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## Oral Communication Abstract
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# Protective effect of Resveratrol on glycocalyx loss due to endothelial cell dysfunction in renal aging

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**Objectives:** Aging had an effect on diminished endothelial glycocalyx caused by various mechanisms, and sirtuin1 (SIRT1) pathway was one of the crucial components of them. As aging process, there was decline in SIRT1 activity with consequent increase in oxidative stress and inflammation, which were known causes of aging. Resveratrol, an SIRT1 activator, may prevent these undesired events by activating SIRT1 pathway. We examined whether resveratrol could improve renal function and prevent from diminishing endothelial glycocalyx caused by aging, and consequently with changes of oxidative stress.

**Methods:** Male 2-month-old and 18-month-old C57BL/6 mice were divided into three groups: 2-month-old young group, 18-month-old aged control group and 18-month-old aged treatment group. Resveratrol (40 mg/kg) was administered to aged treatment group for 6 months. Renal function, histologic changes and aging-related protein expression, especially with oxidative stress and SIRT1 pathway, were measured. Endothelial glycocalyx was also examined by immunofluorescence staining with WGA.

**Results:** Compared to young group, aged group showed decreased renal function, increased oxidative stress, progressed renal fibrosis, decreased expression of SIRT1, eNOS and increased expression of iNOS, NF-κB, heparanase which is consistent with aging process. On the contrary, aged treatment group showed improvement of creatinine clearance and albuminuria which represent renal function. Histologic changes of mesangial proliferation and tubulointerstitial fibrosis were also improved. Expression of SIRT1 protein and eNOS was also increased and expression of iNOS, NF-κB, and heparanase was decreased, which could explain that activation of SIRT1 pathway ameliorate oxidative stress. Endothelial glycocalyx of treatment group was also markedly observed, whereas which of aged group sparsely observed.

**Conclusions:** These results suggest that the activation of SIRT1 had protective effect against aging-related oxidative stress in mice via SIRT1 pathway and consequently gave a stability in endothelial glycocalyx.