dragonfly® discovery

sptlabtech

Precision dispensing for every stage of discovery

One platform. Multiple workflows. Endless possibilities.

- Non-contact positive displacement
- 200 nL–4 mL
- <5% error at 1 µL
- 10 independent dispensing head
- Any liquid class
- No calibration
- Best-in-class dispensing precision
- Smarter assay optimization
- Flexible workflow development

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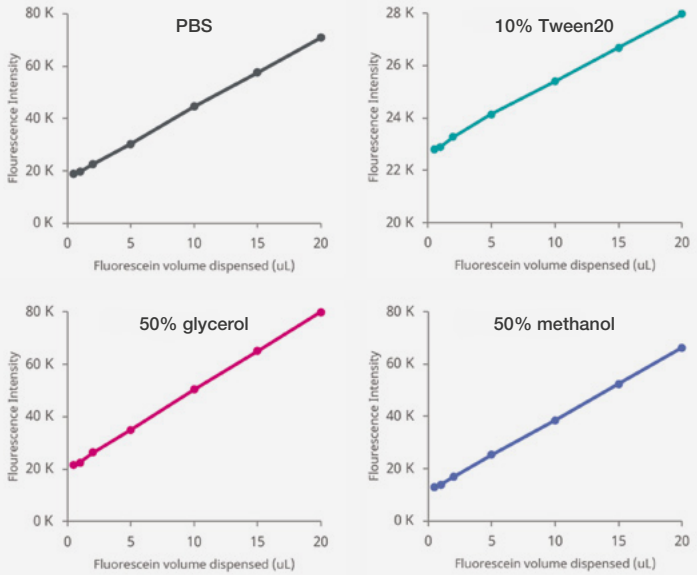
From genomics to organoids, assay development to drug screening:
Explore more with dragonfly® discovery

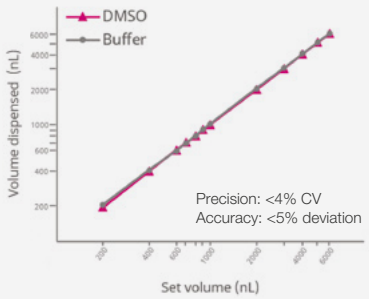
Remove the assay development bottleneck in HTS campaigns

Reliable setup for downstream assays and treatment workflows through consistent dispensing across diverse liquid classes. 10-independent dispensing heads and no liquid-specific optimization required – just efficient reproducible experiments with minimal effort.

Precision across liquid classes using positive displacement dispensing



PBS, glycerol, Tween20 and methanol dispensed in parallel without complex optimization of settings. Very good linear correlation between volume of fluorescein dispensed and fluorescence intensity recorded.



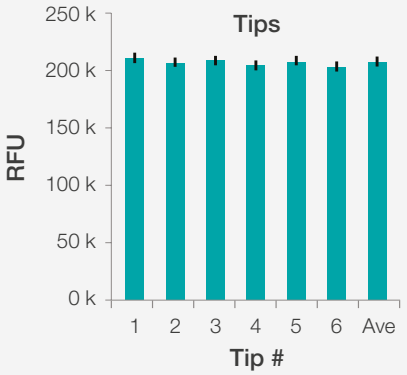
Dispensing of Tartrazine in either 100% DMSO or aqueous buffer. Excellent precision and accuracy across 200 nL – 6 µL volume range.

