



Pure Water

A critical reagent for anatomic pathology work



The *Institut de Pathologie de Paris* (France) is an organization dedicated to anatomic pathology, a key specialty field in the battle against different types of cancer. Anatomic pathologists employ a variety of tools and procedures to analyze human organ and tissue specimens, in order to discover the type and characteristics of lesions or tumors and to provide a diagnosis for medical practitioners and their patients.

Typical tissue or cell samples received for analysis by the Institute include Papanicolaou (Pap) cervical screening tests, breast microbiopsies, tissue and cysts removed during colposcopy exams, or moles/skin lesions excised by dermatologists and plastic surgeons. These and other specimens are analyzed by the Institute's lab technicians using manual and automated sample prep and staining procedures that require pure water for successful completion.

The *Institut de Pathologie de Paris* was founded in 2006 by a group of pathologists in central Paris. In 2013, in order to optimize procedures and reduce diagnostic time for medical specialists and their patients, the new organization moved to larger quarters in Malakoff, on the outskirts of the city.

Christine Garrel is a medical technician who has worked in the team since 1983. Today she is responsible for Immunohistochemistry procedures and management of the laboratory's technical team.

Pure water in immunohistochemistry and cytology procedures

The Institute performs analyses in several types of anatomic pathology procedures, including histology, cytology, immunohistochemistry/SISH (Silver-enhanced in situ hybridization), and HPV (Human Papillomavirus) molecular biology studies. To meet their pure water needs, the laboratory purchased a Merck Elix® Advantage 3 system in 2010, along with an E-POD® pure water dispenser and a 60-liter pure water storage tank.

"We use pure water especially in our immunohistochemistry and cytology procedures," says Christine Garrel. "For example, in immunohistochemistry, we process approximately 180 slides a day, which means we need about 30 liters of pure water daily. We use the Elix® water to ensure stable buffers in dilution processes where two liters of a reagent solution are diluted in 18 liters of pure water. It's important for us to be able to count on constant water quality for our techniques."

"In addition, we also use pure water to rinse our special sample stains, and to fill water baths for histology sections (about six liters daily to fill four baths). For cytology procedures, our sample volume is lower, so we just need about five liters of pure water a day."



The Elix® Advantage range includes models for production of 3-15 liters of pure water per hour, up to 360 liters per day, at a maximum flow rate of two liters per minute. Elix® Advantage systems deliver consistent- and reliable-quality Type 2 water, using a combination of complementary purification technologies, advanced reverse osmosis, Elix® module electrodeionization, and germicidal UV lamp treatment.

Elix® Advantage 3 system, E-POD® dispenser and a 60-liter storage tank in the Institute's histology laboratory.

About 60 liters of pure water is also required to decontaminate the Institute's slide staining systems every three months. The decontamination procedure is especially important to ensure good quality for SISH (silver-enhanced in situ hybridization) specimens.



Automated slide staining units at the *Institut de Pathologie de Paris*

Easy pure water delivery with the E-POD® dispenser

The Elix® Advantage system and E-POD® dispenser are installed in the Institute's ground-floor laboratory dedicated to cutting histology blocks, where all of the Institute's technicians can access the system and dispense water as needed. "We especially appreciate the E-POD's ergonomic design and the way the water is dispensed in total security. We just program the volume required, and then position the dispenser directly over the container," explains Christine Garrel. "We don't have to watch over the delivery process, because delivery stops as soon as the programmed volume is reached. For filling smaller recipients, we also use the dispenser's manual delivery option. It's an easy way for us to deliver both small and large volumes of water."



E-POD® dispenser



Elix® Advantage 3 system

The importance of pure water traceability

The Institute's Immunohistochemistry activities are regularly subject to external quality control investigations by organizations such as the AFAQP and the UK NEQAS*. "Water traceability is necessary, in just the same way as traceability for all products and instruments included in procedures used in our techniques," says Christine Garrel. "In our approach to quality processes for accreditation, consistency of water quality is important, and for that reason, it's best that we produce our pure water ourselves. We've never had to deal with a problem that raised any doubts about the quality of our pure water."

For accreditation purposes, the Institute is required to prove that their Elix® Advantage system undergoes regular maintenance. This includes being able to provide a recorded history of maintenance dates and any other service visits.

Watercare Service Plan for carefree maintenance

The *Institut de Pathologie de Paris* has a Merck Watercare Pact Service Total™ plan. Orders for system consumables are planned in advance and the consumables delivered according to a schedule so they can be changed as soon as it's necessary. In addition, a Merck Field Service Engineer performs any needed preventative maintenance once a year.

"We're pleased with the service we've obtained," concludes Christine Garrel. "The Merck technical service department is easy to reach, and explanations from your technical support hotline staff have always been clear and precise. To sum up, I'd definitely recommend the Elix® Advantage 3 system to other anatomic pathology laboratories. The system is easy to use, and for a medium-size laboratory like ours, the Elix® Advantage 3 provides all the pure water we need for successful daily operation."

* AFAQP: Association Française d'Assurance Qualité en Anatomie et Cytologie Pathologiques (French Association for Quality Assurance in Pathologic Anatomy and Cytology) / UK NEQAS: The United Kingdom National Quality Assessment Service for Microbiology

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