

## The Role of Glycation in Pathology of Diabetic Microvascular Complications

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### Abstract

In diabetes mellitus, glucose forms adducts with the proteins through a non-enzymatic reaction termed as glycation. Glycoprotein conflicts with their normal functions via altering of molecular conformation and enzymatic activity. Subsequently, the glycated proteins are chemically modified to advanced glycation end products (AGEs). AGEs discovered in body fluids and all tissues and could interact with intracellular and extracellular proteins conflicts with their normal functions. AGEs can cross-link with specific cell surface receptors (RAGs) and consequently modify cell intracellular signaling, gene expression, the formation of reactive oxygen species and the energizing of many of the inflammatory pathways. AGEs have a central role in the development of diabetic complications, including macrovascular and microvascular complications. Anti-glycation treatments could block the progress of diabetic complications. Understand the AGEs effects and how can be inhibited is a remarkable approach for controlling the diabetic complications. The present review summarizes the possible mechanisms of AGEs on Pathogenic effects including microvascular complications. Furthermore, the biochemical mechanisms of anti glycation reactions are also summarized.

**Keywords:** diabetes mellitus, advanced glycation end products, microvascular complications.