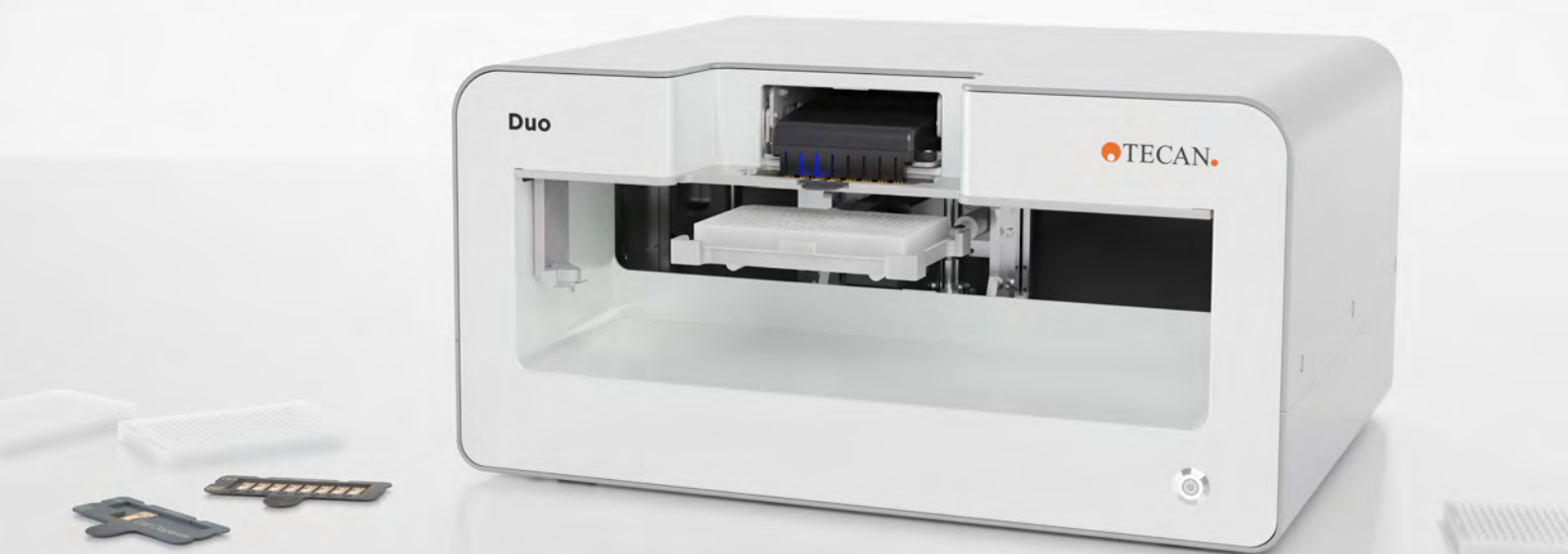


# PICOLITER DISPENSING REDEFINED, NOW FOR SINGLE CELLS TOO.

Meet Duo Digital Dispenser™, the evolution of D300e.



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**Meet Duo Digital Dispenser™, the evolution of D300e.**

Duo is the only device you need for your low-volume and single- to multi-cell dispensing workflows. This affordable benchtop instrument integrates all the advantages of proven microfluidic technology into one powerful solution.

Duo dispenses reagents and stock solutions with precision, from picoliters to microliters and single cells to multiple cells. Designed for dose-response curves, synergy experiments, miniaturized genomics workflows and single-cell analysis. Its intuitive software and adaptable design streamlines both high-throughput and low-volume workflows.



## Streamline your workflow.



### Highest precision and speed:

Dispense volumes from picoliters to microliters with picoliter precision. Isolate single cells in ~5 minutes across a 384-well plate, with >90% isolation success and dispense reagents in <3 minutes.



