Workflow optimization with the QIAsymphony® RGQ system adds value and increases service quality

At the end of 2010, Dr. Mark Wasner, at the MVZ für Mikrobiologie, Labordiagnostik und Hygiene Dessau GmbH, a private medical laboratory in the Limbach Group of diagnostics laboratories in Germany, became one of the first people to adopt the complete QIAsymphony RGQ system.

The QIAsymphony is a complete sample-to-result workflow solution, comprising the QIAsymphony SP instrument for sample preparation, the QIAsymphony AS instrument for assay setup, and a broad range of ready-to-use assays on the Rotor-Gene® Q real-time PCR cycler.

Today, Dr. Wasner's laboratory is able to process up to 400 samples a day using 2 QIAsymphony RGQ systems and a QIAsymphony SP instrument plus Rotor-Gene Q cycler (Figure 1). In addition to their own in-house assays, Dr. Wasner's laboratory also uses viral load assays from the QIAGEN *artus*® portfolio to monitor viruses such as HIV-1, HBV, HCV, and CMV.

Dr. Mark Wasner
MVZ Labor Dessau GmbH (Limbach Group)
Dessau-Roßlau, Germany.

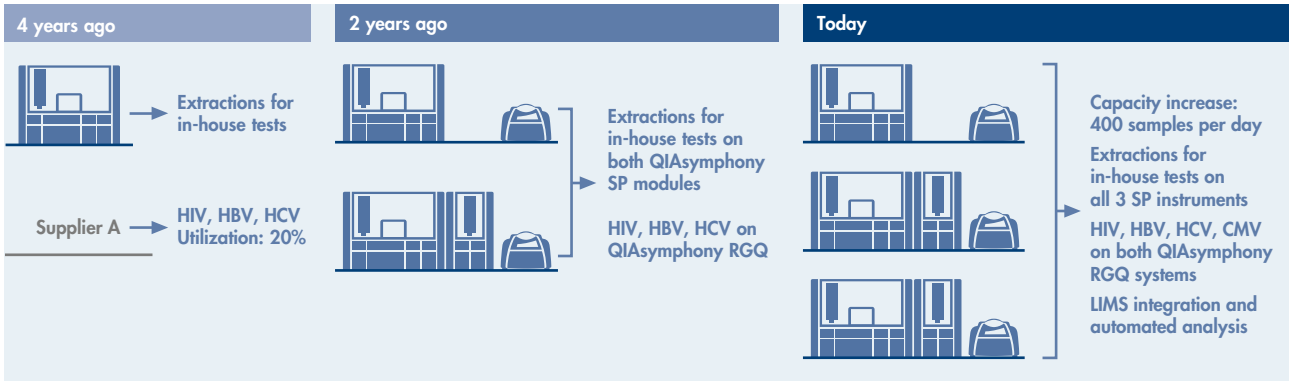

Figure 1. Workflow optimization and consolidation at MVZ Labor Dessau (Limbach Group). The laboratory is now able to process up to 400 samples a day on 2 QIAsymphony RGQ systems and a QIAsymphony SP instrument plus Rotor-Gene Q cycler. The setup provides increased automation and integration into the Laboratory Information Management System (LIMS), resulting in improved efficiency and cost savings.

System redundancy

All instruments in Dr. Wasner's laboratory are able to run both in-house and *artus* assays, so that when samples are received, they can be immediately loaded onto the next available instrument. When maintenance is required, there is always spare instrument capacity, which allows for continuity and ensures that patient results are released in a timely manner. In addition, 2–3 QIAsymphony SP instruments always run overnight so that eluates are available the next morning, saving valuable setup time (Figure 2).

Workflow optimization

In order to optimize laboratory workflows, Dr. Wasner developed and validated a single extraction protocol that can be used for various different in-house assays. The extraction can be run overnight and each eluate can be used to set up multiple assays the following morning. This workflow optimizes the testing process and reduces the number of patient sample collections needed. In parallel, DNA is purified for human genetic applications, such as DNA sequencing using Sanger or Pyrosequencing® techniques. The next steps for the laboratory are to investigate the introduction of novel next-generation sequencing (NGS) techniques as this technology becomes established for routine diagnostic use.

