

## **D<sub>1</sub>. Measurement B (In Vitro Assay, General)**

### **Studies on the Automation of Radioassay**

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We have reported several times on the results in automatic procedure of the radioassay.

The present studies are on precession of the pipetting, which is the most undeveloped and erroneous procedure in automatic measurement, and its simplification of the technique.

Instrument used were manual pipettes (Eppendorf, Excel, Versa, ultramicroglass, Nipponriken-glass), automatic pipette (Micromedic), tubes (augio, silicon, Technnicon), auto-well scintillation counter for radioactivity measurements, and Syber Hegner for weightmeter of water and mercury.

The results were: The coefficient of variation were, automatic pipette (0.1 ml) 0.500% and manual one (0.1 ml) 0.997% by gravimetry to water, and automatic pipette (0.1 ml) 0.561% and manual one (0.1 ml) 1.631% by radioactivity measurements.

More slender of the tip is good.

As a result of pipetting test, the most stabilized data was obtained by using automatic pipette, but sampling precession of automatic pipette is not so good.

### **Automation of Radioimmunoassay by Total System**

#### **Part 1. Measurement of Insulin Activity by Supernatant Sampling Method**

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In practising radioimmunoassay, there are some points to be improved such as speed-up treatment and accuracy of many samples in the assay, although it has been simplified by using kit of reagents. Therefore, we tried to this assay system automatically just like many other routine clinical tests by

applying Total System from Micro-Medic Co. Ltd., U.S.A. and obtained much better results than those of the widely used methods currently. Generally, it is a very troublesome procedure to separate B and F fractions from reaction mixture, and this will be due to the main causes of error in measuring the