

NEWLY ESTABLISHED CELL LINES DERIVED FROM CHINESE HAMSTER FOR PRODUCTION OF BIOLOGICS

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The Chinese hamster (*Cricetulus griseus*) is a species of hamster that was used as a laboratory animal more than 50 years ago. The Chinese hamster ovary (CHO) cell line was established in 1957 by Puck et al. and maintained in *ex vivo* conditions (1). CHO cells are now a workhorse for recombinant biopharmaceutical production. Puck et al. continuously cultivated lung, kidney, spleen and ovary-derived cells for more than 10 months using serum medium. In this study, we established a cell line from female Chinese hamster tissues: lung, kidney and ovary. Primary cells were obtained from these tissues and maintained for several months or more (Figure 1). We were ultimately able to construct three immortal cell lines, CHL-YN (fibroblast) from lung, CHK-Q (epitheliocyte) from kidney and CHO-MK (epitheliocyte) from ovary, respectively. Infinite proliferation of these cell lines is obtained by spontaneous transformation.

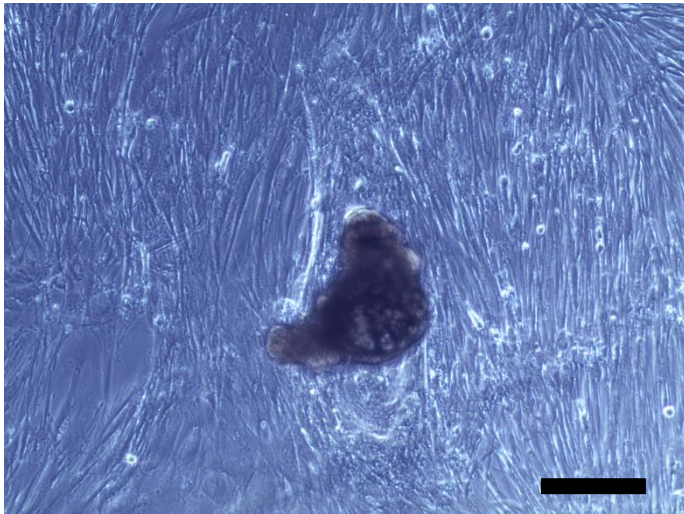


Figure 1 – Organ cultivation using Chinese hamster lung. (bar: 200 μ m)

The established CHL-YN and CHO-MK cell lines were cultivated for more than 500 days and adapted serum-free by stepwise adaptation using chemically defined (CD) medium. The specific growth rates of the established cell lines are higher than that of serum-free adapted CHO-K1 cells. These cell lines were subjected to biosafety testing (BioReliance). The transfection efficiency and production of recombinant antibodies were evaluated using serum-free cultivation.

Reference

(1) Puck T.T., Cieciura S.J. and Robinson A., J Exp Med. 108:945-956 (1958).