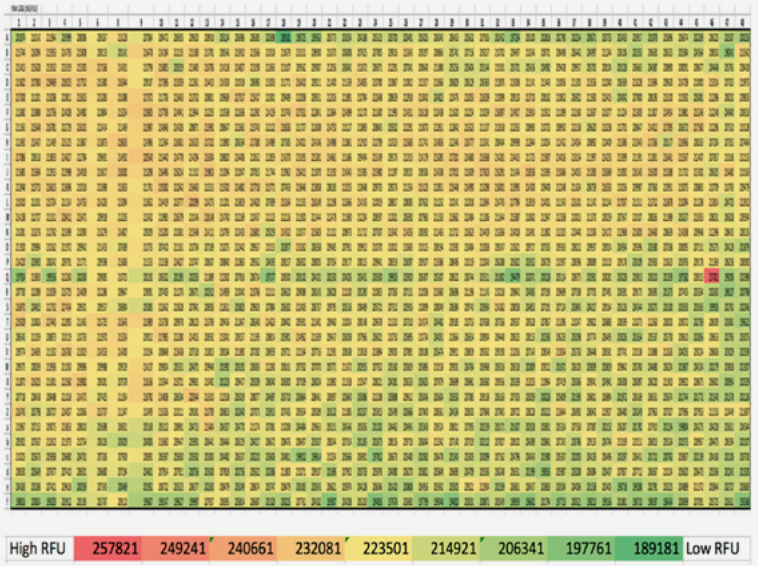
Read more about our innovative positive displacement technology which transforms precision at low volume with challenging reagents.

Best-in-class precision for reproducible results

Remove the assay development bottleneck in HTS campaigns

Robust dispenser performance – the foundation for successful HTS





Demonstrated precision and accuracy

Assessment of Relative Fluorescent Units (RFU) across FluoSpheres® dispensing in 1536 plate (4 uL per well). 2.51% CV, volumes within 1% of requested.

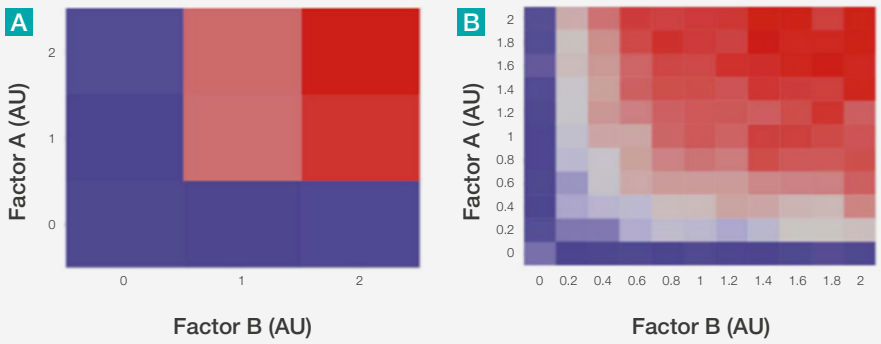
Read more about our innovative positive displacement technology which transforms precision at low volume with challenging reagents.

Best-in-class precision for reproducible results

Explore multiple conditions simultaneously without compromise

- Accelerate assay optimization with confidence - save time, cost and reduce risk
- Low volume non-contact precision dispensing with independent channel control
- Highly efficient for multifactorial assay optimization or medium composition

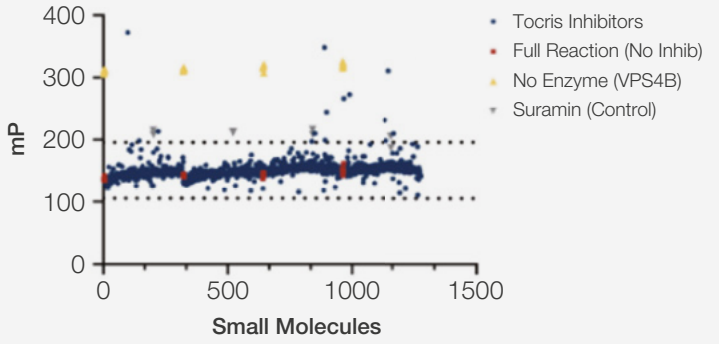
Simultaneous optimization of four components for 1000X lower cost media formulation



Factor A x Factor B growth heat maps

Three different concentration gradients of four media growth factor supplements were analysed in parallel in 384-well plate format. Heat map showing the effect of Growth Factor-A and Growth Factor-B on 3D cell culture growth using 3 (A) and 10 (B) different concentrations of each.Optimized media formulation results in cost-saving of over 1000x compared with commercially available media.

Efficient and precise miniaturized HTS assay optimization and execution



Miniaturised high-throughput screening for drug discovery

VPS4B Assay Screen: following optimization of assay conditions, library of 1280 compounds screened and 12 potential inhibitors identified for progression to next stage of discovery.

