

# Automation increases neonatal screening throughput

Astoria-Pacific International has chosen the Freedom EVO® liquid handling platform to automate its SPOTCHECK® Neonatal Screening assays for biotinidase and GALT (galactose-1-phosphate uridylyltransferase).



The Astoria-Pacific team

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Astoria-Pacific International, based in Oregon, USA, has a strong customer base in the United States, where every state has a centralized laboratory for neonatal screening for treatable diseases. The Company's SPOTCHECK Continuous Flow Analyzer is currently used to test around 36% of all babies born in the US for at least one disorder. Laboratories using the SPOTCHECK system can offer same day turnaround of patient results, allowing physicians to respond more effectively to potentially critical conditions. The current product portfolio, until now based entirely on continuous flow methodology and marketed as SPOTCHECK Flow, has been in use globally since 1994 and offers six different screening assays; phenylalanine, total galactose, tyrosine, G6PD, biotinidase and uridylyltransferase (GALT).

With laboratories turning increasingly to automation, Astoria-Pacific's new SPOTCHECK Pro system uses the Freedom EVO liquid handling platform to automate biotinidase and GALT assays. Alana Lerch, Newborn Screening Product Manager at Astoria-Pacific International, explained: "Continuous flow can sometimes be perceived as outdated technology, as it is unable to run unattended overnight and has time consuming maintenance requirements. We therefore wanted to move to an automated microplate format that offered end-to-end automation, could run overnight and at weekends, and had minimal maintenance requirements. When we researched different robotic platforms, we found that many of them could not perform the entire process. One of our assays requires filtering, so automated filtration was a specific feature that we



Alana Lerch with the Freedom EVO-based SPOTCHECK Pro workstation



needed. The Freedom EVO is able to fully integrate all the modules necessary for complete automation of our assays.”

Alana continued: “SPOTCHECK Pro is a fully automated system, controlled by Tecan’s Freedom EVOware® Plus software, which uses standard microplates, barcoded to ensure correct sample identification. The system includes a Te-VacS™ vacuum separation module, liquid handling (LiHa) and robotic manipulator (RoMa) arms, two shaker/incubators, hotels and a Sunrise™ microplate absorbance reader, offering complete walkaway automation. We have already obtained FDA approval in the US for the SPOTCHECK Biotinidase kit, and we are currently seeking 510(K) approval for the GALT kit. We also plan to add further SPOTCHECK tests in the future.”

“Automation significantly improves throughput from five to eighteen assayed plates in one day. As biotinidase has a four hour incubation period and GALT only two, mixed batches of nine biotinidase plates and nine GALT plates offer even greater efficiency, allowing biotinidase plates to be incubated

while GALT plates are being processed, and all eighteen plates can be processed in just ten and a half hours. Automation also eliminates the potential for errors that can occur during manual operation, reducing the need for repeat testing, and maintenance time is drastically reduced. With SPOTCHECK Flow, maintenance needs to be performed every other week and takes a couple of hours. Although SPOTCHECK Pro requires weekly maintenance, this is a fully automated process and takes just 20 minutes.”

Alana concluded: “The support team at Tecan has been wonderful throughout the development process of this new system. We have had access to demonstration instruments, and Tecan experts have helped with software updates and incorporating new features to accommodate us. Everybody has always gone that extra mile to make sure we get what we need. The fully automated assay is currently undergoing clinical evaluation in two customers’ laboratories, and we have other evaluations scheduled in 2011.”

To find out more on Tecan’s Freedom EVO, visit [www.tecan.com/freedomevo](http://www.tecan.com/freedomevo)

To find out more on Tecan’s clinical diagnostics solutions, visit [www.tecan.com/clinicaldiagnostics](http://www.tecan.com/clinicaldiagnostics)

To find out more on Astoria-Pacific International’s SPOTCHECK, visit [www.astoriapacific.com/spotcheck/](http://www.astoriapacific.com/spotcheck/)

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