

An important piece of the HIV puzzle

The Irkutsk Regional AIDS Center is taking advantage of the flexibility and ease of use of an Infinite® 200 PRO multimode reader to help monitor HIV patients. Combining luminescence- and absorbance-based assays with a range of other diagnostic tests, the Center is able to accurately assess the immune status of its patients.

The prevention and diagnosis of HIV infection is a major public health issue in Russia, with an estimated 645,000 people living with HIV at the end of 2013. The relatively high prevalence of HIV-positive individuals – corresponding to approximately 0.45 % of the country's overall population – includes between 60,000 and 80,000 of these cases diagnosed in the last five years. To help cope with this urgent health problem, the Russian Federation has a network of AIDS centers across every major region. Each center has responsibility for the prevention, monitoring and treatment of HIV infections within its local population, as well as providing psychological care to patients and coordinating the various services concerned with HIV.

The Irkutsk Regional AIDS Center in Eastern Siberia has recently moved into a new, purpose-built facility close to the shores of Lake Baikal. The complex effect of HIV on the human immune system means that a variety of tests are required to accurately determine a patient's immune status, and the Center's clinical immunology laboratory is equipped with a range of modern diagnostic instruments intended to simplify its workflow.

Two of the components which must be measured – the phagocytic activity of white blood cells and the concentration of circulating immune complexes (CICs) – are determined using microplate-based optical assays, and the laboratory has chosen an Infinite M200 PRO multimode microplate reader to perform these tests. The phagocytic activity of white blood cells is analyzed by luminol-dependent chemiluminescence. A suspension of the patient's white blood

cells is mixed with opsonized zymosan or a saline control in the presence of luminol. Neutrophils and monocytes from the patient's blood then ingest the zymosan particles and generate reactive oxygen species that oxidize the luminol. The resulting chemiluminescent signal is measured for 30 minutes using the Infinite M200 PRO in luminescence mode, and the system's Magellan™ software automatically calculates the stimulation index.

Determination of the CIC concentration is also performed on the Infinite M200 PRO reader. Diluted patient serum is mixed with a solution of polyethylene glycol, which precipitates the immune complexes. After an hour of incubation, the turbidity of the sample wells is measured directly using the instrument's absorbance mode.

Inna N Savintseva, head of the clinical immunology laboratory, commented: "The most important thing is that the Infinite reader is easy to use. We are not a research organization, so any instrument that is too complex or unreliable is not suitable for routine screening. Our local Tecan representative was very helpful in teaching the laboratory personnel to use the instrument, which we were very grateful for, and we have not had any issues. The instrument's high sensitivity is also very important, as the results must be reliable and tally with the results of other assays in order to provide an accurate picture of each patient's immune status."

To find out more on Tecan's Infinite 200 PRO, visit www.tecan.com/infinite200pro



The Irkutsk Regional AIDS Center laboratory team