

Role of Phosphoinositide Turnover in MAM functions

Roles of
Membrane Contact Sites in
Organelle Dynamics and
Diseases



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Research summary

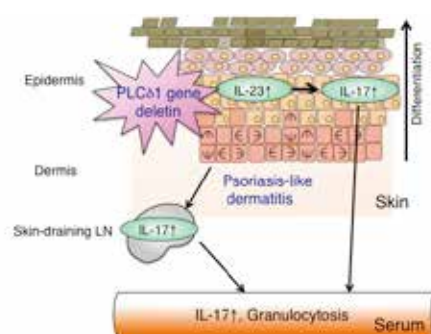
Phosphoinositide metabolism is an important intracellular signaling system involved in a variety of cell functions. In this system, phosphatidylinositol 4,5-bisphosphate is hydrolyzed by phospholipase C to generate two second messengers, inositol 1,4,5-trisphosphate (IP3) and diacylglycerol. IP3/calcium mobilization is suggested to be important in maintenance of the MAM function. On the other hand, dysfunction of MAM function often causes various diseases. Therefore we try to focus on the correlation between phosphoinositide metabolism and physiological functions of MAM. We also examine whether dysfunction of phosphoinositide metabolism in MAM links to cancer or skin diseases.

Figure

Importance of PLC δ 1 in skin.

Epidermal loss of PLC δ 1 causes increased production of IL-23 and IL-17 in the epidermis. This aberrant activation of the local IL-23/IL-17 axis resulted in a phenotype similar to that in human psoriasis. Serum IL-17 levels were also increased, resulting in granulocytosis.

(Kanemaru et al. *Nature Commun.* 2012)



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