

Early detection of diseases and performing liquid biopsy by an ultrahigh sensitive immunoassay system

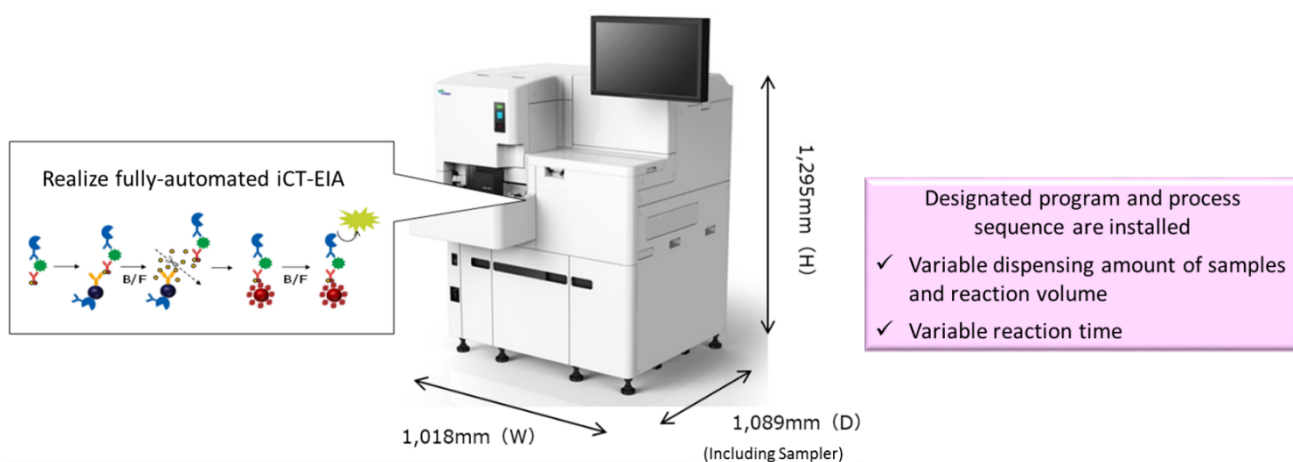
Device : iCT-HISCL system

Development of an Ultrahigh Sensitive Immunoassay System by the Immune Complex Transfer Method

In an immunoassay, a number of non-specific adsorption factors interfere with sensitivity improvement. In particular, the non-specific adsorption of labeled antibodies to solid surfaces (beads) generates background noise. The noise hides signals of targeted molecules and causes a problem, thereby preventing sensitivity improvement.

The immune complex transfer (iCT) method is a technology used to drastically reduce background noise caused by non-specific adsorption. This technology has made it possible to detect infinitesimal proteins that could not be detected by conventional methods.

This technology has been systematized as iCT-HISCL based on HISCL[®], our commercialized immunoassay system. We are going to use iCT-HISCL for the early detection of diseases and liquid biopsy testing.

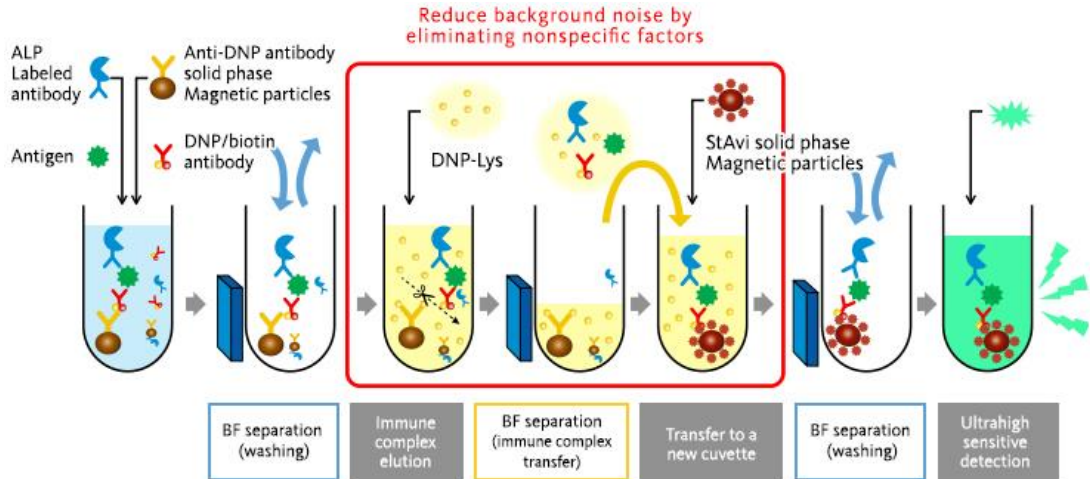


Appearance of iCT-HISCL (System Base: HISCL[®]-800)

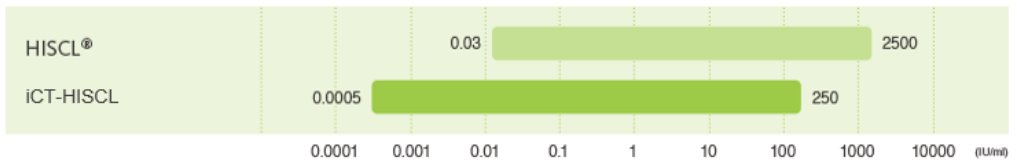
Immune Complex Transfer Method: iCT

In this system, only the immune complex, the target molecules sandwiched by the antibodies, can be transferred to different magnetic beads, resulting in the reduction of non-specific background noise to approximately 1/100. This complicated process is installed in HISCL[®], thereby fulfilling the goal of complete automation.

The sensitivity of this system to measure HBsAg, as an example, is 60 times higher than that of our conventional HISCL[®].



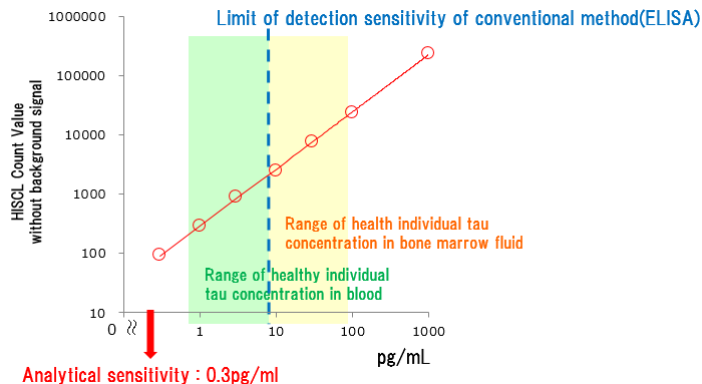
Principle of iCT-HISCL



Comparison of the sensitivity between HISCL[®] and iCT-HISCL on HBsAg measurement

Application example of iCT-HISCL

iCT-HISCL has realized sensitivities that are significantly higher than commercially available ELISA kits with respect to the measurement of Alzheimer's-related proteins: Amyloid β and Tau protein. This makes it possible to detect disease-specific Amyloid β and Tau proteins in the blood.



Calibration curve for Tau protein