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GIT27을 이용한 Toll-like Receptors의 억제가 고지방식이 mice에서 인슐린 저항성 및 당뇨병성 신증에 미치는 영향

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The Effects of Antagonism of Toll-Like Receptors by GIT27 in Insulin Resistance and Diabetic Nephropathy in High Fat-Fed Mice

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Obesity is the most important factor contributing to insulin resistance and type 2 diabetes, recently, numerous studies have demonstrated that obesity can be regarded as an inflammatory condition. However, the underlying mechanisms explaining inflammatory signals to the pathophysiology of obesity and the related disorders are not fully explored. Toll-like receptors (TLRs) are originally recognized as proinflammatory and pattern-recognition receptors that play a key role in sensing and eliminating microbial infections. But recently, it has been demonstrated that TLRs are involved in metabolic disorders via upregulation of immune responses. Therefore, we asked whether GIT 27, an active immunomodulatory agent interfering TLR 4 and TLR2/6 signaling pathway, has beneficial effects on insulin resistance and progression of kidney disease in obese high fat-fed mice. With 3-month intraperitoneal injection of GIT 27,! treated animals showed significantly improved insulin resistance represented by insulin tolerance test and lipid profile such as total cholesterol and triglyceride levels. In addition, they had gained less fat mass. Moreover, treated mice showed a significantly lower level of proteinuria compared with control mice. Collectively, blockade of TLRs by GIT 27 might protect against obesity-related kidney disease as well as metabolic burden possibly via anti-inflammatory pathway.

Key Words: 당뇨병성 신증, GIT27, 인슐린 저항성
Diabetic nephropathy, GIT27, Insulin resistance