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**Targeting N-Acetyltransferase 10 with Remodelin Ameliorates Renal
Oxidative Stress in Diabetic Mice**

So Young Lee, Yoon Jung Cho, Mina Son, Sungjin Chung, Eun Sil Koh

Department of Internal Medicine-Nephrology, The Catholic University of Korea Yeouido St. Mary's Hospital, Korea, Republic of

Objectives : N-terminal (Nt) acetylation is known to be a highly abundant co-translational protein modification, but can also be added post-translationally. Recent advances highlight Nt-acetylation as a key factor in many biological pathways and remodelin, a small molecule inhibitor of N-acetyltransferase 10, can reverse the cancerous conditions such as epithelial to mesenchymal transition and hypoxia. This study examined the potential renoprotective effect of remodelin in type 2 diabetic mice.

Methods : Four groups of male C57BLKS/J db/m and db/db mice were used. Diabetic and non-diabetic mice were intraperitoneally injected with 1 mg/kg body weight remodelin weekly for 12 weeks, starting at 8 weeks of age.

Results : The amount of albuminuria was significantly reduced in the remodelin-treated db/db mouse group compared to the control group. Although the body weight of the remodelin-treated db/db mice was lower at 12 weeks, there were no differences in serum glucose levels and HbA1c between the two groups. Treatment with remodelin induced improvement of glomerular matrix expansion and inflammation in db/db mice. Also, it reversed diabetes-induced increases in renal apoptosis and oxidative stress. Histological examination of Masson's trichrome- and α -smooth muscle actin-stained renal tissue demonstrated that the tubulointerstitial fibrosis and inflammation were attenuated by remodelin. Following the administration of remodelin, there were increased expression levels of heme oxygenase-1, NAD(P)H:quinone oxidoreductase 1, superoxide dismutase 1 and catalase in diabetic mice group.

Conclusions : These findings suggest that targeting N-acetyltransferase 10 with remodelin could mitigate renal fibrosis by modulating balance between inflammatory signaling and antioxidant response in diabetic mice.