



SINGLE CELL ISOLATION TECHNOLOGY

based on computer vision



PIEZOELECTRIC PIPETTE ISOLATING SINGLE CELLS ON A MICROSCOPE TO DISCOVER SINGLE CELL GENETICS AND MORE



MAIN FEATURES

- Unprecedented single cell isolation efficiency
- New standard in precision - 1 nanoliter pipetting accuracy
- Can isolate both suspended and surface attached cells
- Viable cells after sorting. One single cell arrives to each PCR tube
- 10 PCR strips containing 80 tubes can be filled in a cycle
- Microwell arrays for testing single cell deposition *in situ*
- Pick up volume of ~1 nanoliter - deposition volume less than 5 nanoliters
- Speed: 3-4 cells/min. - when collecting multiple cells sorting speed is 1 cell/second
- Both unlabeled and fluorescent cells are recognized by computer vision
- Sort cells labeled by fluorescent molecular probes or markers
- Multichannel detection using the fluorescent filter setup of the microscope

COMPACT DESIGN

For single cell DNA/RNA sequencing, CTC detection or protein engineering

PHENOTYPE BY MICROSCOPE

GENOTYPE BY NEXT GENERATION SEQUENCING

IMAGE, ISOLATE, SEQUENCE

Integrated compact device - straightforward operation. Compatible with super-resolution microscopy and high content screening. Sequence exactly that cell you need.



PRECISION

High resolution imaging combined with better than 1 nanoliter liquid handling accuracy



EFFICIENCY

New standard in single cell isolation
>90% efficiency



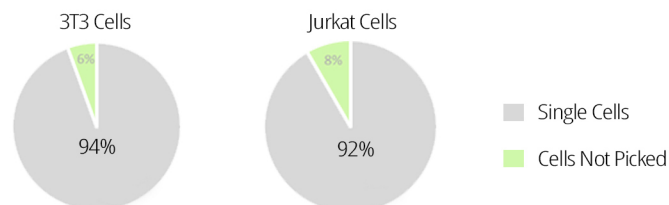
INSTALLATION & SERVICE

On-site installation and hands-on training,
Long term technical support incl. free software
upgrades. Annual service available

SCIENTIFIC REFERENCES

B. Francz et al.: Piezoelectric micropipette for automated single cell isolation, publication to appear, 2019.

SINGLE CELL ISOLATION EFFICIENCY



PATENTED TECHNOLOGY

B. Szabó: Piezoelectric micropipette, Patent pending, 2017-



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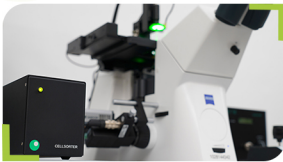
COMPONENTS

PRECISION & RELIABILITY

- Next generation piezoelectric sorting head
- Built-in LED illumination for high quality phase contrast imaging; Ph1, Ph2
- CellSorter control unit
- USB connection to the computer
- High speed motorized vertical micromanipulator
- Manual horizontal micromanipulator for aligning the micropipette
- Special aluminum sample holder fitting to the microscope stage with a hole and magnetic fixing ring for the 35 mm Petri dish and 80 holes for 10 PCR stripes
- 32x24 mm² glass cover slip or miniature microplate for *in situ* testing and high-resolution imaging
- High precision borosilicate glass micropipettes

OUR TECHNOLOGY

COMPACT DEVICE
PIEZOELECTRIC SORTING HEAD
COMPUTER VISION
SOFTWARE
GLASS MICROPIPETTES



COMPACT DEVICE

- Next generation sorting head
- Small form factor CellSorter control unit
- Compatible with most inverted microscopes, e.g., Zeiss, Nikon, Olympus, Leica.

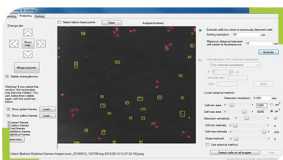
- High speed motorized micromanipulator
- Digital camera
- Desktop computer or laptop



PIEZOELECTRIC SORTING HEAD

- Better than 1 nanoliter liquid handling precision
- Built-in LED illumination for phase contrast imaging
- Simple installation

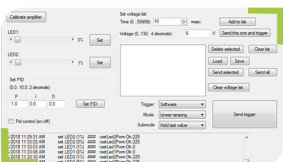
- Flexibility with application for a wide range of single cell experiments



COMPUTER VISION

- Exceptional cell recognition efficiency
- Detects unlabeled cells in phase contrast images
- Cell detection can be optimized in less than a minute
- Recognizes fluorescent cells in multiple channels

- Two-channel comparison for co-localization and more
- Cell size, and brightness can be selected
- Compatible with advanced external cell detection algorithms



SOFTWARE

- Intuitive graphical user interface
- User friendly structure with brief tutorials
- Saves all data for further analysis or publication

- Save the live view camera image for documenting the experiment
- Can control most microscopes, cameras and motorized stages compatible with the open-source Micro-Manager software
- Runs on MS Windows OS



MICROPIPETTES

- Calibrated borosilicate capillaries developed for single cell sorting. Aperture: 5-70 μm
- Optimal micropipette size can be chosen depending on your specific application

- Tip of the micropipette is fire polished to provide a smooth rounded surface for the gentle handling of cells



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