Production of Chemotactic Factor for Sézary Cell by A431, K-TL-1

H.		Yamada
T.		Orita
M.		Harada
T.		Tezuka

Department of Dermatology, Kinki University School of Medicine, Osaka, Japan

Key Words

Keratinocyte
Sézary syndrome
IL-6
K-TL-1
A431
IL-1
IL-2
GM-CSF

Hidekazu Yamada, MD, Department of Dermatology, Kinki University School of Medicine, Ohno-Higashi 377-2, Osaka-Sayama, Osaka 589 (Japan)

Epidermotropism of lymphocytes is a well known phenomenon. Pautrier's microabscess, in particular, is the most important histologic feature for making a diagnosis of cutaneous T cell lymphoma. Therefore, the characteristic lymphocyte affinity for the skin led us to consider Sézary syndrome (SS) as an interesting model for studying the relationship between the skin and lymphocytes. In 1983, Laroche et al. [1] reported that peripheral blood lymphocytes from patients with SS migrated to normal allogenic cultured keratinocytes. In this experiment, we showed that keratinocyte produced chemotactic factors for Sézary cells, and also only Sézary cells, which are activated T cells, migrated to epidermis but nonactivated T cell did not.

We have already demonstrated that keratinocytes produced IL-6 [2]. In addition to the production of IL-6, we now know that keratinocytes are also able to produce several other cytokines such as IL-1, IL-3, and GM-CSF. To know the chemotactic activity we examined the chemotactic properties of rIL-1-beta, rIL-2, rGM-CSF and rIL-6 as well as the supernatants of keratinocyte cell line, A431 and K-TL-1 using Transwell system (Costar).

It was found that A431 and K-TL-1 supernatants contained chemotactic factors for Sézary cells. Peripheral blood lymphocytes from SS showed a dose-dependent response to A431 supernatants, which was five times higher than that to K-TL-1 supernatants. Supernatants of A431 and K-TL-1 cells were active for only peripheral blood lymphocytes of SS but not for those obtained from healthy volunteers. Furthermore, ELISA and bioassay revealed that both K-TL-1 and A431 supernatants had

IL-1 and IL-6 activity. IL-6 activity was 50–60 times greater in K-TL-1 than in A431 supernatants. In addition to the chemotactic activity of Sézary cells to these supernatants, IL-1-beta, GM-CSF and IL-6 also showed chemotactic activity, but IL-2 did not. Normal peripheral blood lymphocytes as a control did not migrate to these factors.

We also examined the response of established Sézary cell lines to several cytokines. Sézary cell lines, which means activated T cells, were established by cultivation with Con A+IL-1 + IL-2. In contrast with the reaction of freshly prepared Sézary cells to IL-2, the established Sézary cell lines reacted to IL-2 as well as A431 supernatants, IL-1, IL-6, and GM-CSF. These results suggest that several cytokines such as IL-1, IL-6, and GM-CSF, which are produced by keratinocytes, also play an important role in the formation of Pautrier's microabscesses.

References

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