### Gentle on cells:

The microfluidic technology ensures robust 90% cell viability and clonal outgrowth efficiency comparable to manual pipetting, without any risk of cross-contamination.\*



### Accessible and flexible:

Use the Duo Digital Dispenser to fit your needs. Get your instrument at an affordable rate and purchase cassettes based on your specific dispensing needs, be it for single-cell dispensing, general liquid dispensing or both.



### Rely on proven technology:

Powered by HP's proven microfluidic digital dispensing technology, it is trusted by over 1,000 industry-leading customers. Expect consistent performance and a durable instrument built to last.



### Truly plug-and-play:

Ready within minutes after unboxing. Simply plug in the cable, install the user-friendly software, define your plate layout and dispensing pattern and hit run.

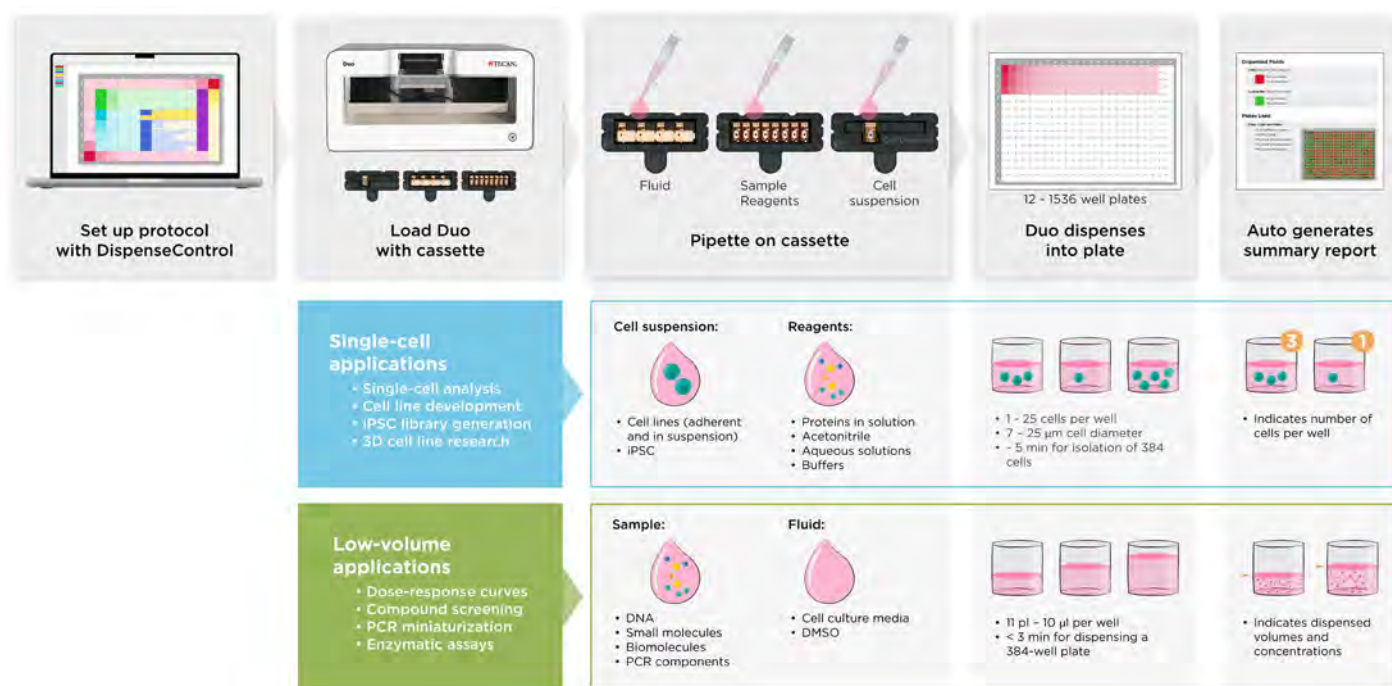
\* <1 hour post-dispense

# PRODUCT FEATURES.

## Duo Digital Dispenser Specifications.

| Specification                   | Cell dispensing                                                                                                                                                                          | Reagent dispensing                                                                                                                                                                  |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cell size range                 | 7-25 $\mu\text{m}$                                                                                                                                                                       | —                                                                                                                                                                                   |
| Sample type                     | Wide variety of cell types*                                                                                                                                                              | Biomolecules, small molecules, nanoparticles                                                                                                                                        |
| Qualified fluid classes         | Cell suspension                                                                                                                                                                          | DMSO, acetonitrile, aqueous solutions, proteomics solutions (such as trypsin, iodoacetamide DTT, TCEP or TEAB), master mixes**                                                      |
| Formats to dispense on          | <ul style="list-style-type: none"> <li>• 12-1536 well plates</li> <li>• Customizable substrate, such as microscope slides</li> <li>• Plate height 4-47mm</li> </ul>                      |                                                                                                                                                                                     |
| Dispensing technology           | Cell isolation based on impedance signal                                                                                                                                                 | Reagent dispensing based on inkjet microfluidics technology                                                                                                                         |
