Special Issue

Mechanisms of Apoptosis Induction in Pancreatic Beta Cells

Message from the Guest Editor

Increased concentrations of fatty acids in the blood and other factors are known to be responsible for pancreatic beta cell death in type 2 diabetes. The detrimental potential of fatty acids has been described for human as well as animal beta cells in vivo and in vitro. It seems that the toxicity of fatty acids could particularly depend on the degree of their saturation. It was suggested that saturated fatty acids induce apoptosis in pancreatic beta cells whereas the effect of unsaturated fatty acids is not entirely clear. It seems that unsaturated fatty acids at low concentrations are relatively tolerated and are even capable of inhibiting the proapoptotic effect of saturated fatty acids. However, the precise molecular mechanisms of apoptosis induction by fatty acids and other factors remain more or less unclear. The other factors can be represented by increased glycemia, hypoxia, pollutants, etc. The detrimental effect of discussed factors is usually associated with the activation of caspases. However, pathways leading to caspase activation by these factors are not completely clarified. It seems that endoplasmic reticulum stress could also be involved.

Guest Editor

Prof. Dr. Jan Kovár
Department of Biochemistry, Charles University, Prague Praha, Czech Republic

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International Journal of Molecular Sciences
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
ijms@mdpi.com

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Editor-in-Chief

Prof. Dr. Maurizio Battino
Department of Odontostomatologic and Specialized Clinical Sciences, Sez-Biochimica, Faculty of Medicine, Università Politecnica delle Marche, Via Ranieri 65, 60100 Ancona, Italy

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