

First choice for quality and reliability



St Mary's Hospital, Manchester, is using a fully automated DNA extraction system based on a Freedom EVO® workstation. This system provides walkaway extraction of DNA from blood samples by combining a Freedom EVO 150 liquid handling platform with chemagen's proven nucleic isolation technology.

The Regional Molecular Genetics Service (RMGS) is a genetic diagnostic testing facility based at St Mary's Hospital in Manchester, UK. The laboratory provides a wide range of genetic testing services for patients in the North West region of England, as well as participating in a variety of national and international genetic studies and screening programmes, processing around 10,000 samples a year for diagnostic purposes.

In 2009, the RMGS moved into a purpose-built laboratory in the new St Mary's Hospital building and, as part of this transition, looked for a new DNA extraction system to replace its existing centrifugation-based method. Auto Q Biosciences Ltd, the UK distributor for chemagen Biopolymer-Technologie AG, was chosen to provide a fully automated DNA extraction system using the chemagic nucleic acid separation system, and selected Tecan's Freedom EVO liquid handling platform to provide complete automation of all liquid handling processes. Kudrat Rahman, Business Development Director at Auto Q Biosciences, explained why the Company chose to work with Tecan: "The RMGS required a robust solution capable of fully automating its DNA extraction process – from blood tubes right through to archive tubes – without the need for manual intervention. Although several other manufacturers were able to provide this level of hands-free operation, the RMGS needed a very reliable system capable of performing the extraction with minimal alteration to its existing protocols. We were aware that the Freedom EVO workstation had already been successfully combined with chemagic instruments at several other sites across Europe, and Tecan's open software architecture and excellent reputation for reliability made it an obvious choice."

The automated DNA extraction workstation consists of a Freedom EVO 150 platform equipped with a 4-channel liquid handling (LiHa) arm using disposable tips, a PosID™ scanner and a robotic manipulator

(RoMa) arm with an extended Z-axis. The integrated chemagic instrument is accessed via a port on the right hand side of the workstation, and the entire system is enclosed within a Class 1 biological safety cabinet, supplied by Bigneat Ltd. This set-up allows safe, walkaway extraction of up to 24 whole blood samples at a time. The workstation was installed in July 2009, and was commissioned and validated for routine use without the RMGS team to re-optimize downstream processes as Project Manager Stuart Bayliss explained: "A smooth transition from our old DNA extraction method to the new system was a key factor in choosing the chemagen/Tecan solution supplied by Auto Q Biosciences. The flexibility of this system allowed us to retain virtually all of our existing protocols, accelerating the validation process and minimizing the impact on our laboratory's workflow. The chemagen instrument was shipped directly to Tecan to develop the automated scripts and protocols according

to our requirements, and the entire system was set up in a bespoke biological safety cabinet. Once installed within the new laboratory, Tecan's engineers ensured the system was operating correctly, and provided full on-site training for our laboratory staff. They have also been very helpful in refining the protocols as our needs have changed, and we are very pleased with the level of service we receive."

"This local support from Tecan was also an important factor in Auto Q Biosciences choosing the Freedom EVO platform," Kudrat added. "As the Tecan/chemagen system is supplied by Auto Q Biosciences as a complete package, the speed and efficiency of Tecan's support reflects directly on us. We have been very happy with Tecan's professionalism and flexible approach on this project, and are now recommending Tecan instruments to all customers wishing to invest in this type of system. In addition, we are also in discussion with Tecan about

providing automated liquid handling solutions for several other projects."

"The system runs for eight hours a day, five days a week, and is proving to be very reliable," Stuart concluded. "It has certainly exceeded our expectations in terms of efficiency, and is a significant step forward from our previous method. We are currently processing approximately 6,000 whole blood samples a year using the platform, and are now looking into automation of DNA extraction processes for saliva and cell culture samples to further increase our productivity."

To find out more on Tecan's genomic solutions, visit

www.tecan.com/genomics



The Freedom EVO workstation is housed within a Class 1 biological safety cabinet to protect both users and sample integrity