| Dispensing speed                | 384-well plate in ~5 minutes                                                                                                                                                             | 384-well plate in < 3 minutes                                                                                                                                                       |
| Dispensing volume range         | 480 pL-20 $\mu\text{L}$                                                                                                                                                                  | 7 pL-200 $\mu\text{L}$<br>(Depending on the cassette and fluid type)                                                                                                                |
| Cell dispensing                 | Dispense 1 to 25 cells per well                                                                                                                                                          | —                                                                                                                                                                                   |
| Cell viability after dispensing | 90% or greater***                                                                                                                                                                        | —                                                                                                                                                                                   |
| Software                        | <ul style="list-style-type: none"> <li>• Intuitive and easy to set-up protocols</li> <li>• Automatically generates summary report, indicating wells with single cells as well</li> </ul> | <ul style="list-style-type: none"> <li>• Intuitive and easy to set-up protocols</li> <li>• Automatically generates summary report, indicating volumes and concentrations</li> </ul> |
| Instrument dimensions           | 47 x 37 x 23 cm                                                                                                                                                                          |                                                                                                                                                                                     |
| Instrument weight               | 16.1 kg                                                                                                                                                                                  |                                                                                                                                                                                     |

## Featured Workflow.



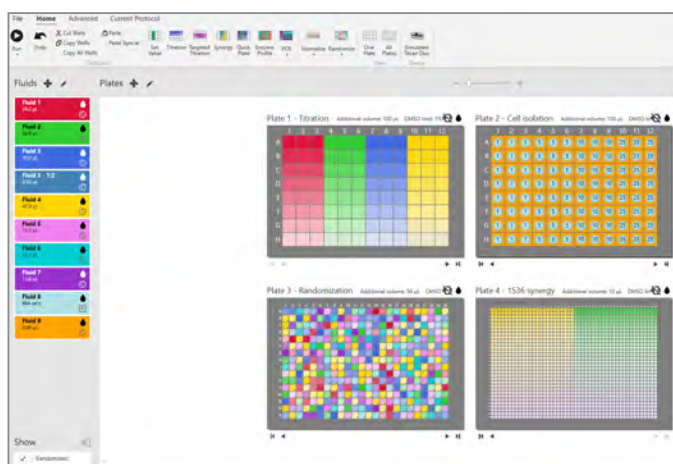
\*For a detailed list of cell types, please refer to the cells table (p07)

\*\*This list includes common compatible fluids but is not exhaustive. For inquiries about additional fluids, please contact Tecan customer support.