Read more

Read more

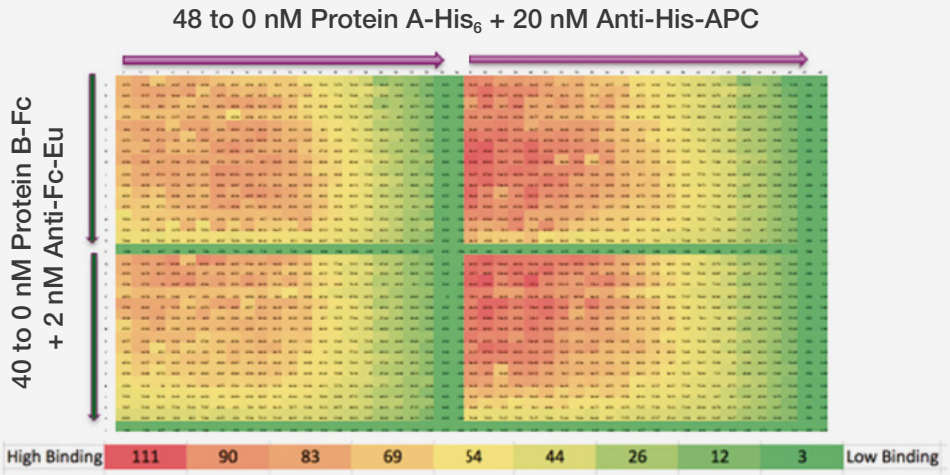
Accelerate progress – increase accuracy

Explore multiple conditions simultaneously without compromise

dragonfly designer software helps to simplify the complex

- User-friendly interface to create complex and wide range concentration gradients with ease
- Automatic calculation of intermediate stock concentrations, well dispense volumes and required backfill
- Intuitive definition of multiple concentration gradients - both linear and high dynamic range n-fold
- CSV file output that loads directly into the dragonfly software for immediate execution

Efficient optimization of assay buffer factors for signal magnitude and reagent stability



Optimizing assay components and concentrations.

Following initial experiments to optimized assay buffer factors for signal magnitude and reagent stability, reagent titrations were carried out directly in the wells of a 1536-well assay plate to determine optimal concentrations.

Read more

Accelerate progress
– increase accuracy

Design of Experiment – simplifying the complex

Designer software built for assay development scientists

- User-friendly interface to create complex and wide range concentration gradients with ease
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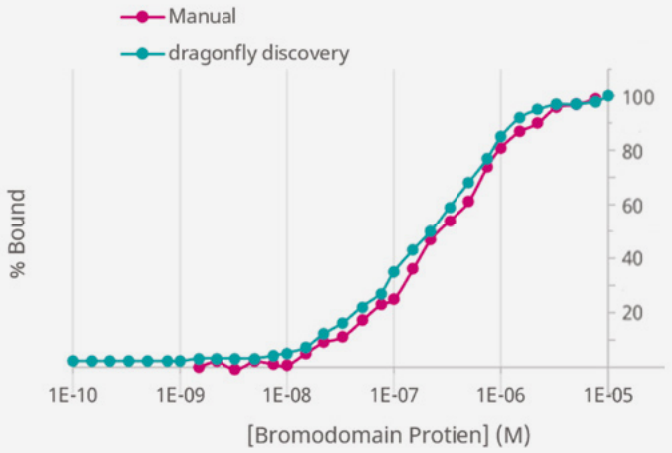
Increased efficiency – maximize data points and reduce cycle time



Feature	Manual	dragonfly
Microplate density	384-well	156-well
No. of test conditions	24	32
No. of replicates	3	8
Experiment prep	Serial dilution	Discrete gradient
Experiment time	~1 hour	~20 minutes
Reagent dead volume	~1 mL	280 µL

Reduction in assay time, labor and reagent requirements

Protein titration binding curves using manual pipetting and dragonfly discovery.

