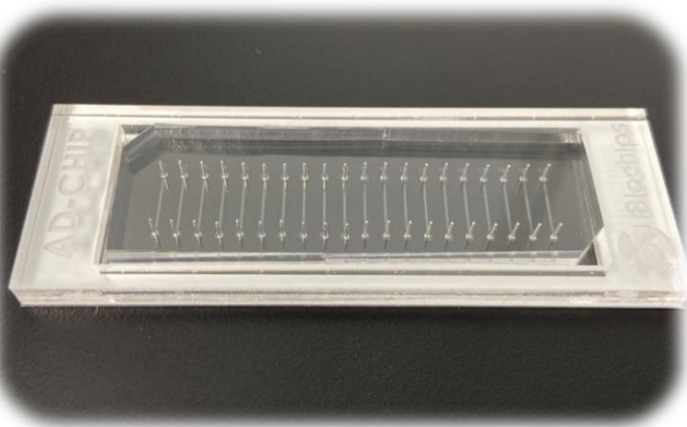


Automated Dissection Chip (AD Chip) provides an automated whole-lifespan tracking with high spatiotemporal resolution, minimum manual intervention, and large-scale data quantification of single yeast cells.



Applications

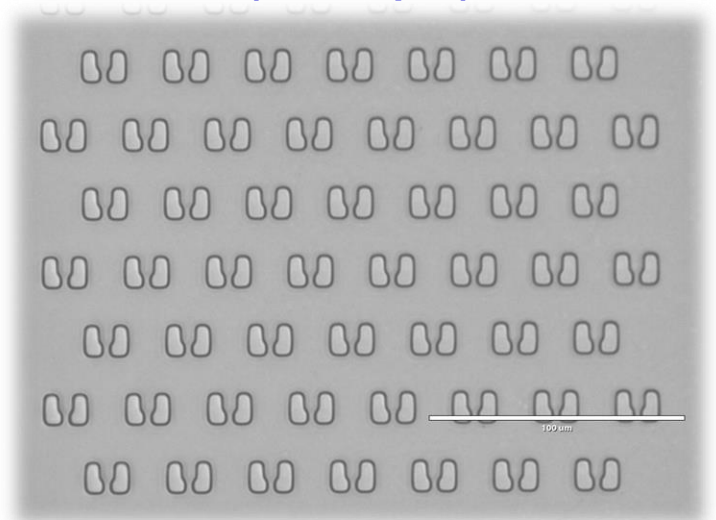
High-Throughput
Replicative Lifespan Assay

Genetic Screening for Longevity
Associated Genes

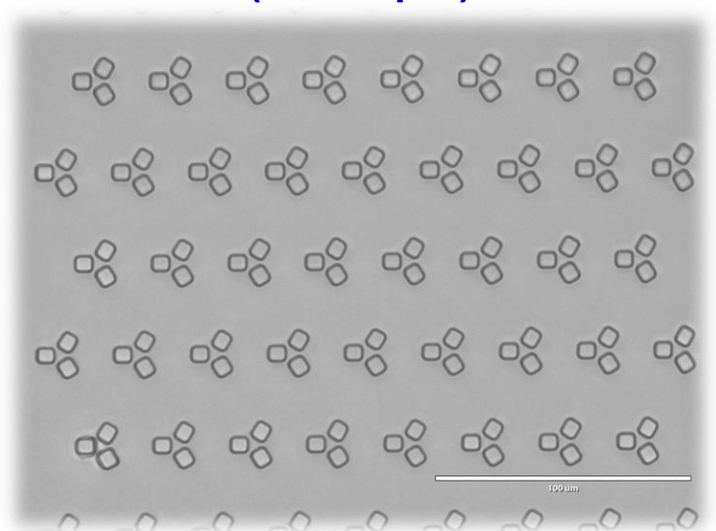
Proteomic Screening for Protein
Turnover and Relocalization

Nutrient Sensing and
Signaling Pathways

AD Chip with U-shaped Traps (AD Chip-U)



AD Chip with Y-shaped Traps (AD Chip-Y)



Features of AD Chip

High-Throughput to Reduce Labor and Time

Continuous and automatic dissection of daughter cells without disturbing mother cells, allowing high-throughput lifespan assay of over 10,000 single yeast cells for 20 different strains in 3 days

