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NQO1 Deletion Leads to Reduced MRN Complex Expression in Cisplatin Nephrotoxicity

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Introduction: Mre11, Rad50, and Nbs1(MRN) complex are known to participate in the early phase of the cellular response to the DNA damage. NAD(P)H:quinone oxidoreductase 1 (NQO1) protects against various pathogenesis and disruption ofNQO1 enhances susceptibility to the stimuli and aggravates disease conditions. The aim of this study was to explore whether NQO1 could regulate the MRN complex expression under DNA damage caused by cisplatin.

Materials and Methods: In vitro study was performed to assess NQO1 and MRN complex expressions after cisplatin treatment using ACHN cells. After confirm the increment of NQO1 and MRN complex expression after cisplatin treatment, NOQ1 knockdown C57BL/6N mice were hired for further in vivo study. Three days after cisplatin (18 mg/kg) injection, all mice were sacrificed under carbon dioxide anesthesia and the kidneys were subjected to the immunohistochemistry and immunoblot analysis. Additional invitro study was performed to support the effect of NQO1 on MRN complex expression using siNQO1 treated ACHN cells with time and dose-dependent cisplatin treatment.

Results: In the ACHN cells, increased MRN complex were accompanied by enhanced NQO1 expression after cisplatin treatment. These was consistent in the in vivo study. After cisplatin injection, NQO1 knockout mice showed severely damaged renal tublues with apoptotic renal cells compared with the NQO1 intact mice. In contrast, the level of MRN complex in the immunoblot assay were relatively reduced compared to NQO1 intact wild typemice after cisplatin injection. Moreover, MRN complex were weakly expressed in the nuclei of s3 segment of the proximal tubules in NQO1 knockout mice compared with NQO1 wild type mice, which was confirmed in the immunohistochemistry study. Depletion of NQO1 reduced the SIRT1 and PARP1 expression, known to participate in the stress response by regulating DNA damage response factor.

Conclusions: These finding suggested that the NQO1 might regulate MRN complex expression through enhances SIRT1 and PARP-1in cisplatin-induced acute nephropathy.

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Effect of *ecliptaalba* on Testosterone-induced Benign Prostatic Hyperplasia in Rats

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Introduction: Benign prostatic hyperplasia (BPH) is a common disease in the elderlyman. Dihydrotestosterone (DHT), a metabolite of testosterone, is a critical mediator of BPH. DHT is synthesized in the prostate by 5α-reductase. *Eclipta alba* (L.) Hassk methanolic extract(EAE) was reported to possess various salutary effect including, lipid- lowering and hair growth promoting effect with antioxidant property. The present study has investigated the effect of EAE on the testosterone propionate (TP)-induced BPH in rats.

Materials and Methods: A total of 24 rats were randomly divided into four groups (n = 6/group)as follows and orally treated with each compound for consecutive 28 days; normal control (NC; phosphate buffer saline); BPH alone; BPH + finasteride (10 mg/kg);BPH + EAE (500 mg/kg). To induce BPH, all rats were received daily TP (3 mg/kg) subcutaneous injection for consecutive 28 days, except for the NC (vehicleinjected). The prostate and body weight were recorded and the histopathological alterations were assessed in the hematoxylin & eosin (H&E) stained prostate tissue. The 5α-reductase type 2 and proliferating cell nuclear antigen (PCNA) expressions in the prostate tissue were investigated using immunohistochemistry (IHC).

Results: BPH alone group showed significantly increased prostate weight (276.81 ± 12.7 % of the control) compared with the NC and the epithelial thickness of prostate also evidently enhanced, which was confirmed in the H&E stained prostate tissue. Moreover, in the IHC study, significantly increased expression of PCNA and 5α-reductase type 2 were also detected in the BPH group compared with the NC group. Meanwhile, the EAE treated group showed opposite patterns of results from the BPH alone group. In the EAE treated group, the prostate weight was significantly decreased to 85.18 ± 3.3