



Automated Single-cell Droplet Generator

DNBelab C-TaiM 4

Product Components

- ① Box 1 Droplet Formation Kit (Chilled)
- ② Box 2 Droplet Formation Kit (Frozen)
- ③ Box 3 Library Preparation Kit
- ④ Box 4 Sample Loading Microfluidic Chip
- ⑤ DNBelab C-TaiM 4 Single-cell Droplet Generator
- ⑥ C4Tools Single-cell Analysis Software
- ⑦ DNBelab C-TaiL Multi-modal Analysis Platform



5,000~20,000

Nuclei Input

3,000~15,000

Nuclei Recovered

>10,000

Median Fragment per cells

~6 min

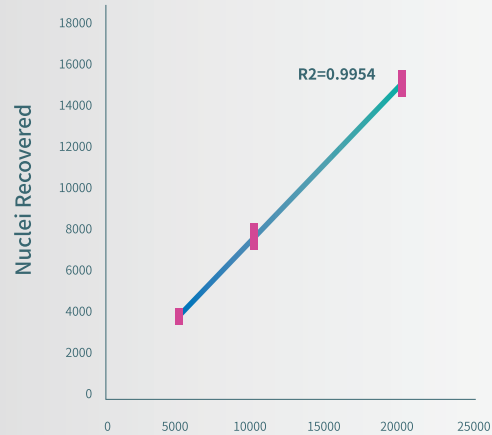
Droplet Generation Time

>60 %

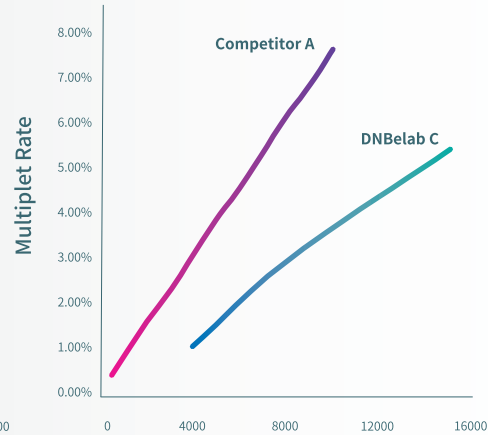
Capture Rate

<6 %

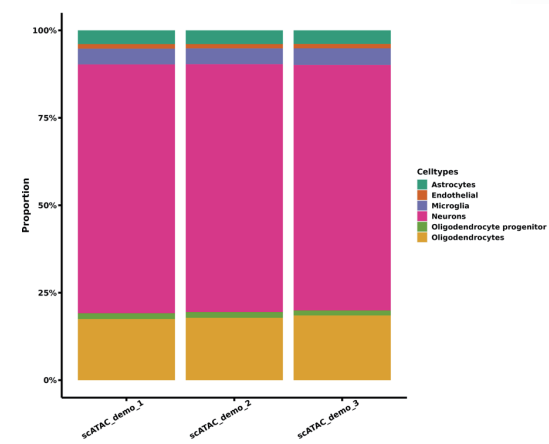
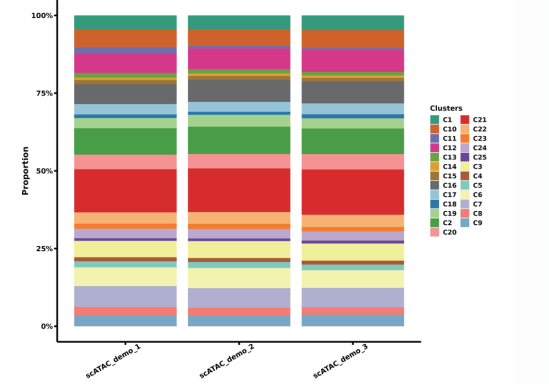
Multiplet Rate



Nuclei Input



Nuclei Recovered

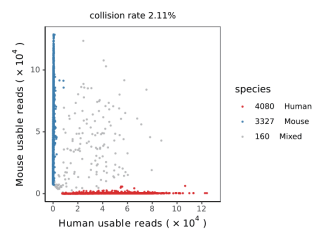


Repeatability Test

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%	
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%	4.65%
Mouse	6,630	11,776	34.58%	20.43%	
QC	2,500-8,000	>10,000	>50%	Human>15% Mouse>15%	<5%

