

Novel organ culture medium for long term culture of human hair follicle

유보영, 윤희훈, 신연호¹, 송계용², 박정극*
동국대학교 생명화학공학과; ¹라이프코드 부설 의과학연구소;
²중앙대학교 의과대학 병리학과
(jkpark@dongguk.edu*)

We successfully isolated human anagen hair follicles from human scalp skin by microdissection and tried to culture them under various conditions. As a serum-free medium compositions, Philpott medium, IMDM, and DHGM (Dongguk Hair Growth Medium) were tried. Philpott medium is a general medium for hair organ culture based on Williams' E medium and DHGM is a special self-developed medium containing high amino acids and vitamins (B group) composition. As results, hair follicle in Philpott medium and IMDM showed anagen phase morphological structure, but rapid loss of hair elongation, low alkaline phosphatase expression, and very low expression of CK19. It is thought these hair follicles rapidly regressed from apoptosis. However, hair follicles in DHGM showed long term anagen phase morphological structure, continuous hair elongation, high alkaline phosphatase, and CK19 expression. These results demonstrate that high amino acids and vitamins (B group) composition are essential to in vitro long term human hair follicle organ culture and this culture medium will be useful in basic study of hair biology or application study to the development of alopecia treatment drugs.