

Automation helps to improve *in situ* hybridization protocols

The pathology laboratory at Shanghai's Changhai Hospital has successfully evaluated Tecan's HS 400™ Pro hybridization station for the analysis of breast and lung cancers.

Changhai Hospital in Shanghai, China, is a large general teaching hospital affiliated with the Second Military Medical University, and has a long history of combining medical practice with teaching and scientific research. Its pathology department receives between 80 and 90 samples a day from patients suffering from lung, gastric, pancreatic, intestinal and breast cancers, generating more than 1,000 slides for histological testing. Mr Ni Chanrong, the Department's Technical Leader, Vice Chairman of the Technical Committee of the China Medical Association Pathology Branch, and Senior Specialist of the Quality and Control ICH Group affiliated to the Ministry of Health of the People's Republic of China, is responsible for the hospital's *in situ* hybridization (ISH) project, focusing on the detection of breast carcinomas and lung cancers. He discussed the Department's recent evaluation of the HS 400 Pro hybridization station: "Breast cancers can be categorized as either HER2-negative or HER2-positive. Herceptin® – also known as trastuzumab – is an effective treatment for HER2-positive early stage breast cancers and metastatic breast cancers, prolonging the survival time of these patients. However, it is not effective against



Changhai Hospital is one of the top 100 national hospitals in China

HER2-negative breast cancers, and so there is a need to distinguish between these two forms of the disease."

"ISH techniques are commonly used to test the HER2 status of breast cancers, and we wanted to evaluate the application of an automated hybridization station to this work, enabling us to standardize and normalize our protocols. Tecan provided an HS 400 Pro for us to evaluate, which we really appreciate. We investigated 10 cases of breast carcinoma, five HER2-positive and five HER2-negative. Sections of paraffin-embedded tissues were prepared and stained with hematoxylin and eosin to clearly define the location of the tumor, then dewaxed and dehydrated, and uploaded to the HS 400 Pro for processing. DIG- and fluorescently-labeled probes were diluted 1:40 with hybridization buffer, and hybridization was performed at 37 °C for 12 hours."

Mr Ni continued: "The HS 400 Pro gives very good, stable test results; the results obtained were consistent with those obtained using manual hybridization at 37 °C for 18 hours. It is easy to use – both system operation and program definition were simple to learn – and it took just two days to establish protocols for our work. The system's agitation hybridization technology increases the effectiveness of hybridization and helps us to reduce the concentration of probes used, improving efficiency enormously. We can complete an ISH test that would take about four hours to perform manually – excluding

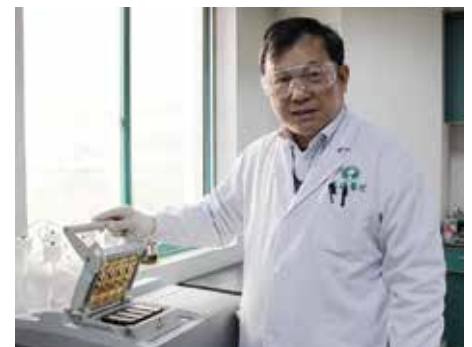
the hybridization time – in just 90 minutes using the HS 400 Pro, significantly increasing sample throughput. Normalization and repeatability are improved, and the potential for manual errors is minimized, considerably enhancing the quality control process."

"We have also tested a number of lung cancer cases, and have been able to show that automation of our ISH protocols on the HS 400 Pro is an effective alternative to manual hybridization techniques for both diseases. We are now planning to expand the sample size and carry out further studies to determine the optimal hybridization conditions," Mr Ni concluded.

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To find out more about Changhai Hospital, visit www.smmu.edu.cn/english/SMMU_Hospital_chhai.htm

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Mr Ni demonstrates the use of the HS 400 Pro hybridization station