nuclei typically fall within the range of 3,000 to 15,000, with a capture rate exceeding 60%. Additionally, the median fragment per cell count exceeds 10,000 (mouse brain), and the multiplet rate remains below 6%.



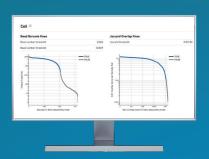


One-click Operation

Visual Content

System Compatibility

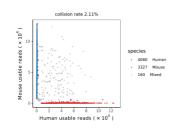




Multiplet Rate Test

-Nuclei of human brain and mouse brain

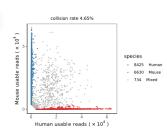
Input nuclei: 10,000



Species	Estimated number of cells	Median fragments per cell	Median fraction of fragments overlapping peaks	Median fraction of fragments overlapping TSSs	Collision rate
Human	4,080	20,612	27.66%	18.34%	2.11%
Mouse	3,327	24,177	37.2%	21.68%	2.1170
QC	2,500~8,000	>10,000	>50%	Human>15% Mouse>15%	<5%

-Nuclei of human renal pelvic carcinoma and mouse brain

Input nuclei: 10,000

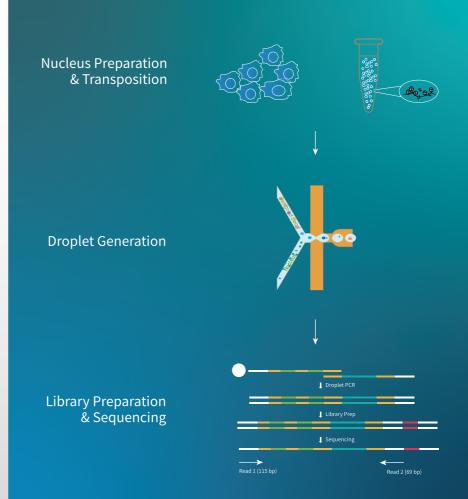


Species	Estimated number of cells	Median fragments per cell	Median fraction of fragments overlapping peaks	Median fraction of fragments overlapping TSSs	Collision rate
Human	8,425	10,286	26.09%	17.59%	/ / 50/
Mouse	6,630	11,776	34.58%	20.43%	4.65%
QC	2,500~8,000	>10,000	>50%	Human>15% Mouse>15%	<5%

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ATAC		TAC			ACA	ALM	CAT			CATA		ALL	ATAC	ATAC,		ILA	
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### Precision pressure-driven microfluidic technology

DNBelab C series high-throughput single-cell ATAC library preparation set, microfluidic chip and DNBelab C-TaiM 4 droplet generator can be used together to complete ATAC library preparation of tens of thousands of nucleus; The product is based on precision pressure-driven microfluidics control technology, the multiplet rate of nucleus are less than 6% when recovering 15,000 nucleus; The library can complete high-throughput sequencing on the DNBSEQTM sequencing platform of MGI.



# Data Performance snATAC-seq

→Human PBMC

→Human bladder cancer

### **Human PBMC**

Input nuclei: 10,000

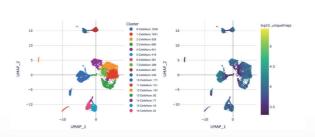
7,265

10.445

#### Libary QC 0

Targeting		Insert Size Distribution
Mean fraction of fragments overlapping TSSs	44.49%	
Called peak number	77,334	0.9
Mean fraction of fragments overlapping peaks	60.47%	(A)
Insert Size Distribution		O 06-
Fraction of nucleosome-free regions	62.23%	Ē 03
Fraction of fragments mono-nucleosome regions	29.74%	
Library Complexity		0.0
Percent of duplicates	65.38%	0 200 400 600 800 ATAC-seq Fragment Size (bp)

### Cell Clustering @



### Human bladder cancer

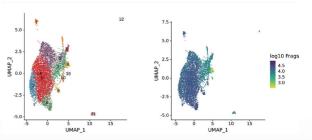
Input nuclei: 10,000

17,386

#### Libary QC @

ents overlapping TSS 17.591%
118,111
ents overlapping called peaks 46.96%
ution
-free regions 55.46%
nono-nucleosome regions 35.86%
38.66%