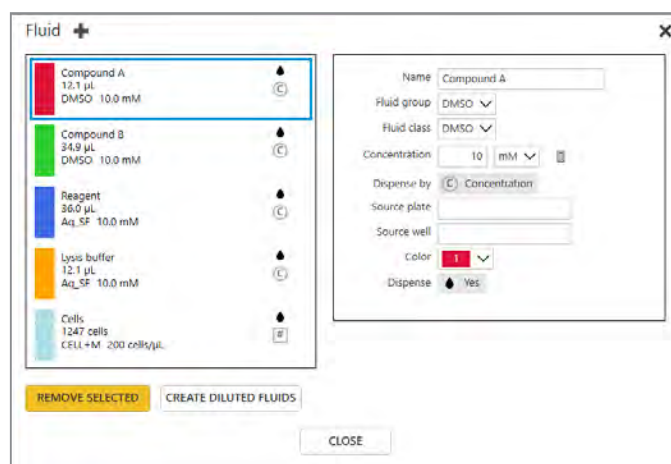
\*\*\*At day zero

## Duo DispenseControl Software.

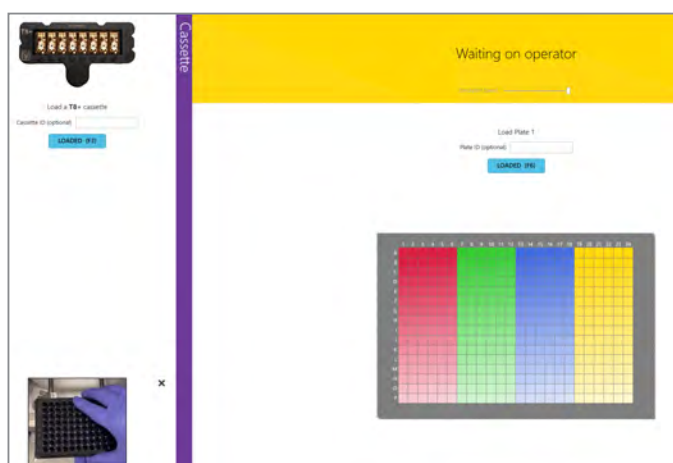
The software behind Duo combines the trusted features of D300eControl and UnoControl to streamline your laboratory workflows with enhanced capabilities and efficiency. Experience the power of this advanced software and transform your experimental processes with ease.



Conduct titration, synergy experiments or cell isolation with ease using Duo. Create precise, customized plate layouts and randomize them with a single click, optimizing your experimental design and efficiency.



Easily select the optimal fluid class for your experiments. Customize dispensing of DMSO, aqueous solutions or even cells to match your specific needs, ensuring precision and reliability across diverse applications.



Step-by-step protocol guidance ensures smooth navigation through each phase of your experiment, while built-in features minimize human errors, enhancing efficiency and accuracy in your research process.



Auto generated summary reports reporting key metrics such as volumes dispensed, concentration levels, cell isolation success rates and cassette consumption. Gain valuable insights to optimize your workflows and ensure consistent, high-quality results in your experiments.

- **Effortless experiment setup:** Quickly configure a wide range of experiments, including cell isolation, synergistic studies and randomized plate layouts, in minutes.
- **Intuitive protocol guidance:** Step-by-step assistance for single cell or reagent dispense protocols.
- **Immediate insights:** Auto-generated summary reports provide detailed information on dispensed reagent volumes, utilized plates and cassettes, single-cell isolation success rates, and cell concentration metrics.
- **Enhanced workflow efficiency:** Save time without compromising on quality, thanks to the software's user-friendly design and advanced features.

## Duo Dispensehead Cassettes.

The Duo Dispensehead Cassettes enables dispensing of cell suspension for cell isolation as well as small molecules and biomolecules in DMSO or aqueous solutions.

