

[54] **SUBSTRATUM FOR CELL CULTURE AND A METHOD FOR CULTURING AND ISOLATING CELLS USING SAME**

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[56] **References Cited**

U.S. PATENT DOCUMENTS

4,064,007 12/1977 Choay et al. 435/240

4,223,984 9/1980 Miyata et al. 435/240

FOREIGN PATENT DOCUMENTS

0061549 6/1982 European Pat. Off. 435/240

OTHER PUBLICATIONS

Grinnell et al., Attachment & Spreading of BHK Cells

to Collagen Substrata, 1978, Proc. Nat. Acad. Sciences 75, 4408-4412.

Leighton et al., "Collagen Coated Cellulose Sponge", Science, vol. 155, pp. 1259-1261, 1967.

Hirtenstein et al., "Microcarriers for Animal Cell Culture", Third General Mtg. of ESCAT, (S. Karger ed., 1980), pp. 109-116.

Kleinman et al., "Role of Collagenous Matrices in the Adhesion and Growth of Cells", The Journal of Cell Biology, vol. 88, pp. 473-485, Mar. 1981.

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[57] **ABSTRACT**

A substratum for cell culture which comprises a chemically modified collagen rich in either positive or negative charges when under culture conditions. The substratum is prepared by modifying the amino groups or carboxyl groups of collagen. The chemically modified collagen enhances the adherence and proliferation of animal cells much more actively than unmodified collagen in the presence or absence of bovine fetus serum. The cultured animal cells can be detached efficiently from the chemically modified collagen. This allows for highly selective isolation and recovery of the cultured animal cells which can be accomplished without incurring any injury from the chemically modified collagen.

11 Claims, 5 Drawing Figures