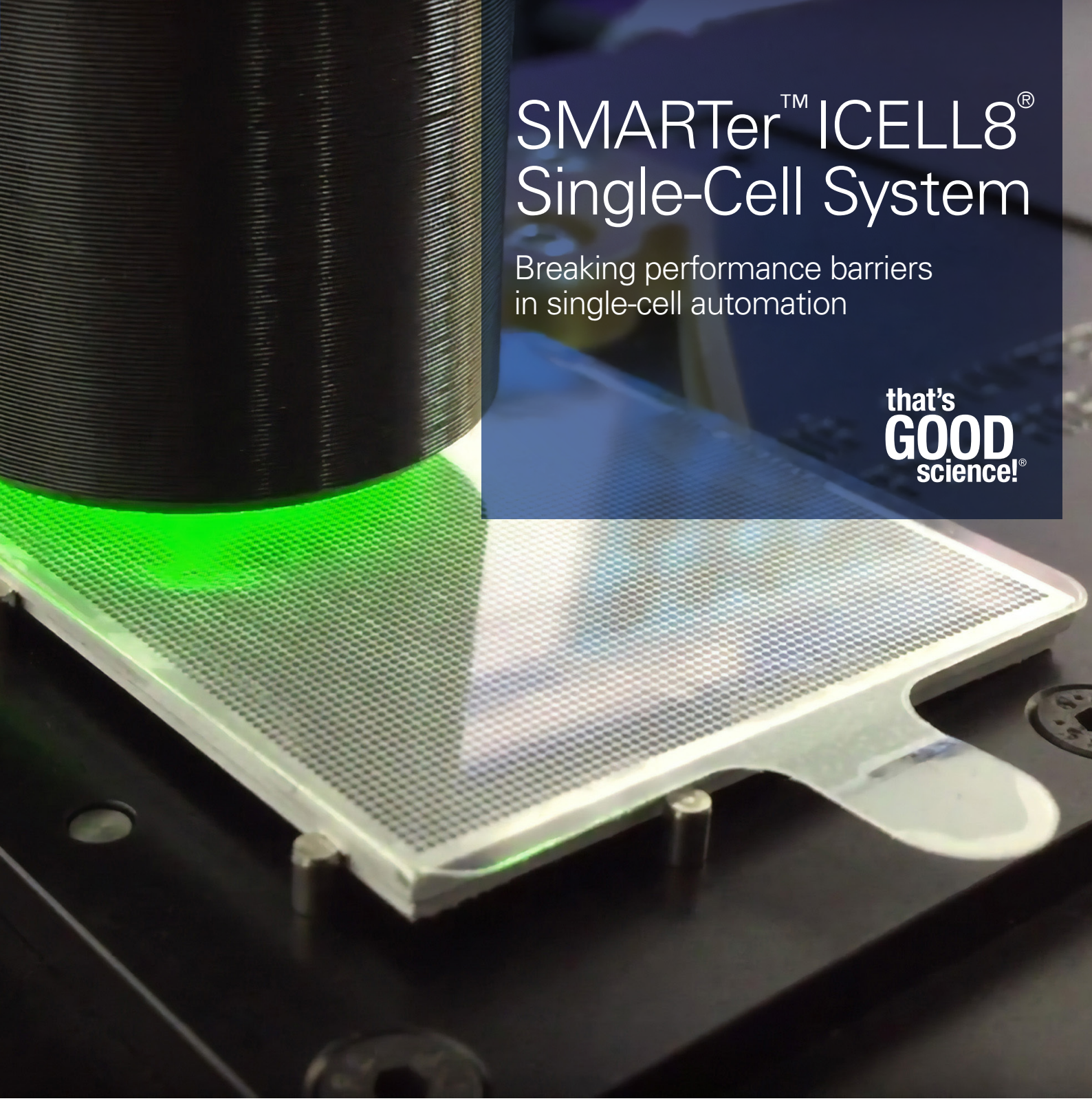


SMARTer™ ICELL8® Single-Cell System

Breaking performance barriers in single-cell automation

that's GOOD science!®

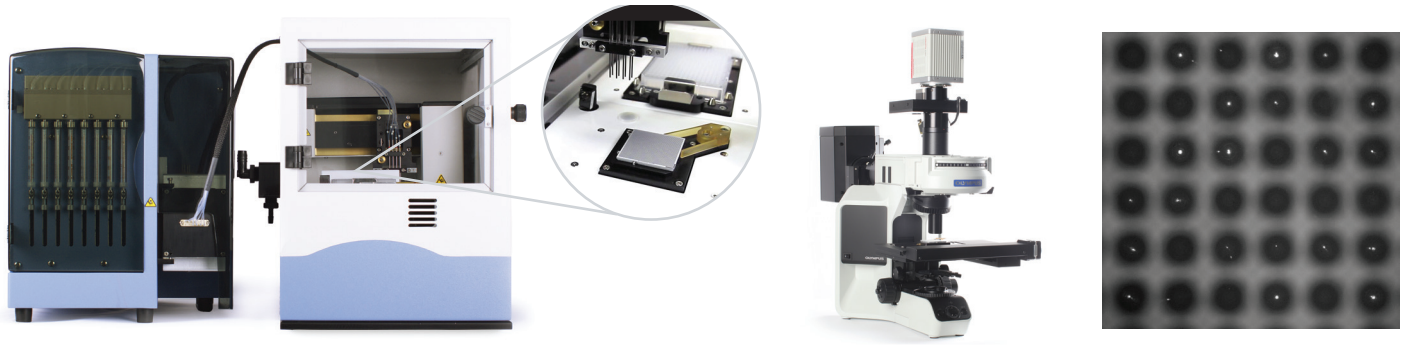
TaKaRa

Clontech TaKaRa cellartis

Open platform for single-cell analysis

High-throughput single-cell isolation, selection, and processing

- **Be in control**—selectively process only the cells of choice
- **Be more confident in your data**—reduce batch effects and the unnecessary analysis of empty or multi-cell wells



Cell dispensing and visualization. After the ICELL8 MutliSample NanoDispenser (MSND) has dispensed cells into the 5,184-nanowell chip, every well is imaged. Captured images are then processed in the CellSelect® software to determine whether wells are empty, contain one cell, or contain multiple cells. This data can then be used to dispense reagents into the single-cell-containing wells.

Overview of system

Dispensing	Imaging
• Automated dispensing of cells and reagents by the **ICELL8 MSND** • Accommodates up to eight samples • Flexible options for volume and pattern dispensation • Unbiased isolation of 1,000–1,800 single cells in a 5,184-nanowell chip • Dispense cells of ≥ 100 µm size	• Automated rapid and robust imaging with the **ICELL8 Imaging Station** • Simple user interface • Imaging channels for live/dead analysis of cells* *CellTracker Red or a combination of Hoechst and propidium iodide dyes can be used for cell identification and viability assessment.
Selection	**Chips and reagents (sold separately)**
