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# 췌장베타세포에서 시안산에 의한 인슐린분비억제효과

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# Inhibitory Effect of Cyanate on Insulin Secretion in Cultured Pancreatic β Cells

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**Objective :** The vast majority of long term complications in transplanted patients are associated with cardiovascular disease. Very recently, an alternative and dominant mechanism for cyanate formation in atherosclerotic lesions has been discovered. This study was designed to determine the effect of cyanate on the insulin secretion in culture pancreatic $\beta$ cells (INS-1).

**Methods :** Cytotoxicity of cyanate was determined by MTT assay. Insulin secretion was measured by ELISA in cyanate treated INS-1 cells. Reactive oxygen species (ROS) were also determined by measuring the fluorescent product from the oxidation of an oxidant-sensitive 2,7-dichlorefluoresceinin cyanate treated INS-1 cells. FACS analysis was executed to determine the effect of cyanate on the apoptosis of INS-1 cells.

**Results :** Firstly, we observed that cyanate, within concentration ranges with no cytotoxic effect, decreased insulin secretion dose dependently in both non-glucose stimulated and glucose stimulated INS-1 cells. Cyanate at 1.0 mmol/L concentration inhibited insulin secretion more than 50% compared to control. Cyanate, however, did not affect the ROS generation. And also no pro- or anti-apoptotic effect was observed in cyante treated INS-1 cells.

**Conclusion :** The results in this study suggest the possibility of inhibitory effect of cyanate on insulin mediated neither by ROS generation nor by apoptosis. Further studies as for the underlying mechanism will be of benefit.

**Key Words :** 시안산, 췌장베타세포, 인슐린
Cyanate, Beta cell, Insulin