



## Epidemiology, Complications and Management of Diabetes

Guest Editor:

### Prof. Dr. Farid M. Nakhoul

1. The Cardiovascular and Diabetes Lab, Research Institute, The Galilee Medical Center, Nahariya, Israel
2. The Azrieli Faculty of Medicine, Bar-Ilan University, Ramat Gan, Israel

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### Message from the Guest Editor

Type II diabetes mellitus (T2DM) is a severe metabolic disorder, characterized by chronic hyperglycemia associated with increased glucose cell toxicity, that leads to irreversible renal and pancreatic cell damage. Autophagy/klotho pathways play a key role in damaged intracellular protein degradation, intracellular homeostasis, and cell integrity maintenance. Recent studies have shown a decrease in  $\alpha$ -klotho and autophagy proteins (ATG5/LC3-II) as well as in the expression of DMs' kidney and pancreatic  $\beta$  cells. Both  $\alpha$ -klotho and autophagy key proteins can play a protective role against DM complications, such as diabetic nephropathy. Empagliflozin, a sodium–glucose transporter-2 inhibitor, is currently used for patients with T2DM to lower plasma glucose levels and normalize HbA1C, yet it bears pleiotropic effects on kidney and pancreatic  $\beta$  cells.

Chronic glucose exposure damages renal epithelial and  $\beta$  cells via the downregulation of klotho and autophagy processes.





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*Journal of Clinical Medicine* Editorial  
Office  
MDPI, Grosspeteranlage 5  
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