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ニキビ，赤ら顔に迫る～脂腺を取り巻く最新科学～

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Molecular Mechanisms of Sebum Production and Secretion in Sebocytes

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Abstract

Sebum production and secretion in sebaceous glands play important roles in the formation of a thin lipid layer as a physiological barrier on the skin's surface. The secretion of sebum is considered to be controlled in concert with the regulation of sebum production, in which insulin/insulin-like growth factor 1, 5α -dihydrotestosterone, corticotrophin-releasing hormone, and eicosanoids are involved under physiological and pathological conditions. In addition, environmental stimuli such as ultraviolet (UV) irradiation and temperature change have been reported to influence sebum secretion as well as its production. Furthermore, the abnormalities of sebum production and secretion are likely to disrupt the skin barrier functions and to cause sebaceous gland disorders such as acne, seborrhea, and xerosis. On the other hand, the regulation of sebum secretion has been generally defined to be due to a holocrine mechanism, which may contain apoptosis of sebaceous gland cells (sebocytes). In contrast, the apoptosis-independent sebum secretion by polymethoxy flavonoids and UVB has been reported in differentiated hamster sebocytes. Therefore, in addition to sebocyte-specific lipogenetic mechanisms, another unique sebum secretion pathway distinct from the holocrine mechanism is likely to exist in sebaceous glands.

Key words: sebum production and secretion, sebaceous glands, skin barrier, sebocytes, holocrine mechanism.