

Expression and Function of the Protease Corin in Sebaceous Glands

Yanwen Chen¹, Wenjie Ying¹, Zhenzhao Sun¹, Tianxiang Yu¹, Chao Wang¹, Jia Zhou¹, Wei Zhang^{1,2}, Meiling He^{1,*}

¹Department of Central Laboratory in Ningbo Hangzhou Bay Hospital, Ningbo, China

²Renji Hospital, School of Medicine, Shanghai Jiao Tong University, Shanghai, China

Email address:

meilinghe8@163.com (Meiling He)

*Corresponding author

Abstract

Sebaceous glands are vital skin appendages that regulate sebum production and maintain the skin barrier system. Dysregulated sebaceous metabolism is implicated in the pathogenesis of inflammatory skin diseases; however, the precise molecular mechanisms controlling sebum secretion remain largely unclear. Corin, a serine protease primarily identified in the heart, activates atrial natriuretic peptide (ANP) to modulate blood pressure and cardiac function. In skin and lipid metabolism, Corin is known to influence hair pigmentation and lipid secretion via the Agouti/AGRP-MC1R signaling pathway. However, the expression, function and molecular mechanisms of corin in human sebaceous glands remain unclear. This study aims to employ an integrative approach combining bioinformatics, cell biology, molecular biology, and in vivo animal studies. The goal is to identify and validate the molecular mechanisms by which Corin regulates sebum secretion, and to investigate its potential involvement in the pathogenesis of inflammatory skin diseases through modulating sebaceous gland function. Our research is expected to provide novel insights into the regulatory function of Corin in sebaceous gland biology. By clarifying its molecular mechanism in sebum secretion, this work may reveal a previously unrecognized link between Corin signaling and the pathophysiology of inflammatory skin conditions such as acne and seborrheic dermatitis. The findings could establish Corin as a potential new therapeutic target, thereby offering a fresh conceptual framework and theoretical basis for the prevention and treatment of skin inflammatory diseases associated with abnormal sebum metabolism.

Keywords

Corin, Sebaceous Glands, Sebum Secretion