

## 신섬유화에 페리오스틴이 미치는 영향

중앙대학교병원 내과<sup>1</sup>, 서울대학교병원 신장연구실<sup>2</sup>, 보라매병원 내과<sup>3</sup>, 서울대학교병원 내과<sup>4</sup>

황진호<sup>1</sup>, 양승희<sup>2</sup>, 안정남<sup>3</sup>, 박재윤<sup>4</sup>, 이하정<sup>4</sup>, 오윤규<sup>3</sup>, 임춘수<sup>3</sup>, 김동기<sup>4</sup>, 김연수<sup>4</sup>, 이정표<sup>3</sup>

### The Effect of Periostin on Kidney Fibrosis

Jin Ho Hwang<sup>1</sup>, Seung Hee Yang<sup>2</sup>, Jung Nam An<sup>3</sup>, Jae Yoon Park<sup>4</sup>, Hajeong Lee<sup>4</sup>  
Yun Kyu Oh<sup>3</sup>, Chun Soo Lim<sup>3</sup>, Dong Ki Kim<sup>4</sup>, Yon Su Kim<sup>4</sup>, Jung Pyo Lee<sup>3</sup>

Department of Internal Medicine<sup>1</sup>, Chung-Ang University Hospital, Seoul, Korea

Kidney Research Institute<sup>2</sup>, Seoul National University Hospital, Seoul, Korea

Department of Internal Medicine<sup>3</sup>, Seoul National University Boramae Medical Center, Seoul, Korea

Department of Internal Medicine<sup>4</sup>, Seoul National University College of Medicine, Seoul, Korea

**Background:** Periostin is in charge of tissue regeneration, fibrosis, and wound healing via interaction with integrin. Major investigations were conducted in various neoplasms and cardiac fibrosis. Recently, the role of periostin in nephrology field is emerging. We investigated the role of periostin in kidney fibrosis.

**Methods:** We investigated the function of periostin using unilateral ureteral obstruction (UUO) model. We used wild type C57BL/6 mice and periostin-deficient mice (Postn<sup>-/-</sup>). In vitro, primary cultured inner medullary collecting duct (IMCD) cells were used from wild type and POSTN<sup>-/-</sup> mice.

**Results:** Periostin expression was strongly induced by UUO in wild type mice. Postn<sup>-/-</sup> mice showed more preserved kidney structure and less fibrous tissue. Other fibrosis genes such as fsp-1,  $\alpha$ SMA, collagen 1 $\alpha$ 1, and fibronectin were increased in wild type mice and were significantly decreased in POSTN<sup>-/-</sup> mice. Messenger RNA expressions of inflammatory cytokine (IL-6, IFN- $\gamma$ , and MCP-1) were also decreased in Postn<sup>-/-</sup> mice. In vitro, administration of TGF- $\beta$ 1 increased periostin expression in wild type IMCD cells. Also, fsp-1,  $\alpha$ SMA, collagen 1 $\alpha$ 1, and fibronectin expressions were increased by administration of periostin along with cellular morphology change even though the intensity was lower than TGF- $\beta$ 1. Periostin potentiated TGF- $\beta$ 1-induced fibrosis when it administered together with TGF- $\beta$ 1. Anti-periostin polyclonal antibody and integrin blockade peptides decreased fibrosis gene expression.

**Conclusion:** Periostin is not only one of the markers for kidney fibrosis, but also may itself augment the progression of the fibrosis. Thus, periostin inhibition may be a therapeutic target for the prevention of kidney disease progression.

**Key Words:** 페리오스틴, 만성콩팥병, 신섬유화  
Periostin, CKD, Kidney fibrosis