Driving oncology drug development forward

The HP D300 Digital Dispenser has enabled Translational Drug Development in the USA to automate its workflows, increasing sample throughput and the number of cell line panels handled, as well as enhancing workflow efficiency.

TRANSLATIONAL DRUG DEVELOPMENT

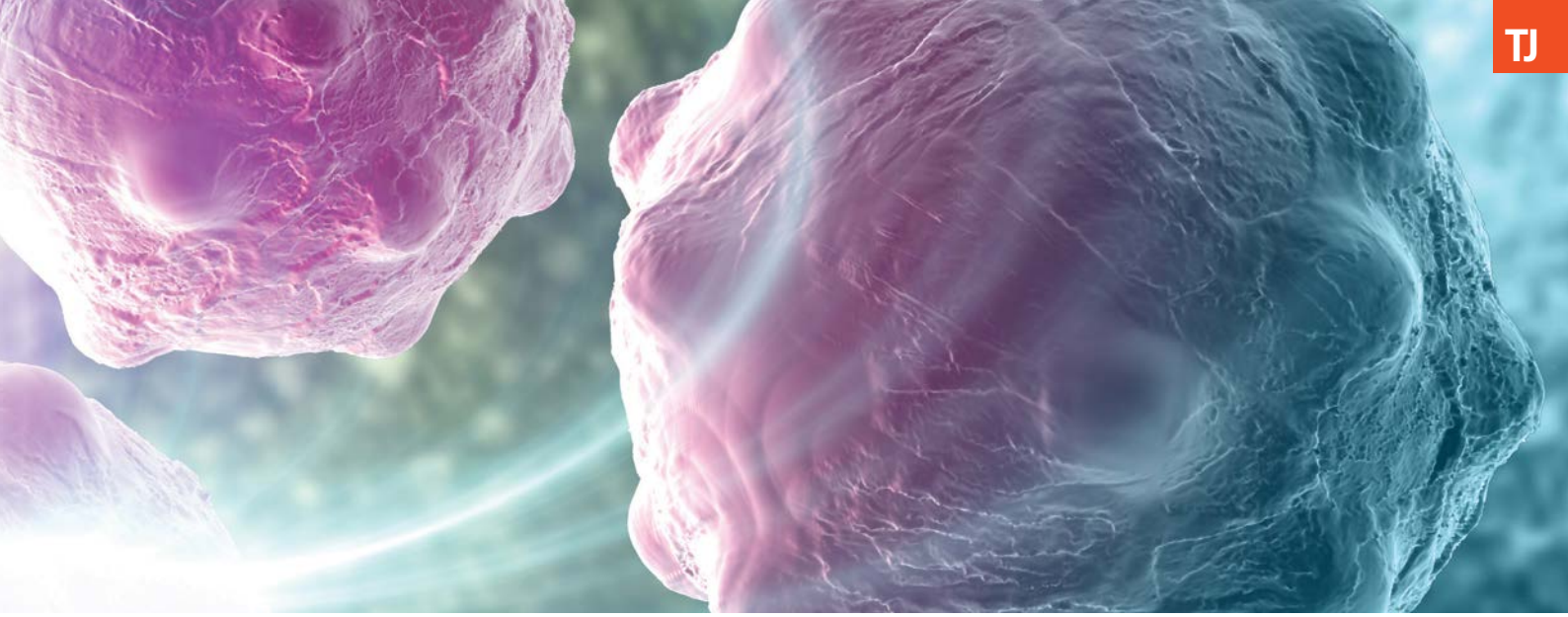
Translational Drug Development (TD2), based in Scottsdale, Arizona, is a contract research organization offering specialist services to biotech and pharma companies, helping to ensure that cancer patients have rapid access to the most up-to-date oncology treatments. To decrease the time spent manually pipetting and improve efficiency, the company invested in an HP D300 Digital Dispenser, as Paul Gonzales, vice president of nonclinical operations, explained: "TD2 specializes in oncology drug development, providing a wide range of services from *in vitro* and cell culture assays through Phase II clinical development. We run proof of concept studies that our clients may not have the capabilities to perform, using our expertise to develop strategies to establish and fully explore the activity of a compound. The project management team is in touch with the client almost daily, enabling practical decisions to be driven by the data. As a smaller organization, we can be flexible, responding rapidly to meet the changing needs of a particular project. This ensures that studies are carried out swiftly, helping to meet regulatory requirements and enable the drug to progress to the clinic more rapidly. Ultimately, it's all about getting the most effective drugs to the patients in the shortest possible time."

Kari Kotlarczyk benefits from the straightforward operation of the HP D300

"The HP D300 was purchased as part of a drive to enhance the efficiency of our processes," said Paul. "Previously, our protocols were 100 % manual. We wanted to introduce automation to increase our sample throughput and the breadth of our work in respect of the number of screens we perform and the cell line panels we use, enabling us to perform complex combination studies more easily. Automation also has the advantage of relieving staff from the burden of manual pipetting, allowing them to focus on other aspects of the work. We looked at the different options available to us, and the HP D300 was the only instrument that met our needs precisely; when it was demonstrated to us, we fell in love with it right away."

In vitro research associate Kari Kotlarczyk added: "Before we had the HP D300, I was performing a great many pipetting procedures manually, which was extremely time consuming. The HP D300 is very straightforward and easy to use, reducing the potential for the introduction of manual handling errors, and freeing up time for me to carry out other tasks."

Mario Sepulveda, manager of nonclinical operations, takes up the story: "We've had the HP D300 for about a year now, and it is a big improvement on manual processing. Prior to implementing automation, we relied on one research associate to perform all the manual pipetting steps, which wasn't efficient. Compared to manual workflows,



the HP D300 saves us so much time. If we need to investigate a large number of compounds, we can do a combination rather than a single agent, which is far quicker; whereas before we could handle 20 cell line panels at the most, we can now do up to 60 panels in the same time frame."

"Accuracy and precision are crucial," explained Mario. "The HP D300 dispenses extremely small volumes with very good accuracy and precision. We now use much smaller quantities of our stocks than before, which is better for our clients. When you are carrying out drug development studies, the amount of compound available can be limited and is very precious; it is important not to use more than necessary. Most of the time we are preparing drug dose-response curves to determine the IC_{50} value, selecting the cell lines in which the specific compound of interest is active to try to move forward to *in vivo* testing. This can involve many dilution steps, and the elimination of manual pipetting really improves the efficiency of these experiments, giving us total confidence in the results. Although it is not common, if a dose-response curve does produce an unexpected result, we can be 100 % sure that the dilutions are correct and that the discrepancy is not due to a manual error. This allows us to focus on probable compound-related causes."

The TD2 team. Left to right: Paul Gonzales, Caileen Walker, Kari Kotlarczyk and Mario Sepulveda

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Mario continued: "The software is simple to use and there is so much you can do with it. We can randomize plate layouts and perform even the more difficult dilutions with ease, allowing us to really define the dose-response curve and establish the IC_{50} or EC_{50} value. For drug synergy studies, we use a checkerboard design. The limitations of manual processing have been considerably reduced, allowing us to thoroughly interrogate double, and occasionally triple, combinations in a very efficient and accurate manner. The HP D300 really works out."

Paul concluded: "Where we really make savings is on personnel efficiency, avoiding the need to take on additional staff to accommodate a specific study. That, coupled with data integrity, is the most important thing to me. It's a no brainer."

To find out more about the HP D300, visit **www.tecan.com/digitaltitration**

To find out more about Translational Drug Development, visit **www.td2inc.com**