

## Effects of *Goreisan* on LPS-induced diarrhea and decrease in aquaporin 3 expression in intestinal epithelial cells.

Kazuhito Murakami, Shingo Matsuyama, Yoichiro Isohama

*Lab. Appl. Pharmacol., Facul. of Pharm. Sci., Tokyo Univ. of Sci.*

*Goreisan* is often used for gastrointestinal symptoms associated with bacterial and viral infections, to care diarrhea and to prevent general dehydration. Although several clinical reports have shown the effectiveness of *Goreisan*, pharmacological properties and underlining mechanism of *Goreisan* has not been clear. In this study, therefore, we investigated the antidiarrheic effect of *Goreisan* using a mouse model of enterocolitis induced by Lipopolysaccharide (LPS). *Goreisan* did not affect TNF- $\alpha$  mRNA expression, but markedly improved tissue injury and diarrhea scores. On the other hand, aquaporin-3 (AQP3) is expressed in the intestinal epithelium, and responsible for the absorption of water in the intestinal tract. Interestingly, both AQP3 mRNA and protein expression in the intestinal epithelium in LPS-treated group were significantly reduced, and *Goreisan* inhibited this decrease in AQP3. Decrease in AQP3 is thought to be associated with development of diarrhea, and therefore, *Goreisan* is estimated to have improved diarrhea symptoms by regulating the expression of AQP3. These results confirmed the effectiveness of *Goreisan* for infectious gastroenteritis, and it is also suggested a new effect of *Goreisan*.