Data Performance snATAC-seq

→Human PBMC

→Human bladder cancer

Human PBMC

Input nuclei: 10,000

7,265 Estimated number of cells
 10,445 Median fragments per cell
 80.6% Median fraction of fragments overlapping peaks
 59.11% Median fraction of fragments overlapping TSSs

Library QC

Targeting

Mean fraction of fragments overlapping TSSs 44.49%
 Called peak number 77,334
 Mean fraction of fragments overlapping peaks 40.47%

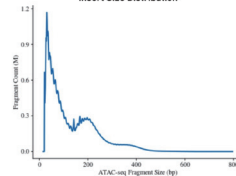
Insert Size Distribution

Fraction of nucleosome-free regions 62.23%
 Fraction of fragments mono-nucleosome regions 29.74%

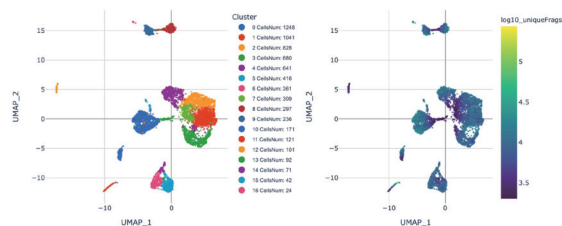
Library Complexity

Percent of duplicates 65.38%

Insert Size Distribution



Cell Clustering



Human bladder cancer

Input nuclei: 10,000

6,737 Estimated number of cells
 17,386 Median fragments per cell
 51.5% Median fraction of fragments overlapping peaks
 18.52% Median fraction of fragments overlapping TSSs

Library QC

Targeting

Mean fraction of fragments overlapping TSS 17.591%
 Called peak number 118,111
 Mean fraction of fragments overlapping called peaks 46.96%

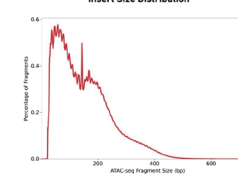
Insert Size Distribution

Fraction of nucleosome-free regions 55.44%
 Fraction of fragments mono-nucleosome regions 35.86%

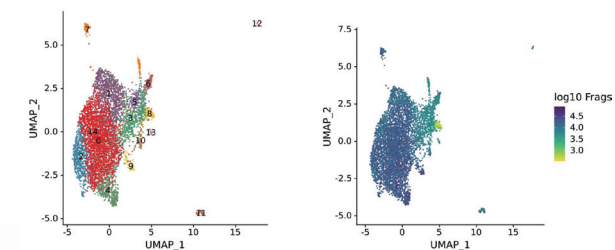
Library Complexity

Percent of duplicates 38.66%

Insert Size Distribution



Cell Clustering



Data Performance

snATAC-seq

Mouse brain

Input nuclei: 10,000

9,564 Estimated number of cells
 16,912 Median fragments per cell
 33.65% Median fraction of fragments overlapping peaks
 20.43% Median fraction of fragments overlapping TSSs

Library QC

Targeting

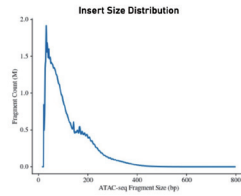
Mean fraction of fragments overlapping TSSs	18.12%
Called peak number	112,509
Mean fraction of fragments overlapping peaks	29.63%

Insert Size Distribution

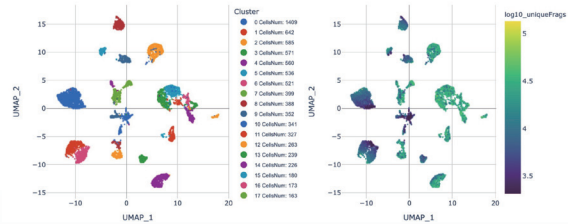
Fraction of nucleosome-free regions	70.69%
Fraction of fragments mono-nucleosome regions	25.18%

Library Complexity

Percent of duplicates	18.4%
-----------------------	-------



Cell Clustering



Monkey brain

Input nuclei: 15,000

9,069 Estimated number of cells
 10,239 Median fragments per cell
 52.6% Median fraction of fragments overlapping peaks
 15.2% Median fraction of fragments overlapping TSSs

