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by

V.L. Di Ninno, V.K. Chenier and W.J. Fenrick

Project No. 16A10

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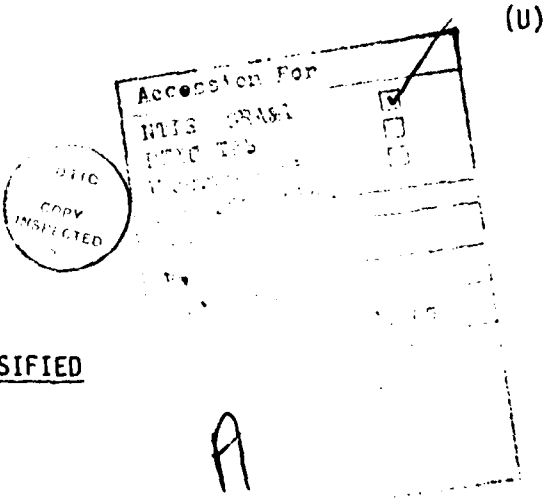
ABSTRACT

A jig for the simple and rapid production of monolayer plaque assay slides is described. (U)



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The relative merits and disadvantages of the monolayer plaque assay as described by Cunningham (1965), have been adequately reviewed by Jerne *et al.* (1976). An important drawback to the technique has been the preparation of test slides. These slides have been produced in a variety of ways (Cunningham, 1965; Cunningham and Szanberg, 1968; Zaalberg, 1968; Elkerbout and Hijmans, 1974) each suffering from certain disadvantages.

Ideally, one wants an easy method to produce not only large numbers of slides but slides containing chambers of suitable and reproducible dimensions. This becomes an important consideration as the monolayer plaque assay is gaining rapid acceptance and wide use. In this communication, we report the construction of a simple jig which allows the rapid production of large numbers of slides.

Figures 1A and 1B show a diagramatic representation of the jig. A clean microscope slide (75 x 25 mm) is inserted into the slots (Fig. 1A). The slide is held firmly in position by the spring-loaded leaf copper sheet. Double sided sticky tape is then positioned through the precisely machined tape slots (Fig. 1A). Another microscope slide is then placed in the slide slots and is firmly pressed into position. This process results in slides containing chambers of identical dimensions. Two types of slides may be produced and these are shown in Fig. 2. One type of slide contains two chambers which hold 109 µL (± S.E. 2.5) reaction mixture per chamber and the second type contains only one chamber with a 285 µL (± S.E. 1.7) capacity. The volume of the chambers was determined by weighing the slides before and after filling the chambers with water.

We have used the readily available white, peel off Sellotape® brand, double-sided sticky tape of 1/2 inch width (DRG Sellotape Division, DRG Ltd., Toronto, Ontario). This tape is used instead of the thinner Scotch® brand double-sided sticky tape. The latter tape may also be used but will result in thinner chambers with less filling capacity. The use of 4 mm width tape prepared as described by Majoor *et al.* (1975) would result in larger chambers or more chambers per slide, depending on the needs of the experimenter.

Another advantage of the jig is that several layers of tape can be precisely overlayered to increase the depth of the chamber. Chambers with 2 layers of Scotch brand sticky tape, or a single layer of Sellotape have been used in a thin layer agar plaque technique (unpublished results). As previously described (Majoor *et al.*, 1975), monolayer plaque assay slides have also been useful in the enumeration of rosette-forming cells.

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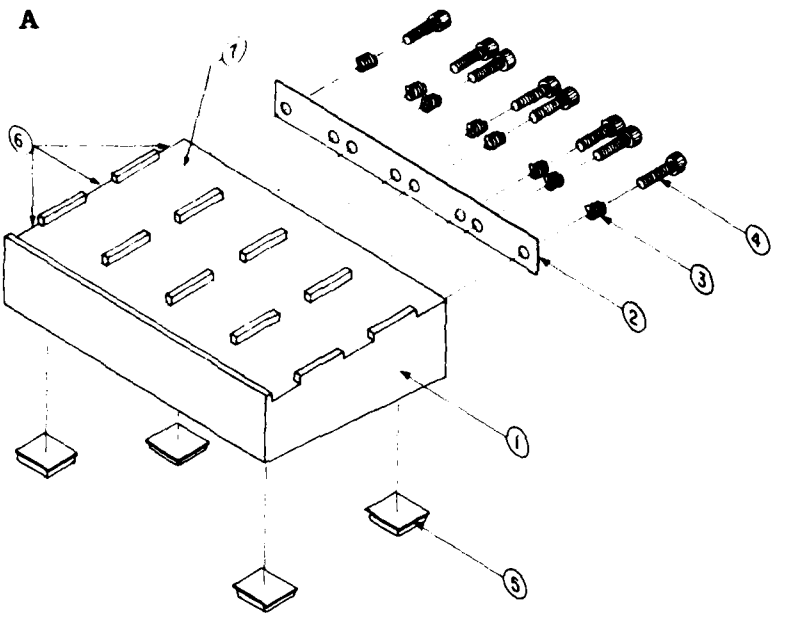