#### Cell Clustering @



### -Mouse brain

Input nuclei: 10,000

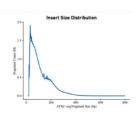
9,564

overlapping peaks

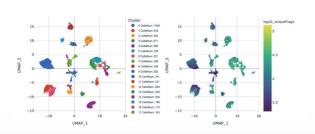
overlapping TSSs

Libary QC @





### Cell Clustering @



### **Monkey brain**

Input nuclei: 15,000

9,069

10,239

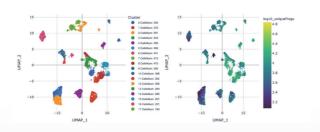
52.6% overlapping peaks

overlapping TSSs

### Libary QC @

Targeting		Insert Size Distribution
Mean fraction of fragments overlapping TSSs	14.71%	I /
Called peak number	185,514	0.6-
Mean fraction of fragments overlapping peaks	48.33%	E 0.4
Insert Size Distribution		Toganoni Os
Fraction of nucleosome-free regions	61.47%	E 0.2
Fraction of fragments mono-nucleosome regions	30.15%	
Library Complexity		0.0
Percent of duplicates	24.79%	0 200 400 600 ATAC-seq Fragment Size (bp)

#### Cell Clustering @



# **Data Performance** snATAC-seq

→Mouse brain

→Monkey brain

# **Data Integration For Accurate**

# **Cell Annotation**

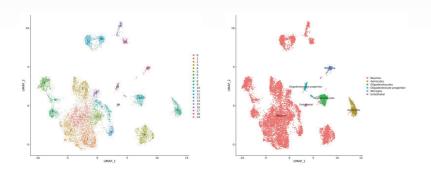
Based on DNBelab C series 3' RNA and ATAC data, the single-cell multi-omics data of mouse brain nuclei were integrated and analyzed to achieve accurate cell annotation. The annotations from the two omics datasets highly overlap.

MGI

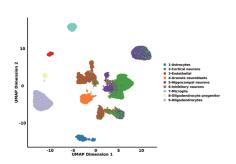
DNBelab C-TaiM 4

MGI

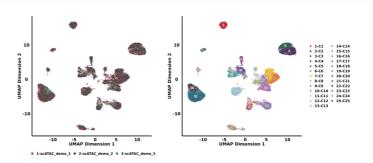
### -Step 1: snRNA clustering and annotation of mouse brain



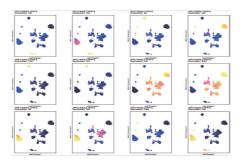
### - Step 3: Data integration, mapping and joint cell/nucleus



### -Step 2: snATAC clustering and annotation of mouse brain



### Step 4: Annotation validation

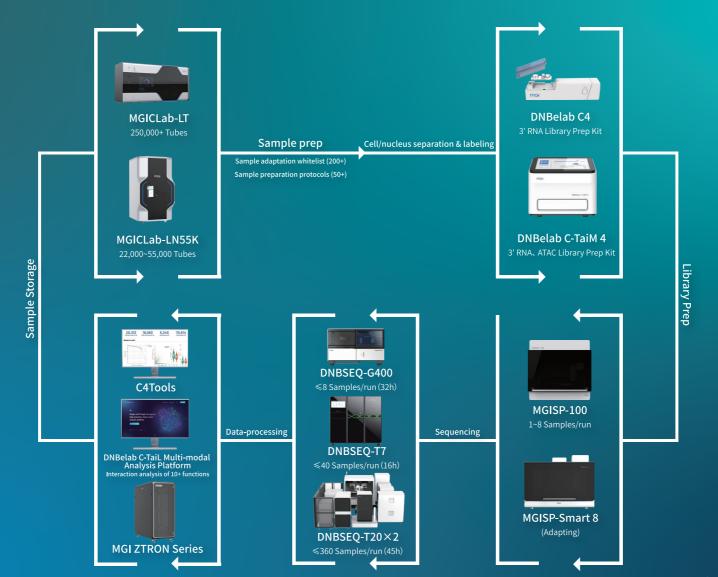


# The One-stop Package For

# Productivity

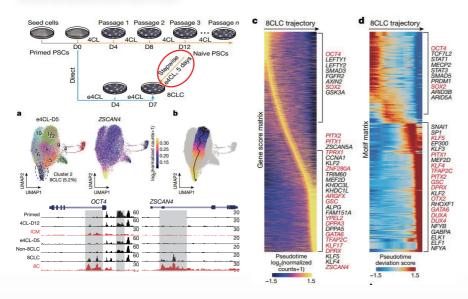
MGI offers a one-stop platform for single-cell sequencing. This platform includes cell or nucleus preparation solutions, portable C4 devices for cell separation and labelling, or the high-throughput independent 4-channel single-cell droplet generator DNBelab C-TaiM 4. It also provides single-cell 3' RNA and single-cell ATAC library preparation reagents, an automated library preparation platform MGISP-100, genetic sequencer DNBSEQ-G400, DNBSEQ-T7, or DNBSEQ-T20×2, data standard quality control and analysis package C4Tools, and a multi-modal analysis platform. This comprehensive support enables the scaling and standardization of single-cell omics data production.





