
Desislava Doycheva

Loma Linda University
Canada

Harnessing Heart Health

Abstract:

Cardiovascular diseases, particularly myocardial infarction (MI), remain a major global health challenge. Recent studies have highlighted the cardioprotective potential of sodium-glucose co-transporter 2 (SGLT2) inhibitors, originally developed for managing glycemia in diabetes. Emerging evidence suggests that these inhibitors may modulate inflammation following MI.

In this study, male Wistar rats were subjected to ischemia-reperfusion-induced myocardial injury and treated with SGLT2 inhibitors. Cardiac function, infarct size, histology, and inflammatory markers were analyzed to assess the impact of SGLT2 inhibitors on post-MI inflammation. Preliminary findings revealed a significant reduction in myocardial inflammatory markers and infarct size in SGLT2 inhibitor-treated rats, indicating anti-inflammatory effects. These results imply that beyond their established glycemic benefits, SGLT2 inhibitors may exert protective effects by modulating the inflammatory response in the context of MI. We hypothesize that these protective effects are mediated through interference with Thioredoxin-Interacting Protein (TXNIP), a key regulator of redox balance, implicated in NLRP3 inflammasome activation. This study aims to explore the molecular mechanisms by which SGLT2 inhibitors modulate TXNIP and downstream inflammatory pathways, providing insight into their potential therapeutic role in reducing post-MI inflammation.

Biography

Desislava Doycheva completed her PhD at the age of 28 years from Loma Linda University. She has been doing translational neuroscience research in neonatal brain injury for over ten years and has recently broadened her research focus into cardiovascular research. While her expertise in stroke research has provided invaluable insights into the intricacies of cerebrovascular events, the decision to branch into cardiovascular research stems from a strategic pursuit of a more comprehensive understanding of vascular health.