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# Epigallocatechin-3-gallate on High Glucose-induced Apoptosis in the Podocyte

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Epigallocatechin gallate (EGCG) is known as a nature anti-oxidant agent. This study was designed to investigate whether EGCG plays a cytoprotective role by activating mitogen-activated protein kinase (MAPK)-dependent anti-apoptotic pathway on the podocyte injury under high glucose condition. MTT assay and DNA fragmentation under DAPI staining showed that treatment with a high concentration of glucose (30 mmol/L) significantly increased apoptosis in cultured podocytes compared with cells treated with a normal glucose concentration (5 mmol/L), whereas EGCG (1-100 $\mu$M) significantly increased cell viability in the dose-dependent manner. High glucose (30 mmol/L) rapidly stimulated generation of intracellular reactive oxygen species (ROS). EGCG restored the reduced phospho- ERK1/2 and phospho-p38 MAP kinases activities caused by high glucose. In addition, gene expression analysis revealed that EGCG prevented the high glucose-induced expression of a pro-apoptotic gene mRNAs such as Bad, caspase-3 and -9, whereas the increased of an anti-apoptotic gene mRNAs, Bcl-2 and Bcl-xL in the podocytes in vitro. These results suggest that the protective mechanism of EGCG against high glucose-induced apoptotic cell death includes stimulation of phospho-ERK1/2 and phospho-p38 MAP kinases and modulation of cell survival and death genes.