Easy PCR set-up with TouchTools™ PCR Wizard

Researchers at ISPRA have been trialing the TouchTools PCR Wizard for the Freedom EVO® PCR workstation to simplify complex genetic testing workflows. This software enables rapid selection and walkaway set-up of pre-PCR protocols suitable for a wide range of downstream analytical techniques.

ISPRA
Istituto Superiore per la Protezione e la Ricerca Ambientale

The National Institute for Environmental Protection and Research (Istituto Superiore per la Protezione e la Ricerca Ambientale, ISPRA) is an Italian public organization performing technical, scientific and research projects related to environmental issues. ISPRA's Laboratory of Genetics, based in Ozzano dell'Emilia in Bologna, investigates the genetic variability and composition of wildlife fauna in Italy, monitors the dynamics of threatened Italian mammals – such as the brown bear, wild cat, otter and wolf – and performs genetic studies on endemic species including the Italian hare and Italian roe deer. The Laboratory also supports forensic investigations against poaching and illegal trade of endangered species on behalf of the Ministry of the Environment, including paternity testing of species listed in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) to verify the legal origin of captive-bred animals.

Most of the analytical methods used by the Laboratory – including phylogenetic studies, paternity testing, genetic monitoring and population genetics – are based on PCR techniques. Samples – including blood, feathers, hairs, buccal swabs, feces, urine and tissues – are supplied to the Laboratory in standardized collection tubes which contain appropriate solutions for the optimum conservation of biological materials. This also ensures standardization of samples for the Laboratory's automated protocols, speeding up the workflow and improving reliability. Dr Nadia Mucci, technologist, explained: "We purchased two Freedom EVO platforms in 2010 to automate our pre- and post-PCR sample processing. The first platform is used to automate DNA extraction in 96-well plates and set up PCR reactions in either 96- or 384-well plates. After pipetting, the plates are transferred to offline PCR thermocyclers for amplification. At the end of the PCR run, the plates are loaded onto a separate Freedom EVO platform for post-PCR processing, which prepares the samples for sequencing on our Applied Biosystems 3130xl genetic analyzers (Life Technologies)."

The ISPRA Genetics Team with Research Director Professor Ettore Randi

"We chose Tecan instruments because we appreciated the technology, the support from Tecan's application specialists, and the user-friendly software which offered us the opportunity to develop automated protocols for many more applications. The high throughput and wide range of downstream analysis methods used by our Laboratory mean that we need a highly reliable, very flexible solution, and the Freedom EVO certainly offers that."

"To further improve our workflow, we recently tested the new TouchTools PCR Wizard with our broad range of DNA markers on a Freedom EVO 100 PCR workstation equipped with an Air LiHa air displacement pipetting arm. This software has proved extremely useful when we have a lot of different combinations to perform for our PCR experiments. For example, in forensic paternity testing, we usually test several related animals using a species-specific panel of at least a dozen DNA markers. Because each study involves a different number of relatives, and we have around 150 different species-specific panels, this often required a new protocol using our existing platforms. This is no longer necessary with the TouchTools PCR Wizard, as we do not need to individually program every combination of markers and individuals."

"It is also very useful for inexperienced users, allowing them to set up and run protocols without the need for programming knowledge. Colleagues who rarely used our existing Freedom EVO workstations are now interested in working on the platform with the TouchTools PCR Wizard, and more experienced team members find it very useful for complicated PCR experiments. Moreover, processing is now much faster, thanks to the Air LiHa's multi-dispense function and the seamless transfer of plate layout data to downstream instruments."

"I would like to thank ISPRA and Tecan for giving our Laboratory the opportunity to test the TouchTools PCR Wizard. It offers straightforward automation of PCR reaction set-up on Freedom EVO platforms and allows effortless operation, with clear visual representations and step-by-step instructions on the touchscreen. It guides the user through the entire process and simplifies sample preparation for a wide range of PCR-based techniques, such as sequencing, genotyping, DNA profiling, gene expression and detection of pathogens, reducing training time and costs," Nadia concluded.

To find out more on Tecan's PCR solutions, visit **www.tecan.com/pcr**

To learn more about ISPRA, go to **www.isprambiente.gov.it**

"We need a highly reliable, very flexible solution, and the Freedom EVO certainly offers that."

Federica Mattucci operating the post-PCR Freedom EVO system

The TouchTools PCR Wizard visually guides the user through instrument set-up

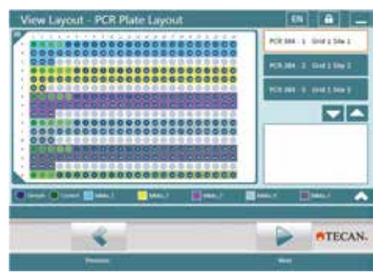

Plate layout data can be easily exported for downstream instruments