Technical method

Discussion

We believe that the Papanicolaou stain has certain great advantages over the routine haematoxylin-and-eosin stain preparation. Apart from the ready identification of certain categories of microorganisms in infections of the placenta and its membranes, not surprisingly, the Papanicolaou technique provides excellent cytological differentiation and enables ready recognition of many varieties of placental lesions. We now use the Papanicolaou stain routinely for all placental histological examination and find it both aesthetically pleasing and useful. It has helped to reawaken interest in placental histology among our colleagues at different levels, and, even if it has no other merits, in our eyes this facet alone justifies its routine use.

Reference


Letters to the Editor

Antibiotic susceptibility testing by rotary inoculator

There is, at present, considerable interest in many aspects of pathology laboratory safety and, in particular, microbiological hazards (Collins et al., 1974; Department of Health and Social Security, 1975; Harvey et al., 1976). During the last two years there has been an increase in the use of the control comparison technique of antibiotic susceptibility testing described by Stokes (1975) and, in order to carry out the technique rapidly, many laboratories use a rotary inoculator and the MASTRING-S. The inoculation of the culture plate is carried out on the rotating head (Figure) (Pearson and Whitehead, 1974) by spreading a drop of the test organism suspension with a dry swab from the centre of the culture plate to the delineation point which coincides with the MASTRING-S tips. A control sensitive organism is spread with a pre-prepared swab (Felmingham and Stokes, 1972) from this point to the plate edge.

The inoculator head rotates at approximately 150 rpm and the possibility has been raised of production of aerosols during this procedure. Therefore, a test for the production of aerosols was carried out by the following simple technique.

Plates (9 cm) containing 15 ml Blood Agar Base S (Mast Laboratories Ltd) with whole blood (7%) were held at 7.5, 15, 22.5, and 30 cm distance from the centre of the rotating head, directly above it, at an angle of 45°, and vertically at the side, the face of the blood agar plate being held towards the head. Suspensions equivalent to a Brown's No 1 of Serratia marcescens and a fluorescent strain of Pseudomonas aeruginosa were prepared. A culture plate dried for 30 minutes was placed on the rotary inoculator and seeded in the centre with a 2 mm loopful of the first suspension and a dry swab was moved from the centre to the edge of the plate. The inoculator was run and the swab was moved slowly into the centre and back to the edge of the plate twice. The time taken for this operation was approximately 20 seconds from the removal of the lid until its final closure. This was repeated using fresh plates for both organisms, for all angles and distances. A swab was then dipped into the first suspension and soaked with it. This wet swab was placed directly on to a clean culture plate on the rotary inoculator and moved from the centre to the edge of the plate and returned four times with the inoculator rotating. The total times for this operation was approximately 25 seconds. This was repeated for both organisms, for all angles and distances.

After completion of these tests, a check was carried out on the ability of the test system to demonstrate aerosols. A hot loop was placed in a dish of the suspension with a plate held at 7.5 cm from the loop. It was expected that much spattering of the suspension would occur (Collins, 1976).

Using the dry swab, no bacterial aerosol was detected at any distance or angle. With the soaked swab, only on one plate at 7.5 cm and 45° were two colonies of Ps. aeruginosa found, and all other plates showed no growth. In contrast, when hot loops were inserted into dishes containing the suspension, culture plates held nearby showed approximately 100 colonies per plate for both organisms.

These tests show quite clearly that the rotary inoculator, at a speed of 150 rpm especially with the usual dry swab technique, produces no significant aerosol and appears to be safe. Probably the most dangerous aspect of the use of the machine is the transference of loopfuls of culture on to culture plates, and

Figure  The rotary inoculator with a swab held at the delineation point.
Letters to the Editor

this, as with all loop manipulations, should be carried out with care.

It was thought that the height of the arm above the plate was such that a swab might possibly contaminate it; the height of this arm has now been raised to obviate this danger.

K. C. ASHLEY
Mast Laboratories Ltd,
Mast House, Derby Road,
Bootle, Merseyside L20 1EA

References


Inactivation of human brain creatine kinase: an in vitro effect of dimeric human albumin

We have previously shown (Nealon and Henderson, 1975) that commercial human (or bovine) serum albumin inactivates human creatine kinase (EC 2.7.3.2) isoenzyme-1 (CK-1) at 37°C. We now report further work on this inactivation. Purification of the commercial albumin led to a loss in its inactivating effect. However, purification of a minor (ie 3-5%) contaminant from the commercial albumin preparation was found to be the molecular species responsible for the inactivation (Fig. 1).

The molecular weight of this species was 134 900 (Andrews, 1964); sodium dodecyl-polycrylamide gel electrophoresis (Weber and Osborn, 1969) indicated that it was composed of subunits with the mobility of albumin, and it was found to react with anti-human albumin (Fig. 2). We concluded, therefore, that the contaminant was the dimeric form of albumin. Similar results were obtained with the commercial bovine serum albumin preparation.

This source of inactivation of CK-1 does not occur in vivo because dimeric albumin is produced only during albumin purification (Kistler, 1974). However, it is clear that commercial albumin preparations should not be added to electrophoresis buffers if CK-1 activity is being sought.

D. A. Nealon and A. R. Henderson
Department of Clinical Biochemistry,
University Hospital (University of Western Ontario), London, Ontario, N6A 5A5, Canada

References


Fig. 1 Incubation of the human CK isoenzymes at 37°C. The isoenzymes were in incubated in the absence of any added protein (○-○), in the presence of 7.5 g/l pure human serum albumin (●-●), or in the presence of 2 g/l human serum albumin contaminant (▲-▲). In addition, CK-1 was incubated in the presence of 0.1 mmol/l phenylmethylsulphonylfluoride and 2 g/l pure albumin contaminant (to exclude the action of an esterase type protease) or in the absence of both these compounds.

Fig. 2 Radial immunodiffusion pattern of the pure contaminant and pure human albumin obtained with anti-human albumin.