### Overview.

| T8+ and D4+ cassettes                                                                                                                                                                                              | T8 surfactant-free and D4 surfactant-free cassettes                                                                                                                                                            | C1a cell dispensing cassette                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>Cassette for dispensing both DMSO and aqueous solutions with surfactant.</li> <li>Dispensing capabilities are unchanged and backwards compatible with the D300e.</li> </ul> | <ul style="list-style-type: none"> <li>Cassette for dispensing aqueous solutions and buffers.</li> <li>No addition of surfactant required.</li> <li>Only compatible with the Duo Digital Dispenser.</li> </ul> | <ul style="list-style-type: none"> <li>Cassette for cell isolation.</li> <li>Only compatible with the Duo Digital Dispenser.</li> </ul> |

## Duo Dispensehead Cassettes Specification.



C1a+ cassette



T8+ cassette



D4+ cassette

|                              |                                     |                                                                                                                                                                   |                                             |
|------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Product number               | 30253251                            | 30253252                                                                                                                                                          | 30253253                                    |
| Qualified fluid classes      | Cell suspension                     | <ul style="list-style-type: none"> <li>DMSO, Acetonitrile</li> <li>Aqueous solutions (requires surfactant)</li> <li>Master mixes (requires surfactant)</li> </ul> |                                             |
| Key capabilities             | Isolation of 1 to 25 cells per well | Titration, low volume dispensing                                                                                                                                  | Normalization of aqueous solutions and DMSO |
| Dispenseheads per cassette   | 1                                   | 8                                                                                                                                                                 | 4                                           |
| Fill cup volume              | 20 µl                               | 20 µl                                                                                                                                                             | 200 µl                                      |
| Dispensing volume range      | 480 pl–20 µl                        | 11 pl–20 µl                                                                                                                                                       | 1 nl–200 µl                                 |
| Dispensing volume increments | As low as 480 pl                    | As low as 11 pl                                                                                                                                                   | As low as 400 pl                            |
| CV                           | -                                   | < 8%*                                                                                                                                                             | < 8%*                                       |

\* For volumes > 100 pl and test fluid of 100% DMSO without other additives or for volumes > 100 pl and aqueous test fluid of 0.1% Brij 35 without other additives.



|                              | T8 surfactant-free cassette                                                                                                                                                   | D4 surfactant-free cassette       |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|
| Product number               | 30253254                                                                                                                                                                      | 30253255                          |
| Qualified fluid classes      | <ul style="list-style-type: none"><li>• Aqueous solutions</li><li>• Proteomics solutions (such as trypsin, iodoacetamide, DTT, TCEP or TEAB)</li><li>• Master mixes</li></ul> |                                   |
| Key capabilities             | Titration, low volume dispensing                                                                                                                                              | Normalization of aqueous and DMSO |
| Dispenseheads per cassette   | 8                                                                                                                                                                             | 4                                 |
| Fill cup volume              | 20 µl                                                                                                                                                                         | 200 µl                            |
| Dispensing volume range      | 7 pl-20 µl                                                                                                                                                                    | 1 nL-200 µl                       |
| Dispensing volume increments | As low as 7 pl                                                                                                                                                                | As low as 440 pl                  |
| CV                           | < 8%*                                                                                                                                                                         | < 8%*                             |

Fluid Classes.

Qualified fluid concentrations and recommended fluid classes.

| Sample type                              | Recommended concentration                                                                                                                                        | Recommended fluid                                                         |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Cell suspension                          | 100–200 cells/µl**                                                                                                                                               | Cells resuspended in PBS (without Ca <sup>2+</sup> and Mg <sup>2+</sup> ) |
| Biomolecules***                          | ≤300 kDa or ≤10,000 basepairs<br>≤3 mg/ml; 10 µl fill volume using T8+<br>≤1 mg/ml; 20 µl fill volume using T8+<br>≤0.3 mg/ml; 200 µl fill volume using D4+      | Aqueous solution with surfactant                                          |
| Biomolecules (without surfactant fluids) | ≤300 kDa or ≤10,000 basepairs<br>≤1 mg/ml; 10 µl fill volume using T8SF<br>≤0.5 mg/ml; 20 µl fill volume using T8SF<br>≤0.1 mg/ml; 200 µl fill volume using D4SF | Aqueous solution                                                          |
| Small molecules                          | ≤800 Da and ≤10 mM                                                                                                                                               | 70–100% DMSO                                                              |
| Nanoparticles                            | <1 micron in diameter in suspension at concentration of <0.5%                                                                                                    | 70-100% DMSO, aqueous solution                                            |

Total buffer components <150 mM.