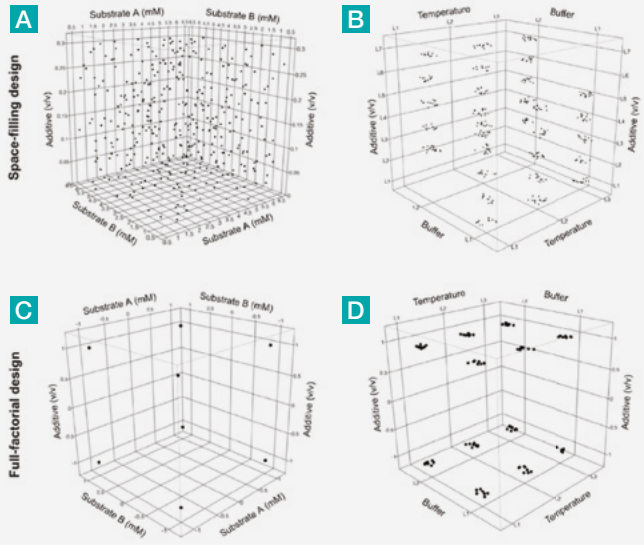
Read more

Any liquid, any volume,
any well, any time…

Design of Experiment – simplifying the complex

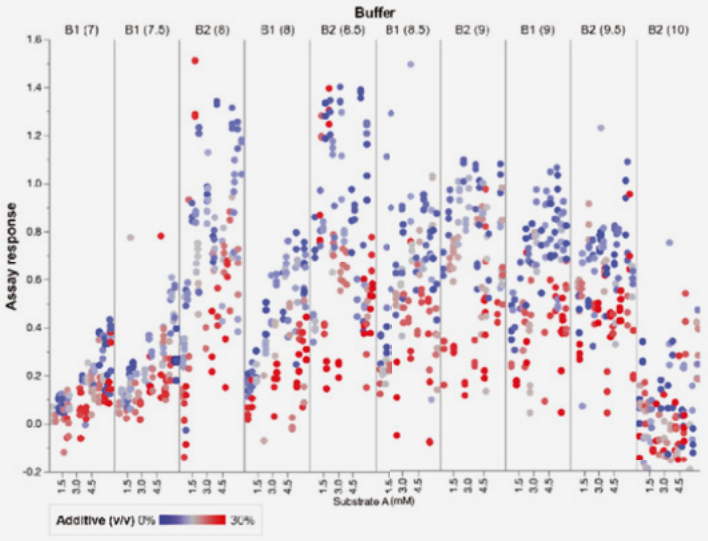
dragonfly discovery and Synthace enable fast sophisticated DoE

- Up to 98% time saving in liquid handling time for full space-filling DoE compared with average pipetting robot
- Combination of Synthace and dragonfly discovery enables physical execution of a 384-well space-filling DoE for characterisation of a spectrophotometric assay in a single day. In contrast, a full factorial 2-level screening DoE would require 96 runs, but only cover a fraction of the design space



A-B: space-fill model DoE

C-D: 2-level screening DoE



Data from space-fill model design execution: comprehensive end point measurements across multiple reagents and conditions.