### **Application 1**

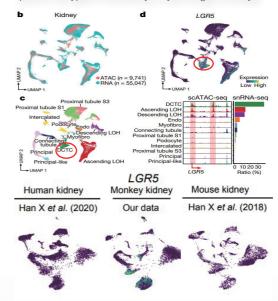
Revealed the chromatin open state of eight-cell-like (8CLC) induced from human pluripotent stem cells in vitro



### Md. Abdul Mazid. Nature. 2022

### **Application 2**

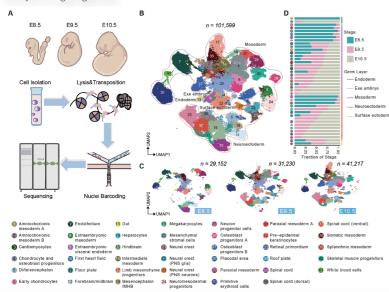
Combined scRNA and scATAC analysis found that LGR5 is highly expressed in specific cell types in the kidney of cynomolgus monkeys



### Han Lei. Nature. 2022

### **Application 3**

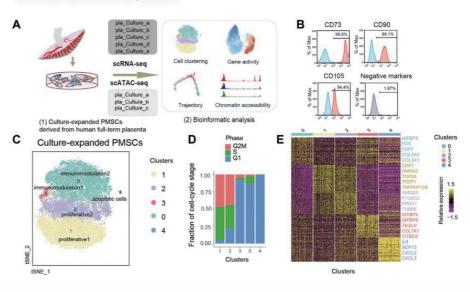
Mapping single-cell chromatin openness during early mouse embryonic organogenesis



### Qiuting Deng. Front. Neurosci. 2023

### **Application 4**

Integrative scRNA and snATAC analysis of mesenchymal stem cells & stromal cells from human placenta



### Jinlu Li. Front. Cell Dev. Biol. 2022

# About MGI Tech Co., Ltd.

### Vision

**Leading Life Science Innovation** 

### Mission

To Develop and Promote Advanced Life Science Tools for Future Healthcare

Building 11, Beishan Industrial Zone, Yantian District, Shenzhen, 518083, CHINA



en.mgi-tech.com

MGI-service@mgi-tech.com



2,800+

**35.2**%

**Employees** 

R & D Personnel

Customers

Countries & Regions

MGI Tech Co., Ltd. (referred to as MGI) is committed to building core tools and technology to lead life science through intelligent innovation. With a focus on R&D, production and sales of DNA sequencing instruments, reagents, and related products, MGI provides real-time, panoramic, and life course equipment and systems for precision medicine, precision agriculture, precision healthcare and other relevant industries. MGI is a leading producer of clinical high-throughput gene sequencers, and its multi-omics platforms include genetic sequencing, medical imaging, and laboratory automation.

As of June 30, 2023, MGI has more than 2,800 employees, and 35.2% of whom are R&D personnel. Founded in 2016, MGI operates in more than 90 countries and regions, serving more than 2,400 customers. It has established scientific research and production bases, global training and service network in many countries and regions around the world. MGI is one of the few companies in the world that can independently develop and mass-produce low-, medium- and high-throughput clinical gene sequencers from GB to TB. Providing real-time, comprehensive, life course solutions, its vision is to lead life science innovation

# **Ordering Information**

Product Name	Cat. No.	Product Name of Component Kits	Cat. No.
DNBelab C-TaiM 4RS Single-cell Droplet Generator	900-000637-00	DNBelab C-TaiM 4RS Single-cell Droplet Generator	900-000637-00
		DNBelab C Seris High-throughput Single-cell ATAC Library Preparation Set (Box 1 Droplet Formation Kit)	940-000792-00
DNBelab C Seris High-throughput Single-cell ATAC Library Preparation Set	940-000793-00	DNBelab C Seris High-throughput Single-cell ATAC Library Preparation Set (Box 2 Droplet Formation Kit)	940-000794-00
		DNBelab C Seris High-throughput Single-cell ATAC Library Preparation Set (Box 3 Library Preparation Kit)	940-000910-00
DNBelab C Seris High-throughput Single-cell ATAC Chip	940-000791-00	DNBelab C Seris High-throughput Single-cell ATAC Chip	940-000791-00
		DNBelab C Series High-throughput Single-cell RNA Library Preparation Set V2.0 (Box 1 Droplet Formation Kit)	940-000508-00
DNBelab C Series High-throughput		DNBelab C Series High-throughput Single-cell RNA Library Preparation Set V2.0 (Box 2 Droplet Formation Kit)	940-000509-00
Single-cell RNA Library Preparation Set V2.0	940-000519-00	DNBelab C Series High-throughput Single-cell RNA Library Preparation Set V2.0 (Box 3 Library Preparation Kit)	940-000510-00
		DNBelab C Series C4 Station	940-000507-00
		DNBelab C Series C4 Chip V2.0	940-000506-00

# DNBelab C-TaiM 4

Version: September 2023

Disclamer

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