

## 내독소에 의한 급성신손상에서 COMP-angiotensin-1의 보호 효과

전북대학교 의학전문대학원 내과학교실<sup>1</sup>, 전북대학교 의학전문대학원 영상의학과<sup>2</sup>, 전북대학교 의학전문대학원 병리과<sup>3</sup>,  
원광대학교 익산방사선영상과학연구소<sup>4</sup>, 한국과학기술원 생명과학과<sup>5</sup>, 한국식품연구원 식품기능본부<sup>6</sup>

강경표<sup>1</sup> · 김덕훈<sup>1</sup> · 정유진<sup>1</sup> · 이애신<sup>1</sup> · 이 식<sup>1</sup> · 이상용<sup>2</sup>  
장규윤<sup>3</sup> · 고규영<sup>5</sup> · 최규실<sup>4</sup> · 윤권하<sup>4</sup> · 성미정<sup>6</sup> · 박성광<sup>1</sup> · 김 원<sup>1</sup>

## Protective effects of COMP-Ang1 in Lipopolysaccharide-induced Acute Kidney Injury

Kyung Pyo Kang<sup>1</sup>, Duk Hoon Kim<sup>1</sup>, Yu Jin Jung<sup>1</sup>, Ae Sin Lee<sup>1</sup>, Sik Lee<sup>1</sup>, Sang Yong Lee<sup>2</sup>, Kyu Yun Jang<sup>3</sup>  
Gou Young Koh<sup>5</sup>, Kyu-Sil Choi<sup>4</sup>, Kwon-Ha Yoon<sup>4</sup>, Mi Jeong Sung<sup>6</sup>, Sung Kwang Park<sup>1</sup> and Won Kim<sup>1</sup>

Chonbuk National University Medical School Department of Internal Medicine<sup>1</sup>

Chonbuk National University Medical School Department of Radiology<sup>2</sup>

Chonbuk National University Medical School Department of Pathology<sup>3</sup>

Institute for Radiological Imaging Science Wonkwang University School of Medicine<sup>4</sup>

Biomedical Research Center and Department of Biological Sciences<sup>5</sup>

Korea Advanced Institute of Science and Technology

Food Function Research Division Korea Food Research Institute<sup>6</sup>

Endothelial dysfunction is an important pathogenetic mechanism in acute kidney injury in sepsis. Endothelial dysfunction in LPS- induced endotoxemia can be associated with renal hemodynamic changes such as alteration of renal blood flow, vascular resistance and glomerular filtration rate. Thus, regulation of integrity in renal endothelial cells may have beneficial role in acute kidney injury in endotoxemia. COMP- Angiotensin- 1, a variant of native angiotensin- 1, was introduced as an endothelium- specific therapeutic modality in fibrotic renal disease. However, there is no data about the effect of COMP- Ang1 in acute kidney injury in LPS- induced endotoxemic model.

In this study, we examined the effect of COMP- Ang1 on renal hemodynamics, renal function, renal pro- inflammation molecules, induced nitric oxide synthase (iNOS) expression, renal reactive oxygen/nitrogen species, and vascular permeability and in LPS- induced endotoxemia model.

COMP- Ang1 ameliorated LPS- induced renal endothelial injury and preserved renal hemodynamics and inulin clearance. LPS- induced renal ICAM- 1 and VCAM- 1 protein expression was significantly decreased after treatment with COMP- Ang1. LPS- induced renal microvascular permeability was decreased by treatment with COMP- Ang1. COMP- Ang1 decreases serum nitrate/nitrite levels and renal iNOS protein expression in LPS- induced acute kidney injury. COMP- Ang1 increases renal Akt phosphorylation in endotoxemic mice

These findings indicate that COMP- Ang1 may have a protective role in acute renal injury in endotoxemic model.

**Key Words :** 내독소, 혈관내피세포, 엔지오포이에틴

Lipopolysaccharide, Endothelial cells, Angiotensin