• Autoselect single cells or nuclei for downstream analysis with **CellSelect software** • Evaluate staining for cell viability • Distinguish single-cell-containing wells from empty and doublet-containing wells	• 5,184-nanowell chips • Chips of varying depth hold 150, 250, or 350 nl • Blank chips and preprinted chips for specific applications

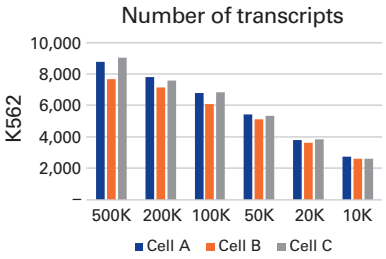
Gain clarity from complex samples

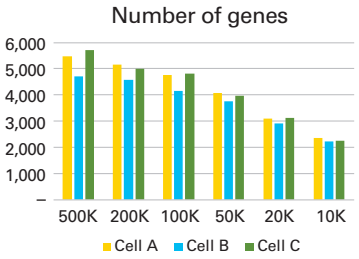
To address cellular heterogeneity, researchers need an unbiased method to analyze large numbers of single cells, more control over selection of the isolated cells to accelerate downstream processing, and the flexibility to analyze multiple parameters per experiment. The SMARTer ICELL8 Single-Cell System meets these requirements with an integrated and automated platform.

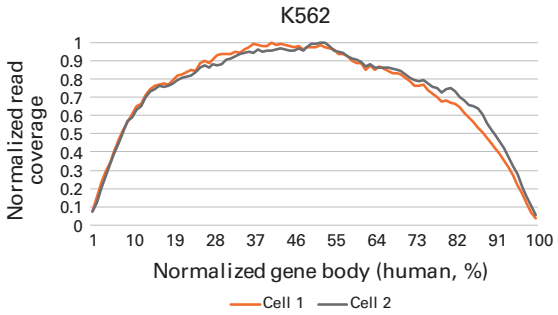
By rapidly isolating and characterizing hundreds of rare and unique cells, you can look beyond the aggregate signal seen with traditional bulk processing. The statistical inferences possible with the SMARTer ICELL8 system greatly expand the opportunities for discovery within any biological system.

Full-length transcriptome analysis

Bringing the unparalleled sensitivity of SMART-Seq technology to the SMARTer ICELL8 Single-Cell System generates high-quality RNA-seq data from hundreds of single cells. Libraries prepared using this system have a high number of transcripts and genes, even at low sequencing depths. Furthermore, the library complexities remain similar even upon downsampling.