Library QC

Targeting

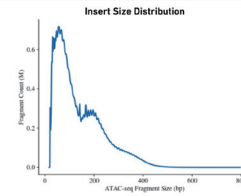
Mean fraction of fragments overlapping TSSs	14.71%
Called peak number	185,514
Mean fraction of fragments overlapping peaks	48.33%

Insert Size Distribution

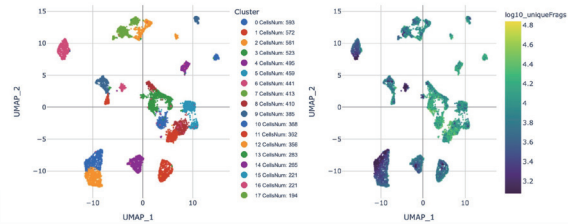
Fraction of nucleosome-free regions	61.47%
Fraction of fragments mono-nucleosome regions	30.15%

Library Complexity

Percent of duplicates	24.79%
-----------------------	--------



Cell Clustering



→ Mouse brain

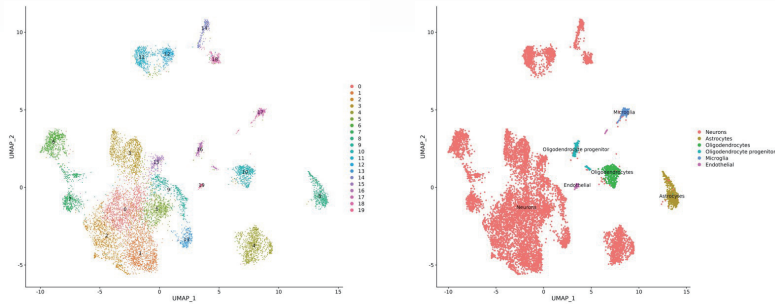
→ Monkey brain

Data Integration For Accurate Cell Annotation

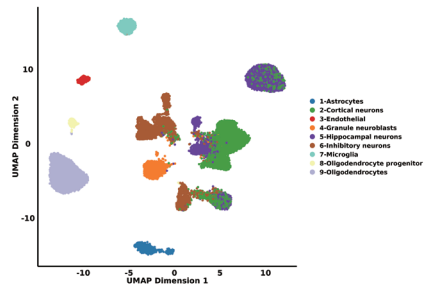


Based on DNBelab C series 3' RNA and ATAC data, the single-cell multi-omics data of mouse brain nuclei were integrated and analyzed to achieve accurate cell annotation. The annotations from the two omics datasets highly overlap.

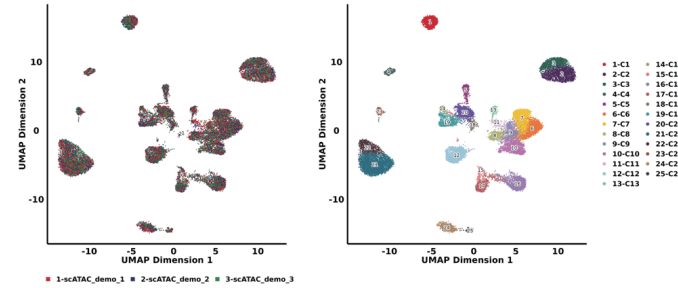
Step 1: snRNA clustering and annotation of mouse brain



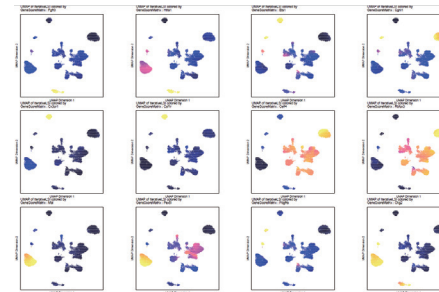
Step 3: Data integration, mapping and joint cell/nucleus