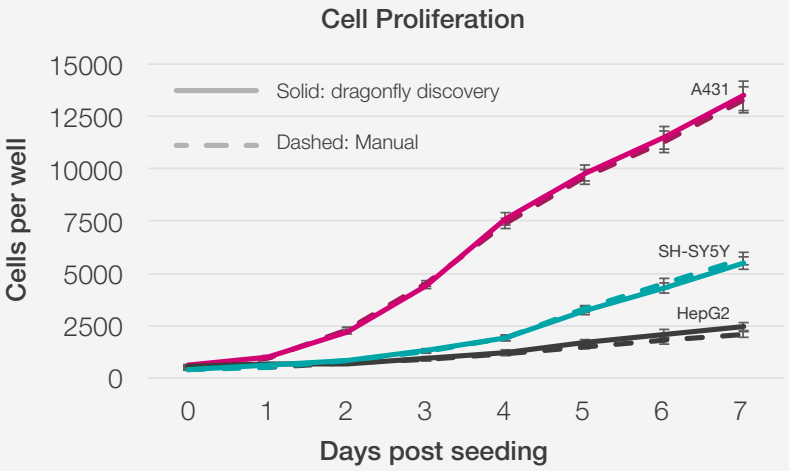
Synthace

Read more

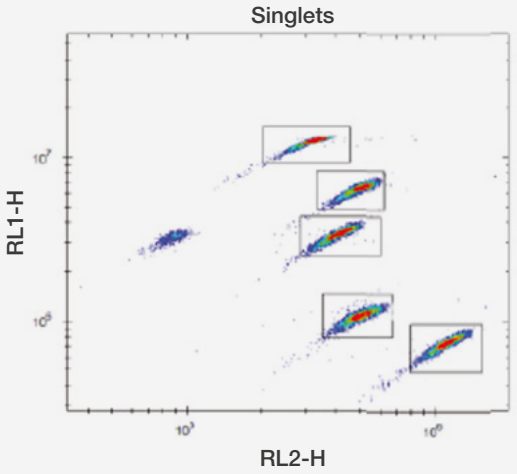
Any liquid, any volume, any well, any time…

Cell based workflow and downstream assay set-up

- Gentle cell dispensing for high viability
- Auto-feed reservoirs (AFRs) maintain cells in gentle circulation for consistent plating
- Low dead volume reservoirs and temperature control for sensitive and costly reagents, such as Cas9 or expensive antibodies



Cell proliferation and viability
4 days post seeding



Flow cytometry for identification of discrete cell populations expressing varying amounts of multiple fluorescent proteins.

Read more

Read more

Automation in 3D – transform your 3D workflows with previously unachievable throughput, consistency and reproducibility

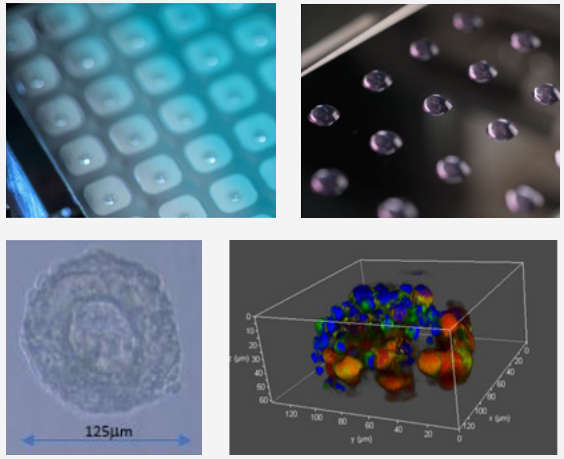
Validated in collaboration with leading organoid researchers.

Reproducible Matrigel dome formation even in high density plate formats.

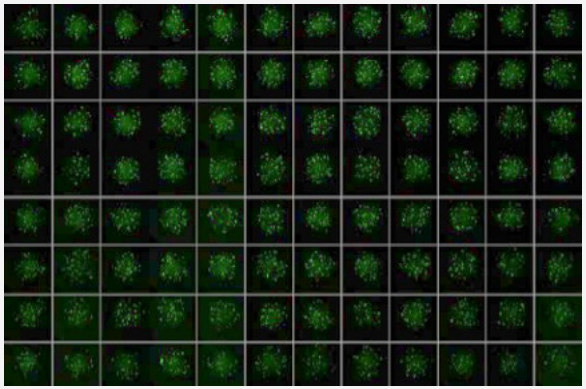
Consistent organoid set up for results that reflect biology, not assay setup.

Key features:

- Controlled dispense speeds
- Sterile
- Uniform droplets/ domes
- Chilled reservoir for optimal handling of Matrigel



Representative images of organoids dispensed by dragonfly discovery. Far left: Phase contrast image. Left: 3D confocal image of fluorescently labelled cells within an organoid.



Consistent dispense of uniform Matrigel domes in centre of each well of 96-well plate. Human Intestinal organoids from healthy and cystic fibrosis (CF donor) successfully used for downstream assay (contrast adjusted).

