

Measurement & Analysis Equipment

1 Immunoassay Module cobas e 801

Immunoassays are one of the main methods used for blood analysis, and are widely used to analyze more than 100 items to diagnose diseases such as cancer, viral infections and cardiac diseases. With increasing diversification in the testing workflow, immunoassay modules must meet basic performance requirements in areas such as high sensitivity and high throughput, and must also be able to withstand 24 hours of operation per day, for example, for the rapid diagnosis of myocardial infarction.

The cobas* e 801 delivers a higher basic performance than previous modules and is also better at preventing deterioration of reagents. This enables the calibration interval to be lengthened from one month to three months. The cobas e 801 is also equipped with an autoloader that allows reagent bottles to be exchanged during analysis and measurement for improved operability. This results in a paradigm shift away from “module-led” operation based on module status towards “operator-led” operation with the replenishment of reagents at the operator’s own discretion.

The cobas e 801 will also contribute to highly sensitive

immunoassay testing in new fields such as intraoperative testing and emergency testing in addition to routine daytime testing.

(Hitachi High-Technologies Corporation)

*See “Trademarks” on page 162.

2 Probe Microscope System AFM5500M

Scanning probe microscopes, which simultaneously image the three-dimensional topography and physical properties of sample surfaces on the nano-scale, are used in nanotechnology research and development in a wide range of fields, including organic polymers and electronics. These days, scanning probe microscopes are required to measure topography accurately without distortion and also are required automation such as automated cantilever exchange and automated laser and photo detector alignment.

The AFM5500M includes a newly developed scanner and low-noise three-axis sensor to deliver high measurement accuracy. Operability is also greatly improved through features such as automated cantilever exchange and automated laser alignment. These added

Enables exchange of reagent bottles
during analysis/measurement



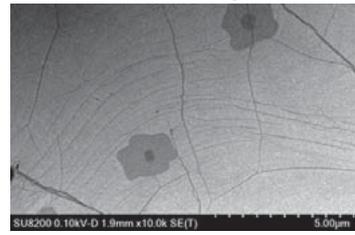
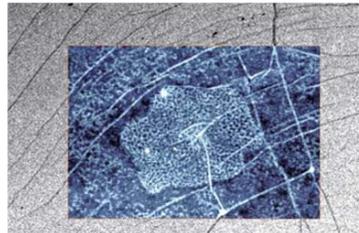
Reagent auto-loading



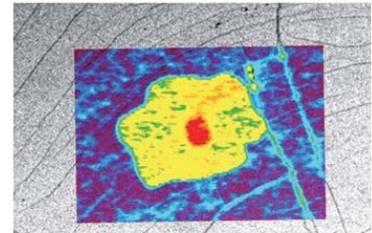
1 Immunoassay module cobas e 801 (left) and achievement of 24-hour non-stop operation (right)



SEM image

Sample: CVD-grown graphene/SiO₂Overlay of SEM image
and AFM image

1 μm 0 5 nm

Overlay of SEM image
and KFM image

-60 +60 mV

AFM: atomic force microscope, KFM: kelvin force microscope, CVD: chemical vapor deposition, SiO₂: silicon dioxide

2 Scanning probe microscope AFM5500M and example of SEM-AFM coordinate linkage measurement

features make the AFM5500M not only suited to existing research and development applications, but also to industrial applications such as quality control for the device.

The main features are as follows.

- (1) Able to measure the nano-scale roughness and curvature of a flat sample in a wide area scan.
- (2) Able to automatically perform the process from preparation for measurement to measurement of sample in just one click.
- (3) With our newly developed AFM/SEM shared sample holder, it enables measurement of the same location between SEM and AFM.

(Hitachi High-Technologies Corporation)

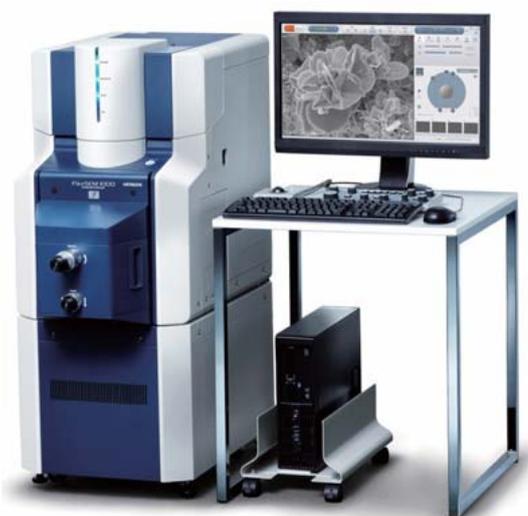
3 New Compact, Low-vacuum SEM FlexSEM 1000

Scanning electron microscopes are starting to be used in a wide range of industries, such as the nanotechnology and biotechnology fields, for examining the fine surface structures of materials. As high-performance equipment, electron microscopes have always required skill to operate and these days the quick and easy acquisition of high quality image data is also required. The recently developed FlexSEM 1000 employs a newly designed electron optics system with a high sensitivity detector, achieving imaging at 4 nm with an accelerating voltage of 20 kV. High-speed brightness and focus

automatic adjustment functions speed up observation, while the new navigation function, SEM map, achieves intuitive movement for the field of view, making it less difficult to locate, which was previously a drawback to electron microscopes.

The FlexSEM 1000 is around 52% more compact and 45% lighter than the existing SU1510 model, making it much easier to install. With a separable main unit and control unit that can also be placed on a table, the FlexSEM 1000 can be adapted to fit the user's layout.

(Hitachi High-Technologies Corporation)



3 New compact low-vacuum SEM FlexSEM 1000