Step 2: snATAC clustering and annotation of mouse brain



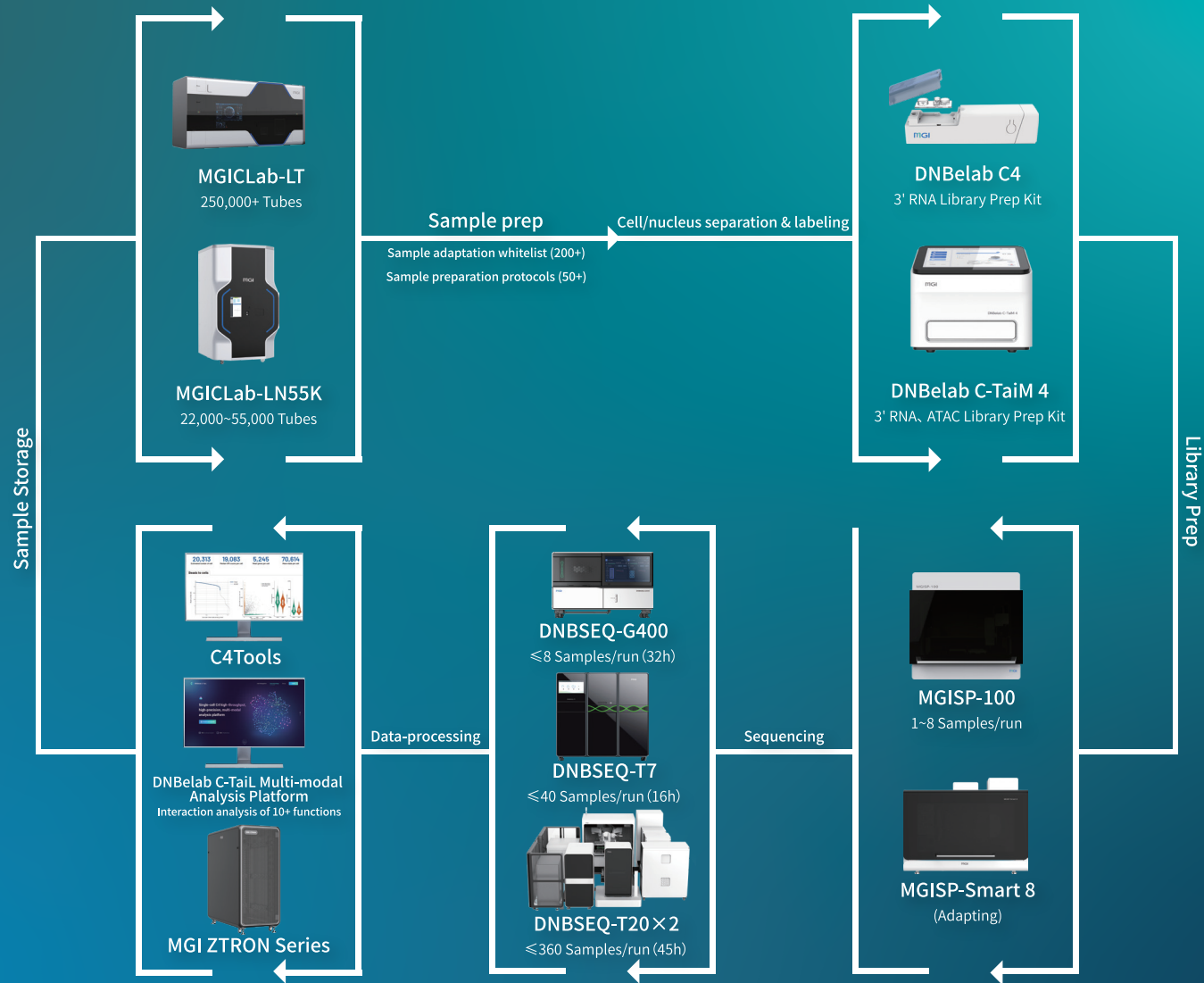
Step 4: Annotation validation



The One-stop Package For Productivity

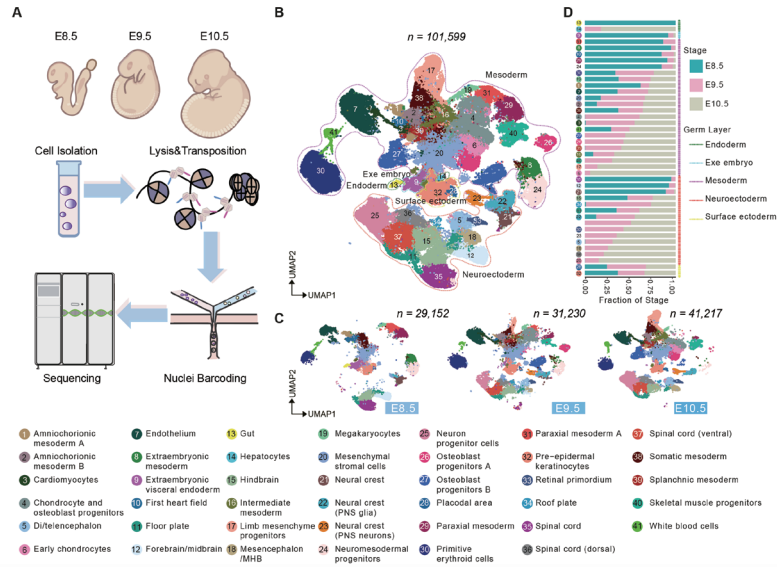
MGI offers a one-stop platform for single-cell sequencing. This platform includes cell or nucleus preparation solutions, portable C4 devices for cell separation and labelling, or the high-throughput independent 4-channel single-cell droplet generator DNBelab C-TaiM 4. It also provides single-cell 3' 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 3

Mapping single-cell chromatin openness during early mouse embryonic organogenesis

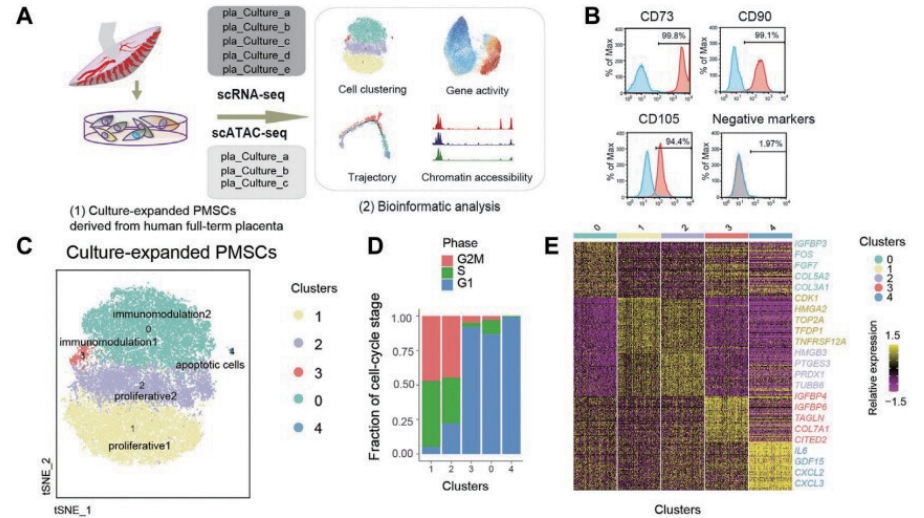


Qiuting Deng. *Front. Neurosci.* 2023

1. Chromatin Openness Characteristics Characterize 41 Cell Types;
2. Reconstruct the developmental trajectories of the spinal cord and somites and delineate key cis-regulatory elements and transcription factors during development.

Application 4

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



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

1. scATAC analysis obtained a total of 17,410 single cells and identified 4 cell clusters: C1, C2, C3, C4.
2. Integrative analysis of gene expression and chromatin accessibility showed a clearer chromatin accessibility signature than those at the transcriptional level on immunomodulatory-related genes in PMSCs

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

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.

2,400+ **90+**

Customers

Countries & Regions

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	940-000793-00	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 (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	940-000519-00	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 Single-cell RNA Library Preparation Set V2.0 (Box 2 Droplet Formation Kit)	940-000509-00
		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

Disclaimer

Information in this brochure is updated to [09/19/2023] and only for your reference. In no event shall the brochure be regarded as warranty or commitment made by MGI Tech Co., Ltd. All rights and obligations shall be subject to the final executed agreement.