

〈教育セミナー〉

皮膚機能の新展開

表皮幹細胞研究の進歩

大河内仁志

The Progress of Epidermal Stem Cell Research

Hitoshi OKOCHI

Abstract

It is obvious that epidermis has its own stem cells because epidermis is renewing continuously. However, it is not easy to specify the epidermal stem cells in the epidermis. Epidermal stem cells are reported to be small in size, slow cycling cells and have strong adhering capacity to the basement membrane. Although epidermal stem cells have been reported to be localized to the bulge area of hair follicle in 2001, recent studies have suggested that epidermal cells are supplied from the bulge area only in wound healing and that interfollicular keratinocytes have their own maintenance system in a steady state. The stem cell fate in the bulge area depends on the amount of β -catenin. Sufficient expression of β -catenin leads to differentiation into follicular epithelium, on the contrary, lack of β -catenin leads to differentiation into epidermis. To isolate epidermal stem cells, surface stem cell markers are very important for FACS (fluorescent activated cell sorting). Candidates of epidermal stem cell markers are β 1integrin, α 6integrin, CD71, Lrig1, Lgr5, CD34, CD200, MTS24 and so on. Keratin 15 and 19 and p63 are also internal markers for epidermal stem cells. Recently Blimp1, a transcription factor, has been reported to play an important role on differentiation in sebaceous gland.

Key words: stem cell, bulge, β -catenin.