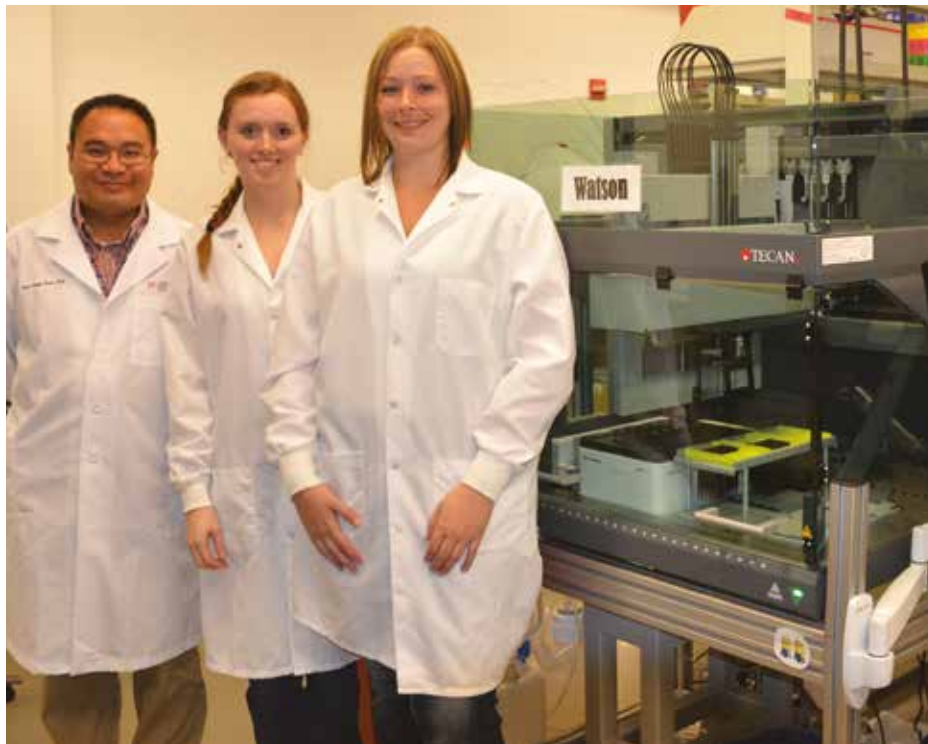


Incorporating genomic medicine into cancer research and primary care

The Sanford Health BioBank in the USA is using a Freedom EVO® HSM workstation and ReliaPrep™ Large Volume HT gDNA Isolation System for reliable, automated extraction of DNA from blood for genomic medical research.



Sanford Health in Sioux Falls is one of the largest rural healthcare providers in the USA, serving local communities in North and South Dakota, Minnesota, Iowa and Nebraska. In addition, it supports 'world clinics' located elsewhere in the US, China, Israel and Ghana. Originally Sioux Valley Health, the facility was renamed Sanford Health in 2007 in recognition of a \$400m donation from its benefactor, Denny Sanford. Four years later, following a further \$100m contribution in memory of his mother Edith, the Edith Sanford Breast Cancer Foundation was established, focusing on the incorporation of genomic medicine into breast cancer research and care. The Sanford Health BioBank was set up to support both this initiative and Sanford Imagenetics, a new enterprise dedicated to incorporating genetics into internal medicine. The biobank began collecting blood and tissue samples, primarily from oncology patients, for use in future research. Dr Chun-Hung Chan, Director of the Sanford Health BioBank, explained: "Our goal is to make more use of genetics, moving towards personalized medicine, and one of the driving forces behind the biobank is to ensure samples are available when they are needed, rather than slowly collecting samples once a protocol is approved. Although the biobank is still in its infancy, we have started distributing samples, mostly to Sanford Health investigators; once



Left to right: Chun-Hung Chan, Megan Hanson and Shaina Kollis with the Freedom EVO HSM

the repository is large enough, we hope to also supply other researchers investigating similar health problems."

Prior to purchasing the Freedom EVO HSM workstation, Dr Chan attended a variety of meetings to establish the different options available, seeking advice from other members of the biobanking community, and was introduced to the Tecan-Promega partnership. The combination of Tecan's Freedom EVO

workstation with Promega's HSM 2.0 Instrument and ReliaPrep Large Volume HT gDNA Isolation System was ideal for Sanford's needs. Dr Chan continued: "We have used Promega products for a number of years, so I knew they were reliable. However, I had no previous experience of laboratory robotics – Tecan was new to me – and I was reliant on recommendations and references from other users. I looked at quite a few different options, and what really sold the Freedom EVO HSM

"Manual DNA extraction of up to 32 large volume samples could take the entire day; with the Freedom EVO HSM it is completed in about four hours."

workstation to me was the huge amount of flexibility it offered for sample processing. At the time, comparable systems were centrifugation-based, requiring equal numbers and volumes of samples, whereas the Freedom EVO HSM system offered the flexibility to extract from 1 to 32 samples of varying volumes in the same run. It also allowed extraction of high blood volumes – up to 10 ml – helping to ensure that we would not run out of a particular DNA sample. As many oncology patients are immunocompromised and have low white blood cell counts, isolating DNA from the largest possible starting whole blood volume is necessary to ensure that sufficient DNA is purified for long-term studies."

Predefined methods for processing multiple sample types using the Freedom EVO HSM system and the ReliaPrep Large Volume HT gDNA Isolation System chemistry, supported by Promega's installation and training services, enable laboratories to rapidly implement routine operation of the instrument. Prior

to purchasing the Freedom EVO HSM workstation, all the biobank's samples were processed manually. Automating the biobank's protocols on the Freedom EVO HSM system enhanced speed and throughput, as well as consistency, enabling staff to spend their time performing other tasks. Dr Chan highlighted the benefits of switching from manual to automated processing: "The Promega system is designed for both manual processing and automation, enabling straightforward transfer of our protocols to the Freedom EVO HSM system. This offers several benefits, particularly improved consistency and speed of processing. Manual DNA extraction of up to 32 large volume samples could take the entire day; with the Freedom EVO HSM it is completed in about four hours, freeing staff to carry out other tasks. Setting up our blood and saliva protocols on the system is easy too, as the TouchTools™ touchscreen user interface visually guides users through each processing method, including starting a purification run, providing intuitive assay set-up."

Customer support was another important factor in Sanford's decision to purchase a Freedom EVO HSM workstation. "I looked into the history of the various companies supplying automated systems, as well as the level of customer support, and felt that Tecan had the edge. Tecan has a strong background in automation – a history I felt comfortable with – and was able to provide all the support I needed. Tecan and Promega have been very supportive, and the system has proved robust and reliable. After on-site validation, the Freedom EVO HSM came into routine operation in spring 2012 and has been so successful that we have since purchased a second system," concluded Dr Chan.

To find out more about Tecan's genomic solutions, visit www.tecan.com/genomics

To find out more about the Sanford Health BioBank, visit www.sanfordresearch.org/biobank