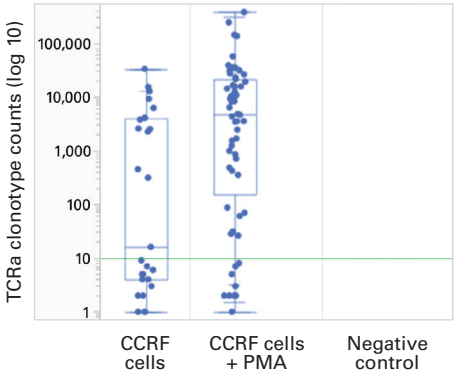


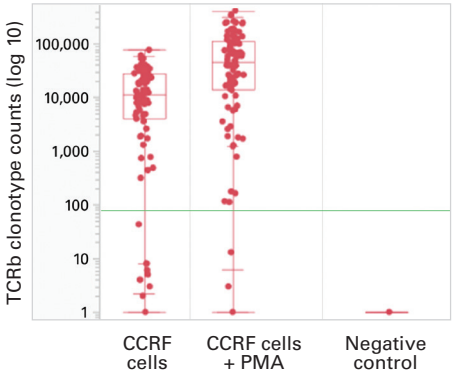




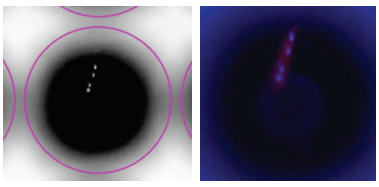
TCR profiling

Combining the SMARTer ICELL8 system with a 5'-RACE-like approach and SMART® technology for next-generation sequencing library preparation allows the capture of the full-length variable regions of TCR-α and -β chains for hundreds of cells.





Cell size flexibility



The SMARTer ICELL8 system provides the flexibility of working with both large and small cell types, including nuclei. Above images are of adult cardiomyocytes dispensed in the nanowells. Cells are stained with Hoechst and propidium iodide. Data kindly provided by Dr. Stefan Günther, Max Planck Institute.

PRODUCTS

Cat. #	Product
Instruments	
640000	SMARTer ICELL8 Single-Cell System
Coming soon	SMARTer ICELL8 cx
Reagent kits	
640142	SMARTer® ICELL8 Chip and Reagent Kit v2
640164	SMARTer ICELL8 Chip and Reagent 3' DE Kit
Coming soon	SMARTer ICELL8 Human TCR a/b Profiling - Chip and Reagent Kit
Coming soon	Full-length transcriptome analysis on SMARTer ICELL8 Single-Cell System
Chips and consumables	
640018	MSND 384-Well Source Plate and Seals
640016	SMARTer ICELL8 Blank Chips

Contact us today

Interested in learning more about how the SMARTer ICELL8 Single-Cell System can optimize your NGS library prep for reliable sequencing results?

Please send your inquiries to our Technical Support department by calling +33 (0)1 3904 6880 or sending an email to techEU@takarabio.com.