High Resolution Fluorescent Imaging

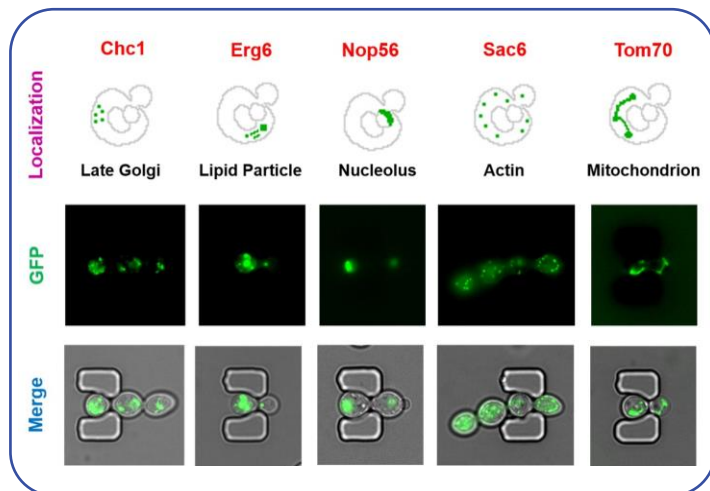
Compatible with high resolution fluorescent imaging for gene expression and molecular markers assays on single-cell level during entire aging process

Maintaining Constant Growth Condition

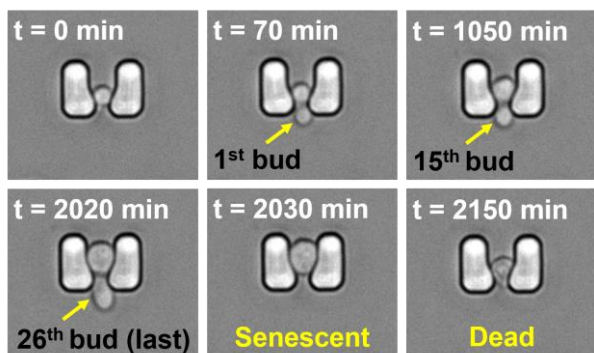
Supply of continuous flow of fresh media, minimizing variations introduced by operators and environment

Tracking of Virgin Cells (with AD Chip-Y)

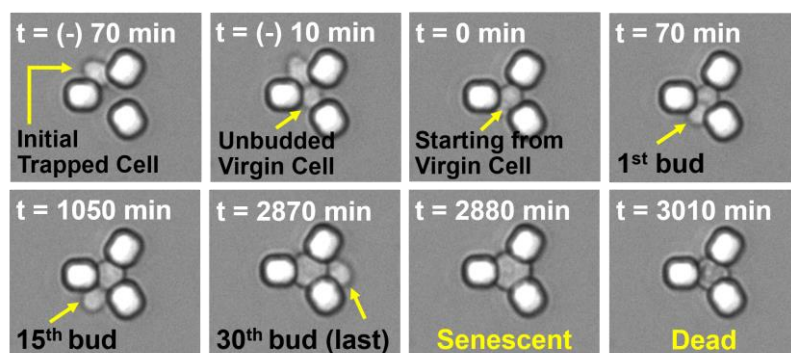
Enable to assay starting from virgin cells, never having previously produced a daughter cell.



AD Chip-U



AD Chip-Y



References

- M.C. Jo, et al. "High-throughput analysis of yeast replicative aging using a microfluidic system." *PNAS*, vol. 112 (30), 2015, 9364–9369.
- Z. Gao, et al. "Comparative analysis of yeast replicative lifespan in different trapping structures using an integrated microfluidic system." *Adv. Mater. Technol.*, vol. 5 (12), 2020, 2000655.

Specifications of AD Chip

Material	<ul style="list-style-type: none"> Biocompatible polymer
Dimensions	<ul style="list-style-type: none"> 75mm (Length), 25mm (Width), 4mm (Height)
Substrate	<ul style="list-style-type: none"> Glass coverslip (0.16 mm thickness), allowing simultaneous lifespan and gene expression assays with up to 100X oil objective (Upon Request) Microscope slide (1 mm thickness), allowing general lifespan assay with up to 40X objective
Number of traps	<ul style="list-style-type: none"> Total 18,000 traps (900 traps x 20 separate channels)
Number of inlets	<ul style="list-style-type: none"> 20 media & cells inlets