Faster diagnosis of cancer

by Françoise Giesen

Malignant tumours can be diagnosed within a few hours without any concessions to quality. "The processing time of tissue is dramatically reduced, resulting in less unnecessary waiting time for patients", says Professor Axel zur Hausen, Chair of the Pathology Department at Maastricht University Medical Centre. The Maastricht University Medical Centre is one of eight academic hospitals located in the Netherlands. Due to the recent acquisition of a new continuous rapid tissue processor and the reorganisation of the work flow, the waiting time for tissue diagnoses in zur Hausen's laboratory has reduced significantly.

The system that enables Maastricht to produce a faster diagnosis is the Tissue-Tek Xpress x120 Continuous Rapid Tissue Processor. Zur Hausen was first introduced to this innovative system in 2005 when he was Deputy Director of the Institute of Pathology, University Hospital Freiburg, Germany. "The Director at the time was looking for a faster and leaner way to work. When visiting a pathology lab in the U.S.A., he became very impressed with the Xpress."

A few months later the Xpress was also installed in Freiburg. Initially, zur Hausen was quite sceptical: "I have to admit that I wasn’t enthusiastic at all. I hadn’t heard of this technology before and felt that it would involve a lot of extra work. In fact, I was doubtful from the very beginning. We were one of the first to start working with this new technology in Europe. We wanted to be absolutely sure that the results were completely reliable, so we spent a full two years researching the same tissues in combination with the traditional method. An expensive solution, and looking back on it, the time spent could have been shorter, but we didn’t want to run any risk. Time and time again, it turned out that the results of both methods were the same, except that the results of the new method were available much sooner."

Upon his transfer to Maastricht, zur Hausen’s new team at the Pathology Department was in part initially rather reluctant when zur Hausen indicated that he wanted to use the same working method as in Freiburg. "As a new Chair I wanted to change a lot of things. However, I recognised that the doubts of the pathology team were the same that I had had myself back in Germany."

But when the system was up and running, the scepticism in Maastricht quickly subsided just as it had in Freiburg. "It became clear that the quality of the results was definitely comparable to that of the past, except that now only a fraction of the time was needed." Zur Hausen explains how this is possible: "The most important difference compared to the traditional method is that the tissue processing no longer needs to be done overnight in batch mode. After receiving the tissue specimen, the specimen is in many cases ready to be examined by the pathologist within two to three hours. This obviously has a big impact on the way we work. Whereas in the old system stacks of slide trays would be deposited on the pathologist’s desk after the lunch hour, now a smaller number of specimens are ready to be examined throughout the day. New cassettes can be loaded every fifteen minutes on the Xpress without unnecessary waiting. Almost everything can immediately be processed."

The reduced turn around time means that patients do not need to be kept in suspense for longer than necessary. The lab technicians also profit from a leaner work flow: "Psychologically seen, it is an improvement that we no longer have big stacks of specimens to process. In addition, it decreases the chance of making mistakes: you can imagine that the odds of interchanging are bigger when there are forty cassettes on the table than when there are just three."

Hospitals can also benefit from a faster way of working, says zur Hausen: "A quick and reliable diagnosis implies that treatment can be started sooner. In addition, there will be more time to make a diagnosis or to consult with a colleague when in doubt. Gaining time is essential, especially when it concerns diseases that need immediate treatment. In addition, a lot of money can be saved and waiting lists shortened when we are able to predict sooner if a certain treatment is going to work, as hospital beds won’t be occupied longer than necessary."