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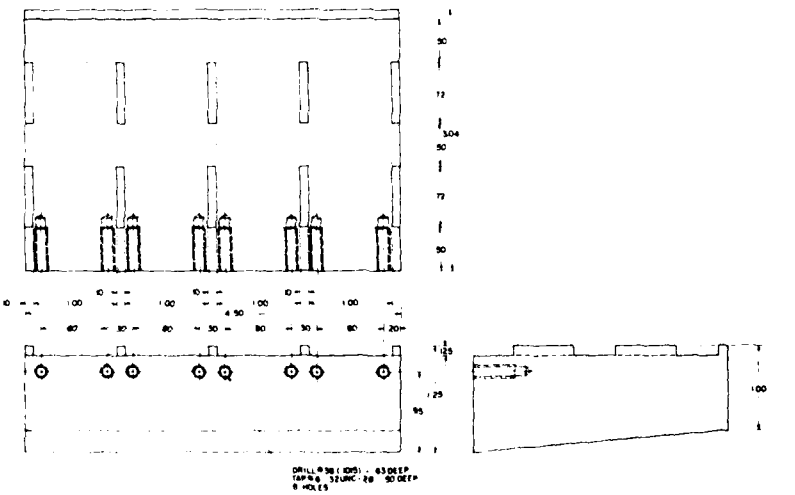

Figure 1

A: schematic diagram of jig showing aluminum block (1), leaf spring assembly (2, 3, 4), rubber feet (5), tape slots (6) and microscope slide slots (7).

B: diagram showing the dimensions of the jig.

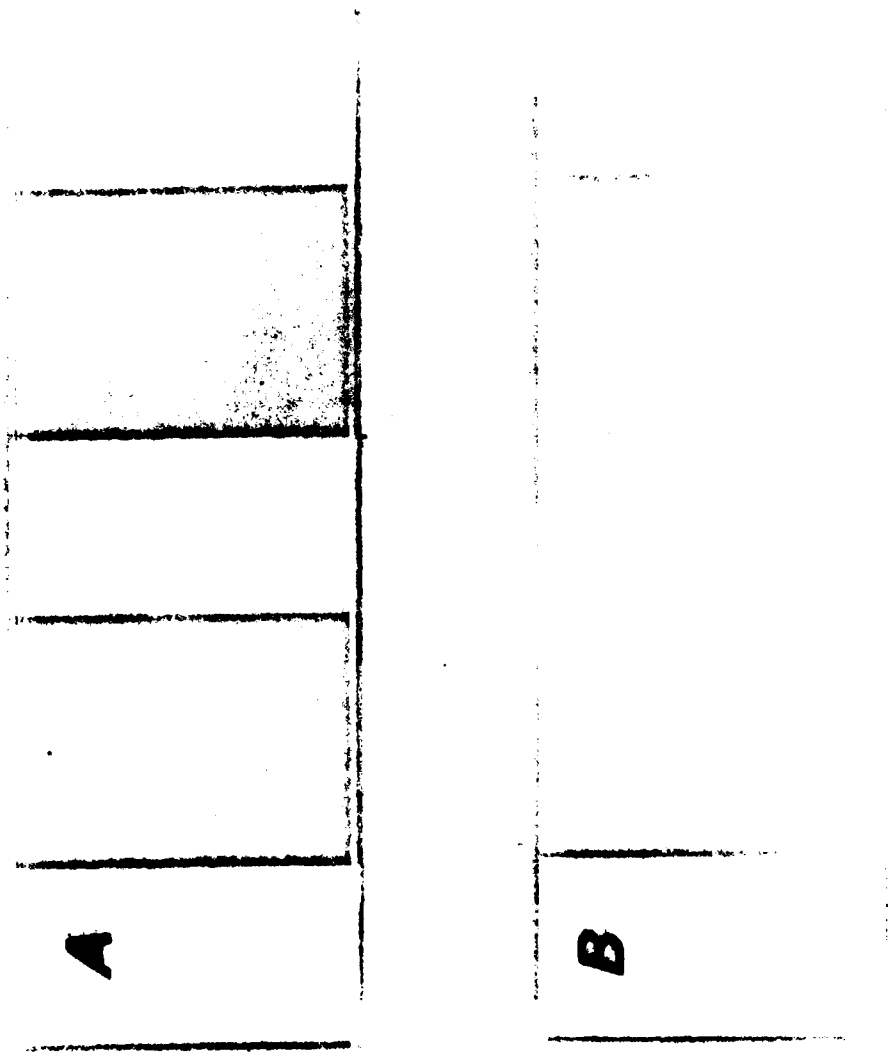

Figure 2
Monolayer plaque assay slides containing: (A) two chambers; and (B) one chamber.

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