Example daily routine for instruments at MVZ Labor Dessau

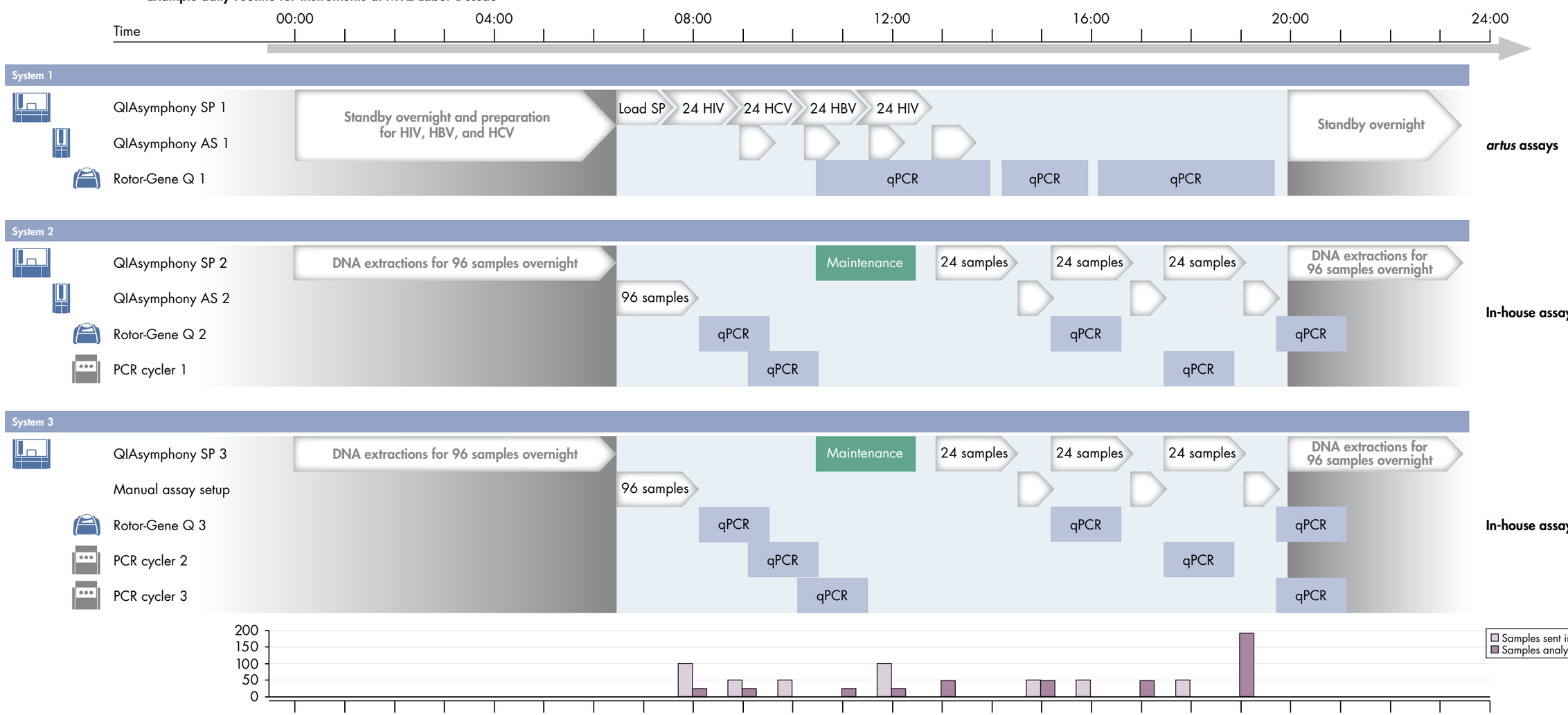

Figure 2. Typical workday at MVZ Labor Dessau (Limbach Group). The laboratory uses a self-validated workflow, with all instruments able to run both in-house and *artus* assays. Sample preparation is performed overnight on QIAsymphony SP instruments saving valuable setup time.

Efficiency gains

Using the same platform for all assays means that the laboratory's 8 technicians are fully trained on all tests, allowing for more flexibility during staff absence and vacation, morning and afternoon shifts, and outbreak situations. The administrative effort for ordering reagents and consumables has been significantly reduced, and less space is required for reagent storage. In addition, the workload associated with developing SOPs, training, and accreditation is lighter. Fewer individual instruments can now run the whole range of diagnostic tests — saving valuable space in the laboratory. Finally, the streamlined and validated workflows have resulted in lower costs for service and quality assurance.

IT integration

Seamless integration of the QIAsymphony RGQ into the IT infrastructure of the laboratory has helped to reduce hands-on time and minimize human error associated with manual data transfer steps. The systems are run with a lean IT setup, with test orders and results seamlessly exchanged between the QIAsymphony RGQ systems and LIMS, and all sample-related data transferred between QIAsymphony SP, QIAsymphony AS, Rotor-Gene Q, and 3rd-party instruments (Figure 3).

