PE3) Melatonin Restores Mucin Depletion Induced by *V. vulnificus*

Young-Min Lee · Ji-Yun Kim · Jeong-Bae Park · Do-Wan Kim · Sei-Jung Lee
Department of Pharmaceutical Engineering, Daegu Haany University

1. 서론

Melatonin has a variety of biological functions, but a functional role of melatonin in the regulation of intestinal mucin (Muc) production during bacterial infection has yet to be well described. In this study, we investigated the effect of melatonin in the *Muc2* repression elicited by Gram-negative bacterium *V. vulnificus*. The recombinant protein (r) VvpM produced by *V. vulnificus* significantly reduced the level of *Muc2* in human mucus-secreting HT29-MTX cells. The repression of *Muc2* induced by rVvpM was significantly restored by treatment with melatonin (1 μM), which had been inhibited by the knockdown of melatonin receptor 2 (MT2) coupling with Gαq and NCF-1. Melatonin inhibited the PKC-mediated phosphorylation of ERK responsible for region-specific hypermethylation in the *Muc2* promoter in rVvpM-treated HT29-MTX cells. In mouse models of *V. vulnificus* infection, treatment with melatonin exhibited an increased survival rate and maintained the level of *Muc2* expression in intestine. These results demonstrate that melatonin acting on MT_2 inhibits hypomethylation of *Muc2* promoter to restore the level of *Muc2* production in intestinal epithelial cells infected with *V. vulnificus*.

2. 참고문헌

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