

Sysmex Xtra article | Edition 1/2020 Clinical flow cytometry



More time for complex tests – IMD Berlin talks about the new Sample Preparation System PS-10

The Berlin Institute of Medical Diagnostics (IMD) has a laboratory for specialised immunological tests, in which the new PS-10 sample preparation system from Sysmex is being evaluated under the supervision of Dr Cornelia Doebis. We spoke with the Technical Team Leader in charge of the project on site, Robert Lemke, about his expectations and first impressions.

Mr Lemke, the PS-10 sample preparation system from Sysmex is currently being tested in the flow cytometry laboratory at the IMD. How did you prepare samples before?

Robert Lemke: Until now, we have done all our sample preparation in the classical manner, manually. We began by manually preparing antibody cocktails for specific panels, pipetting these, adding blood, incubating, lysing and then washing them with a washing system.



A view inside the Sample Preparation System PS-10

Do you use antibodies from different manufacturers, and how important is it that PS-10 is an open system?

For certain analyses, for instance kappa/lambda staining for suspected lymphoma, we want to use very specific clones that are known from various publications. This is why we in certain cases have to search the market for the right clones or antigen components. Even though this initially means more work for the technical assistants and our materials management system, our focus is always on the quality of the results. In this context, the open system offered by the PS-10 is a great advantage for us because it can easily integrate antibodies from various suppliers.

The documentation of antibodies, samples and reagents is an important part of the system. What role does this play for an accredited laboratory such as IMD?

One big advantage is the fact that all of the data about the lots, their expiry dates and date opened, can be saved in the system. Because we are dealing with an open system here, data input is naturally a little more complicated. Sysmex's own antibodies can be imported in no time at all, for example. A little more time is needed for antibodies from other suppliers. But I believe that once they have been entered into the system, this possibility will be of great assistance to us and will probably even completely replace our manual batch documentation.

PS-10

The PS-10 sample preparation system offers a number of ways to increase the efficiency of clinical flow cytometry laboratory workflows.

- High flexibility: can implement all common protocols
- Continuous supply of samples with automatic mixing of the samples
- Automatic cocktail production
- Space for up to 90 antibodies
- Stand-alone option: compatible with all other flow cytometers

- Open system: reagents from other manufacturers can be used
- Barcode reader to identify samples and reagents
- Sample and reagent tracking with extensive documentation of all data
- Can be connected to LIS
- Software: easy programming and intuitive operation



Simultaneous loading with up to 50 primary sample tubes in the standardised Sysmex racks and continuous reloading of further samples offers efficient processing. Up to 90 different antibodies can be used.





The barcode scanner allows the rapid identification of patient samples, antibodies and reagents.

What is your first impression of the PS-10 software and the Rotolavit II-S cell washing system?

The software has a very intuitive structure. If you haven't worked with Sysmex systems before, the touch screen is a little unfamiliar at first. But it is a very good feature that you quickly and intuitively get used to working with.

The PS-10 system has not yet been integrated into your laboratory information system. Is this being planned and do you consider it a sensible move?

A connection to the laboratory information system is by all means sensible and would mean additional time savings. At present, we still have to manually assign each sample number a test profile after it has been scanned. With around 80 to 100 patient samples a day, the time and effort needed for this quickly adds up to 30 minutes to an hour. This time is very valuable and is currently lost for our MTLAs. If the sample preparation system is able to retrieve the requested profile itself from the system in future, this would be a great benefit for us.

What do you believe are the biggest advantages of the PS-10?

The comparability and standardisation of results plays a major role in flow cytometry. This is the biggest advantage of automation as a whole. Of course, we repeatedly carry out local consensus trainings with our employees to ensure that they all work in the same way. But the risk that the results may fluctuate slightly on account of their form on the day cannot be ruled out completely. I am assuming that the PS-10 system works with the same level of concentration every single day. This high degree of comparability is most certainly the biggest advantage. What's more, with the time saved, the MTLAs are then available for more demanding tasks.

A lot of laboratory staff are bothered by the sound level of laboratory equipment. How does the PS-10 system shape up here?

The sound level of the PS-10 is quite low. If you stand next to it, you can hear the arm's movement. The noise is drowned out by the other pieces of equipment in the laboratory, some of which are very loud, and is practically lost in the everyday background noise. Of course, you can hear when the PS-10 system shakes the samples with the rotor. But because it works automatically, this is also a helpful sign for the staff indicating which stage of the sample preparation the PS-10 has currently reached. This is why I consider it more of an advantage.

And how do you rate the system's ease of maintenance and cleaning?

It's quite easy to clean and care for. Like every large piece of equipment, the PS-10 system has to be flushed in the morning. What's more, it should be calibrated once a month. This takes time, of course, but is still reasonable and is no different from the work needed to calibrate other devices. There are often peak load times in the laboratory during the day. The good thing about a calibration is that it can easily be planned so that it can be performed outside these periods and thus does not cause much extra work.

Following your initial experience: what pleases you most about the PS-10?

Anyone who decides to become an MTLA often has a soft spot for technology too. This is why all of our staff are looking forward to working with the new PS-10. Naturally, in some cases people are a little afraid of the new system at first. But we are all very happy that the PS-10 will take care of some of our work in future. But at the same time, MTLAs also appreciate it when there are certain tasks that still can and have to be carried out by hand. In our case, the automation provided by the PS-10 leaves us more time for various manually complicated and demanding functional tests that have to be performed in our laboratory. The free time also gives us the opportunity to concentrate even more on the evaluation and interpretation of findings, work that takes place in close cooperation with the scientists and laboratory physicians at IMD. This contributes to the further professionalisation of the MTLAs' work and makes the profession even more attractive.

Summary

- The Berlin IMD Laboratory is gaining initial experiences with the PS-10 automatic sample preparation system for clinical flow cytometry.
- The biggest advantages are the time savings and high level of comparability of the results.



Robert Lemke has been a Technical Assistant at the IMD since 2012 and alongside his work as a Technical Team Leader in the flow laboratory, he is writing his Master's thesis on the topic of 'Automation in flow cytometry' at the Health University of Applied Sciences Tyrol.