that's GOOD science!®

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ICELL8-BR-0218

Isolate cells of any size

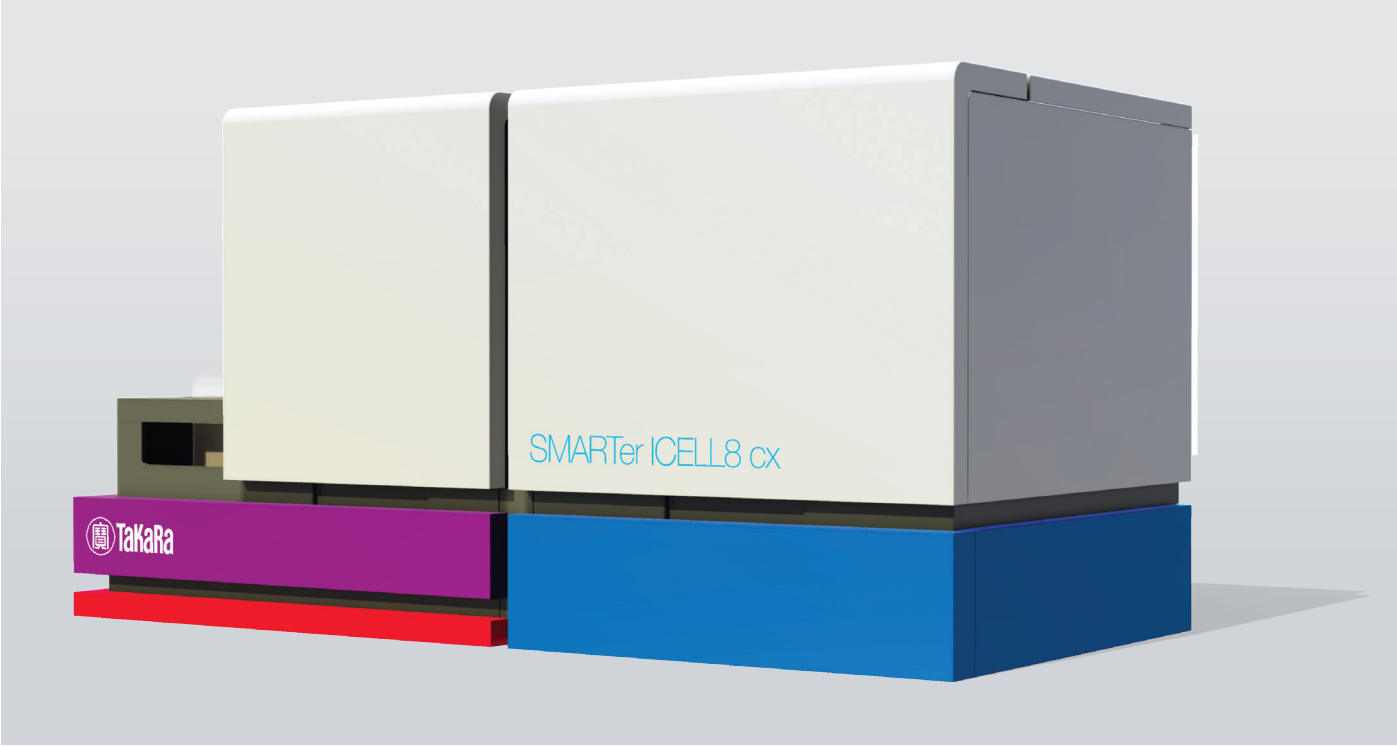
Cell line/type	Species	Source	Cell line/type	Species	Source
307	Mouse	Pancreas	KU812	Human	Blood, CML myeloblast
3T3	Mouse	Fibroblast	Lung epithelia	Mouse	Primary FACS-sorted cells
A-20	Mouse	B-lymphocyte	MCF7	Human	Breast
A-375	Human	Melanoma	MDA-MB-231	Human	Mammary gland
BaF/3	Mouse	Pre-B cells	MIA PaCa-2	Human	Pancreas
Beta-TC-6	Mouse	Pancreas	Nasal epithelia	Human	Primary nasal scraping
Primary cells	Mouse	Bone marrow	NCH421K	Human	Glioma/glioblastoma
Primary cells	Mouse	Cardiomyocyte (adult)	Neurons	Mouse	Fresh dissection
CHO	Hamster	Ovary	Nuclei	Human	Frozen lung tumor; frozen breast cancer
ESC; Differentiated ESC	Mouse	Embryonic stem cells	PBMCs	Human	Blood
Ear	Mouse	Inner ear organs	Planaria SC	Planarium	Stem cells
Primary cells	Mouse	Embryos	Retina	Mouse	Primary cells
FACS-sorted lymphocytes	Human	Bone marrow	Scheider S2	Drosophila	Embryo
Fetal cortex	Human	Primary cells	SK-BR3	Human	Breast
Fetal neurons	Human	Fetal brain	Skin	Zebrafish	Skin
Gut cells	Mosquito	Gut	Spheroids	Human	MCF10CA-derived
H2452	Human	Lung	U-87-MG	Human	Glioblastoma; astrocytoma
HCT 116	Human	Colon	UTHSC	Human	Bone marrow EW-8 Ewing Sarcoma
HSPC	Mouse	Hematopoietic stem cells	Z-138	Human	B-cell lymphoma

Table I. The ICELL8 MSND's large-bore nozzle allows unbiased isolation of any sample. A few of the cell types that have been isolated using the system are listed. For samples highlighted in blue, the SMARTer ICELL8 Single-Cell System is the first to allow successful isolation of single cells, nuclei, or spheroids.

Coming soon: SMARTer ICELL8 cx

An integrated platform with a smaller footprint

The same powerful open platform for single-cell analysis is now in a compact system for integrated imaging, single-cell selection, and well processing.



Current applications supported on the SMARTer ICELL8 system

Adaptations of our SMART-Seq® v4 technology for library preparation on the SMARTer ICELL8 system enable fast, reliable, high-throughput cDNA synthesis for downstream NGS applications. This pairing provides results with high similarity to those of manually generated libraries while increasing reproducibility.

SMARTer ICELL8 applications include:

- Differential expression by 3' end counting
- TCR profiling
- Full-length transcriptome analysis
- ATAC-seq