Read more

Read more

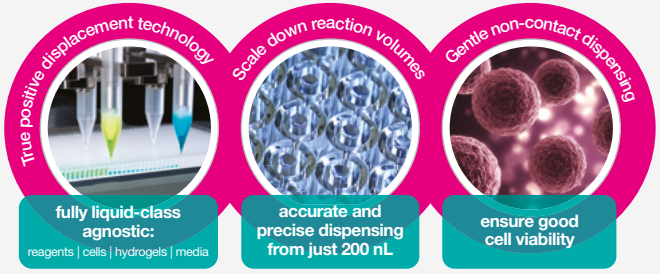
dragonfly discovery – powering the future of organoid research

dragonfly discovery

Accessible automation for non-experts

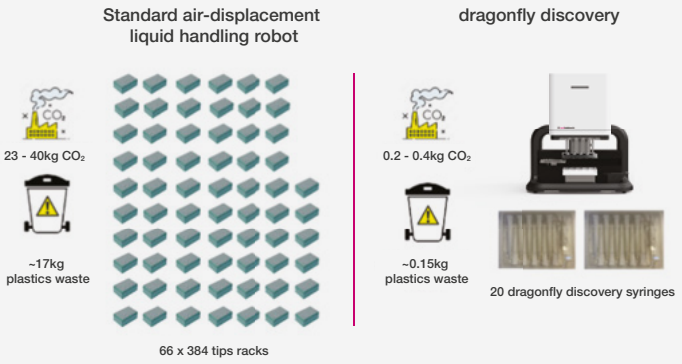
Increase throughput and consistency without specialist resources

- Intuitive user-friendly software enables complex assay set up with ease
- Minimal daily maintenance and responsive, local service support
- No tubes, no cartridges, no calibration
- Operate as a standalone system or integrate seamlessly into automated workflows via open API



Supporting your sustainability goals

- Helping laboratories reduce waste through assay miniaturization, smarter assay design, lower dead volumes and reduced consumable use.
- 99% reduction in plastic consumables in comparison to traditional air displacement pipetting systems, in 3,456-run enzymatic assay
- Results in 16kg reduction plastic waste



Environmental impact of performing an enzymatic assay DoE using a standard air-displacement liquid handling robot vs dragonfly discovery non-contact reagent dispenser. Production of 1kg of polypropylene creates around 1.4 - 2.41kg of CO_2 emissions

(https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8587715/).

Read more

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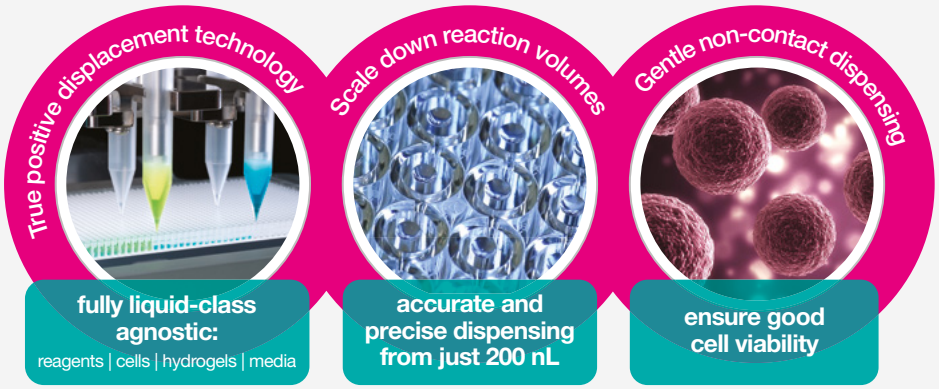
Precision dispensing for every stage of discovery

dragonfly discovery	dragonfly discovery
✓ Precision	▪ Positive displacement dispensing ▪ Any liquid class ▪ 200 nL–4 mL ▪ <5% error at 1 µL ▪ 10 independent dispense channels
✓ Workflow flexibility	▪ Assay development ▪ Cell-based workflows ▪ Drug discovery ▪ Genomics ▪ Organoids & 3D biology
✓ Ease of use	▪ Intuitive software ▪ No calibration ▪ Minimal maintenance ▪ Low dead volume
✓ Automation ready	▪ Standalone or integrated ▪ Open API ▪ Robotic compatibility ▪ Dedicated applications support



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dragonfly discovery – precision dispensing without compromise

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