\* For volumes > 100 pl and aqueous test fluid of 100 mM PBS without other additives.  
\*\* Recommended concentration: approx. 100 cells/µl for a 96 well-plate; approx. 200 cells/µl for a 384 well-plate.  
\*\*\* Biomolecules include but not limited to proteins, antibodies, enzymes, nucleic acids, lipids and oligonucleotides.



## Cells.

Software cell size selection recommendation for Duo.\*

| Cell line              | Origin                           | Culture type | Average diameter (µl) | Recommended cell size setting |
|------------------------|----------------------------------|--------------|-----------------------|-------------------------------|
| A431                   | Human Epidermal Carcinoma        | Adherent     | Variable              | Small - X-Large               |
| A549                   | Human Lung Adenocarcinoma        | Adherent     | Variable              | Small - Large                 |
| C2C12                  | Mouse Myoblast                   | Adherent     | 15                    | Medium                        |
| CaSki                  | Human Cervical Cancer            | Adherent     | 22                    | X-Large                       |
| CHO GFP+               | Chinese Hamster Ovary            | Adherent     | 14                    | Small                         |
| GM12878                | Human B cell                     | Suspension   | 10                    | X-Small                       |
| H9 (HuT 78 derivative) | Human T Cell Lymphoma            | Suspension   | 10                    | X-Small                       |
| HCT116                 | Human Colorectal Carcinoma       | Adherent     | 14                    | Small                         |
| HEC-1Av                | Human Endometrial Cancer         | Adherent     | 9                     | X-Small                       |
| HEK293T GFP+           | Human Embryonic Kidney           | Adherent     | 14                    | Small                         |
| HEK293T                | Human Embryonic Kidney           | Adherent     | 14                    | Small                         |
| HeLa                   | Human Cervical Tumor             | Adherent     | 16                    | Medium                        |
| hiPSC                  | Variable                         | Adherent     | Variable              | Medium - Large                |
| hMVEC                  | Human Microvascular Endothelial  | Adherent     | 18                    | Large                         |
| hUVEC                  | Human Umbilical Vein Endothelial | Adherent     | 17                    | Medium                        |
| Jurkat                 | Human T Cell Leukemia            | Suspension   | 11                    | X-Small                       |
| MCF-7 GFP+             | Human Breast Cancer              | Adherent     | 20                    | Sticky cells - Large          |
| MDA-MB-231 GFP+        | Human Breast Cancer              | Adherent     | 16                    | Medium                        |
| MOLM13                 | Acute Myeloid Leukemia           | Suspension   | 12                    | Small                         |
| Neutrophil             | Primary sample                   | Adherent     | 11                    | X-Small                       |
| PC12                   | Rat Pheochromocytoma             | Adherent     | 12                    | Small                         |
| PC3                    | Human Prostate Adenocarcinoma    | Variable     | 16                    | Medium                        |
| SiHa                   | Human Cervical Cancer            | Adherent     | 16                    | Medium                        |
| SKBR3                  | Human Breast Cancer              | Adherent     | 14                    | Small                         |
| THP-1                  | Human Acute Monocytic Leukemia   | Suspension   | 13                    | Small                         |
| U-937                  | Human Histiocytic Lymphoma       | Adherent     | 12                    | Small                         |
| Vero E6                | Monkey Kidney                    | Adherent     | 17                    | Medium                        |

\*Example list of cells. Individual clonal populations may vary in size and setting selection.



**Learn more!**

**Schedule an online software demo.**

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