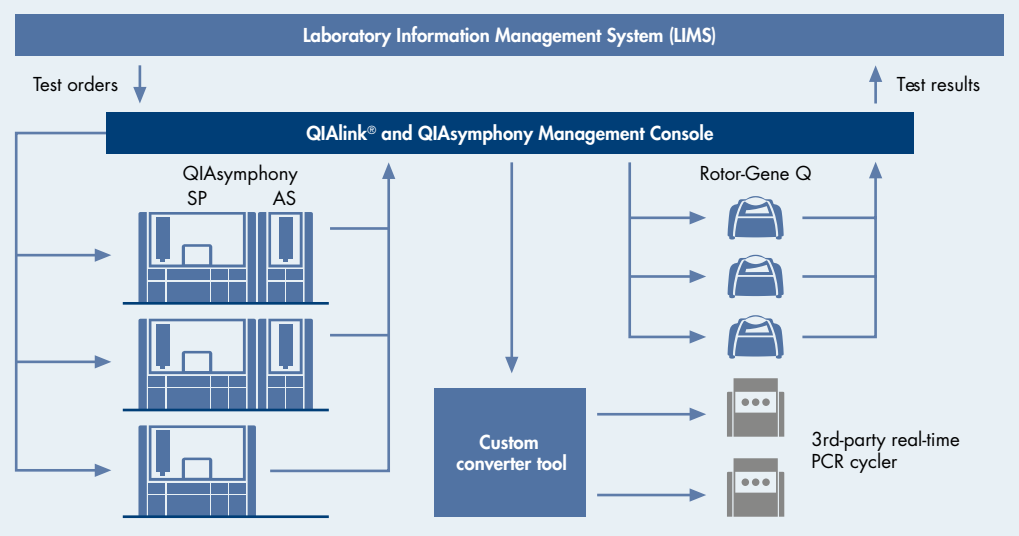

Figure 3. IT integration at MVZ Labor Dessau (Limbach Group). Consolidation of instruments results in a lean IT setup, with seamless exchange of test orders and results between the QIAsymphony RGQ systems and LIMS, and transfer of sample-related data between instruments. Additionally, 3rd-party instruments can be integrated into the system using a custom converter tool.

In the future, Dr. Wasner envisions a completely automated and paperless workflow in his laboratory, similar to that already seen in other industries. All systems would be connected to the LIMS, and test scheduling, status reporting, and notification of maintenance needs will be automated, such that the system runs in the most efficient way possible. QIAGEN is continuously working with customers to optimize workflows and improve overall service quality.

The benefits at a glance

- Overall capacity increase of 100%
- Savings of as much as 3 hours of hands-on-time per technician per day due to LIMS integration and flexible batching
- 30% reduction in administration effort for ordering reagents
- 50% reduction in training needs
- Savings of € 80,000 per year due to consolidation of instruments and reagents to a single supplier
- Reductions in costs associated with service and maintenance of instruments

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"We use the system because it allows us to extract consistently high-quality DNA and RNA from all the samples we receive. The system combines the advantages of an 'open preparation platform' with those of a fully CE-compliant workflow. The 'all-in-one' concept combines a diverse range of services with high cost efficiency and low staffing overheads."

Dr. Mark Wasner
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Ordering Information

Product	Contents	Cat. no.
QIAsymphony SP	QIAsymphony sample prep module: includes 1-year warranty on parts and labor	9001297
QIAsymphony AS	QIAsymphony assay setup module: includes 1-year warranty on parts and labor	9001301
Rotor-Gene Q 5plex HRM	Real-time PCR cycler and High Resolution Melt analyzer with 5 channels (green, yellow, orange, red, crimson) plus HRM channel, laptop computer, software, accessories: includes 1-year warranty on parts and labor, installation and training not included	9001580
Rotor-Gene AssayManager	Software for routine testing in combination with the Rotor-Gene Q and QIAsymphony RGQ instruments; single license software for installation on one computer	9022737
QIAlink, Standard Implementation	Standard package for QIAsymphony and Rotor-Gene Q connection, including QIAlink software license, assessment of laboratory infrastructure, alignment with LIMS provider for implementation of QIAlink interface in LIMS, on-site installation, configuration, post-installation testing, and user training	9243515

For up-to-date licensing information and product-specific disclaimers, see the respective QIAGEN kit handbook or user manual. QIAGEN kit handbooks and user manuals are available at www.qiagen.com or can be requested from QIAGEN Technical Services or your local distributor.

Visit www.qiagen.com/media/QIAsymphony today to learn more about optimizing your workflow!

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