

Type 2 diabetes mellitus (T2DM) is a chronic metabolic disorder defined by persistent hyperglycemia due to insulin resistance and progressive β -cell dysfunction, in contrast to type 1 diabetes mellitus (T1DM), which stems from autoimmune destruction of pancreatic β -cells. Technology, such as continuous glucose monitoring, plays a role in improving patient management, while research continues on emerging therapies and personalized medicine approaches to enhance treatment outcomes (4,8). It incurs significant healthcare costs due to complications, including microvascular issues (retinopathy, nephropathy, neuropathy) and macrovascular complications (atherosclerosis, cardiovascular diseases) (5,8). The multifactorial nature of T2DM includes genetic predisposition, obesity, physical inactivity, chronic inflammation, and gut microbiome dysregulation (5,8,9). Other agents target specific comorbidities or complications as needed (7–8).