

Speed and reliability for drug titrations

GlaxoSmithKline's quest for improved anti-malarial treatments has been revolutionized by the speed and reliability of the HP D300 Digital Dispenser. This innovative system has increased throughput for standard drug titrations and enabled combinations of candidate compounds to be tested much more easily.



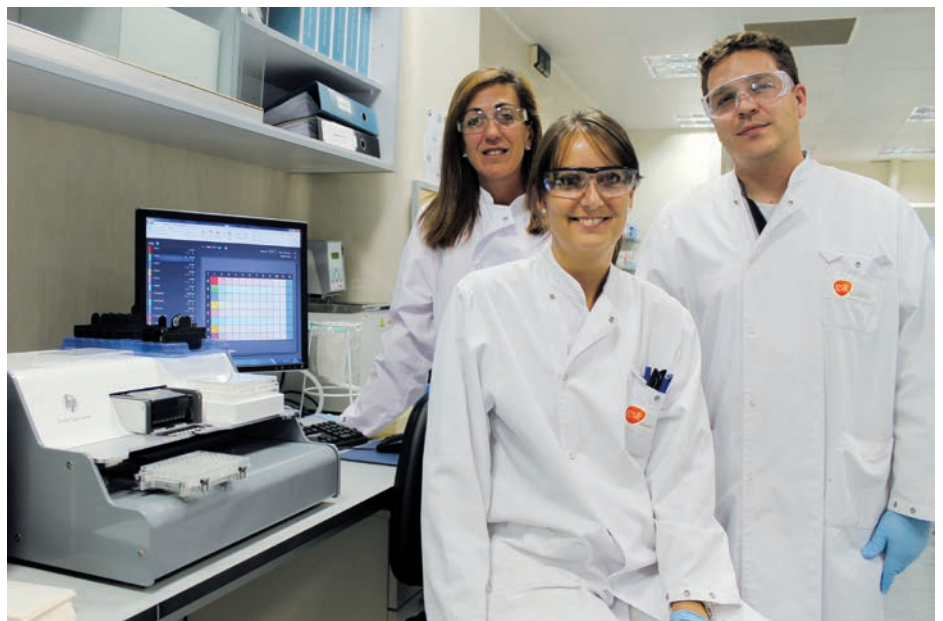
Scientists working at the GlaxoSmithKline research center in Tres Cantos, Spain, are dedicated to fighting diseases of the developing world, primarily seeking better treatments for malaria and tuberculosis. The Malaria Discovery Performance Unit (DPU) performs a wide range of *in vitro* parasitological studies investigating potential anti-malarial candidate compounds. Dr Laura Sanz, an investigator in the Malaria DPU's Biochemistry and Parasitology Department, explained: "We assay structurally diverse molecules from different anti-malarial programs to determine their *in vitro* potency. As part of this work, we prepare compound plates for on-site testing, and needed an instrument that could shorten this process. We were looking for a system capable of increasing the speed of plate generation and reducing cycle times, as well as providing more versatility than our existing system. It was also really important to have the

flexibility to accommodate a variety of plate layouts enabling us to generate product combination plates and explore synergies."

"We have been working with the HP D300 since autumn 2012, and it has significantly increased our sample throughput. Plates can be prepared more rapidly and, consequently, compound evaluation can be initiated earlier. This allows new experiments to be started sooner, increasing the rate at which a project progresses. It also saves a great deal of hands-on time and frees staff to undertake other laboratory activities."

"A key feature of the HP D300 is its capability to dispense picoliter volumes to any well, regardless of microplate format. In drug discovery, particularly in the earlier stages, there may be very little of the compound of interest available. Dispensing smaller volumes into the plate wells saves precious

"The HP D300 has exceeded our expectations, helping us to find faster ways of achieving our goals."



The HP D300 enables GSK's Laura Sanz (left), Cristina de Cózar and Benigno Crespo to test combinations of compounds more easily



sample material, and the HP D300 has allowed us to reduce the amount of compound required for plate generation. This also assists with assaying product combinations, helping us to elucidate the effectiveness of novel anti-malarial combinations more easily. The HP D300's small size was another key consideration, allowing it to be housed in a biosafety cabinet under the sterile conditions required for preparing plates and performing assays. This enables us to perform both activities in a single cabinet, virtually eliminating the risk of contamination."

Scientist Cristina de Cózar added: "We received support from Tecan while we were familiarizing ourselves with the system, although we hardly needed any training. The HP D300 is easier to use than our old titration instrument, saving us a lot of time, and the software is very easy to work with. Although previous versions of the software

were limited to five plates per run, the latest updates enable us to dispense to an unlimited number of plates for the same assay – we have recently prepared as many as 80 plates in a single day – which is a big advantage, helping to drive down costs per plate and per assay."

Laura continued: "Our old system was used to perform serial dilution assays, and dispensed the same volume into each well of the plate, meaning normalization of DMSO was not required. As the HP D300 can directly dispense different doses to different wells without the need for serial dilutions, the final volume of DMSO in each well varies. However, we tested the system with a range of compounds, with and without normalization of DMSO, and discovered that normalization was unnecessary under our current experimental conditions due to the very low DMSO concentration per well, saving both time and reagents."

"Our quality standards are extremely high, and our priorities are speed and reliability. The HP D300 has exceeded our expectations, helping us to find faster ways of achieving our goals and allowing us to do everything we want to do. It's a user-friendly instrument that fits perfectly into our laboratory's lead optimization operations, enabling us to test combinations of compounds more easily, and providing a great opportunity to carry out investigations that were more difficult to perform using the old system," concluded Laura.

To find out more about Tecan's HP D300 Digital Dispenser, visit www.tecan.com/digitaltitration

To find out more about GlaxoSmithKline's Tres Cantos research center, visit www.gsk.com/research/fighting-disease-in-the-developing-world.html