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Obtaining of a nearly defined culture medium for Drosophila cells

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Genetica. — *Obtaining of a nearly defined culture medium for* Drosophila *cells.* Nota di GIULIANA MOSNA, presentata (*) dal Corrisp. C. BARIGOZZI.

RIASSUNTO. — La presente Nota descrive come si è ottenuta l'eliminazione di siero di feto di vitello e di idrolisato di lattalbumina dal terreno di cultura in cui vengono allevate linee stabilizzate di cellule embrionali di drosofila. L'eliminazione (senza apparente sofferenza cellulare, ma solo con aumento della durata del ciclo di riproduzione) è stata portata a termine per le linee GM_2, mentre le altre due linee GM_1 e GM_3 sono già prive di siero e stanno per essere allevate anche senza idrolisato di lattalbumina. Il risultato (che per la prima volta elimina il siero da un terreno di coltura) è assai incoraggiante. Si spera che prossimamente le cellule di drosofila possano essere allevate con successo in terreno definito.

In addition to various chemically undefined ingredients, foetal calf serum is generally considered a necessary element for preparing a suitable culture medium for cell cultures (Vaughn, 1971). The medium designed by Echalier and Ohanessian (1970) for *Drosophila* embryonic cells comprises, in addition to amino-acids, organic salts, vitamins, inorganic salts and hydrocarbons, the following chemically undefined substances: foetal calf serum (20%), yeast extract (0,10%) and lactalbumin hydrolysate (1,04%).

The utilization of cell cultures (especially of established lines) for attacking biological problems would obviously be greater if the culture medium were chemically defined. This has not so far been achieved. The present investigation seeks to make a contribution in this direction.

A first attempt to eliminate from medium chemically undefined substances delt with foetal calf serum (FCS) and lactalbumin hydrolysate (LH).

As material I used the three established lines GM_1, GM_2, GM_3 kept in culture since May 1971.

Line GM_2 (already described cytologically by Mosna and Dolfini, 1972, as well as the other two, GM_1 and GM_3, to be considered later) was transferred into medium supplemented with 18% FCS instead of 20%, and the procedure was repeated after 3-4 transfers in two cultures running parallel, each time decreasing the amount of FCS by 2%. The cells were checked regularly in order to detect any possible change in their appearance; no indication of exterior abnormalties was observed. After 10 stages FCS was totally eliminated.

The multiplication rhythm was nearly twice as slow as in the complete medium. This was the only detectable abnormality. After this first result, GM_2 was submitted to the same procedure for eliminating LH, decreasing the amount of this substance by 12,5% in each stage. After elimination of LH the multiplication rhythm was even slower than it has been after elimination of FCS only.

(*) Nella seduta del 12 maggio 1973.

Line GM_2 has now been without FCS and LH for over one month. During the experiment described, I applied the same procedure to the other established lines GM_1 and GM_3. GM_3 is now being investigated for the purpose of measuring the duration of the mitotic cycle in the new medium.

The results obtained, which prove for the first time that it is possible to eliminate serum from cell cultures, are encouraging to try also the elimination of the yeast extract.

If this proves possible, established *Drosophila* embryonic cells kept in definite culture medium will be available.

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