Studies of Australia Antigen and Antibody Using Solidphase Radioimmunoassay

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By using solidphase radioimmunoassay (RIA), Australia Antigen (Au-AG) and Australia Antibody (AU-AB) were detected in sera obtained from blood donators and the patients suffering from serum hepatitis, acute viral hepatitis and infectious hepatitis. By using RIA, in blood donators Au-Ag was detected in about 5%, and Au-Ab was detected in high percentage of about 50%. In either of serum hepatitis and acute viral hepatitis, Au-Ag was detected in high percentage of 97% and 100%, while in infectious hepatitis Au-Ag was detected in low percentage of only 1.1%.

These results indicate that RIA of Au-Ag must be the most sensitive detection of Au-Ag and Au-Ab.

Simple Procedure for Radioimmunoassay of Adenosine 3′, 5′-Monophosphate

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The double antibody radioimmunoassay reported by Steiner et al. (1969) is one of the best among a variety of assay methods for adenosine 3′,5′-monophosphate (CAMP). However, as method still has some drawbacks in that the procedure is time consuming and hazardous, we have attempted to develop a procedure which obvious these disadvantages.

By using [^{3}H] CAMP as the hapten and by filtration through a Millipore membrane filter paper we could separate bound- and unbound [^{3}H] CAMP very rapidly and efficiently. This method gave the same results as those obtained by the double antibody method. Standard curves were converted to straight lines using a simple equation. The lowest amount of CAMP measurable by this method was 0.3-0.4 pmole.

Examples of the meaasurement of CAMP by the present method are given. When an arginine requiring mutant of *Brevibacterium liquefaciens* was starved of arginine in a medium containing alanine as the nitrogen source, cellular CAMP began to increase at approximately 1 hr after the onset of arginine starvation. Cellular accumulation of CAMP was followed by the release of this nucleotide in the medium. Amino acid deprivation may be one of the factors which cause the accumulation of large amounts of CAMP in the stationary growth phase of *B. liquefaciens*.