

The effect of hydrogen peroxide on DNA damage and repair in pancreatic β -cells

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Oxidative stress is induced under diabetic conditions and is likely involved in impairment of pancreatic β -cell functions found in diabetes. It is now widely known that β -cells are vulnerable to oxidative stress due to their relatively low level of antioxidant enzyme expressions compared to other tissues. In this study, it was evaluated how DNA repair enzymes are affected by oxidative damage in pancreatic β -cells. Cell viability and mRNA expression levels of DNA repair enzymes were measured after challenging with hydrogen peroxide. In addition, evaluation of DNA damage was performed using the comet assay.

References

1. Green K, Brand MD, Murphy MP, Prevention of mitochondrial oxidative damage as a therapeutic strategy in diabetes (2004), *Diabetes*, 53 (Suppl 1), S110-8.
2. Lees Murdock DJ, Barnett YA, Barnett CR, DNA damage and cytotoxicity in pancreatic beta-cells expressing human CYP2E1 (2004), *Biochem. Pharmacol.*, 68 (3), 523-30.