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(57) Abstract :
[040] The present invention relates to novel substituted heteroaryl–thiazolidinedione conjugates designed as dual-acting therapeutic agents for the treatment of type 2 diabetes mellitus and associated cardiometabolic disorders. The compounds integrate a heteroaryl moiety with a thiazolidinedione core through a chemically optimized linker, enabling simultaneous inhibition of dipeptidyl peptidase-4 (DPP-4) and selective modulation of peroxisome proliferator-activated receptor gamma (PPAR-γ). The invention encompasses methods for synthesis, structural characterization, and pharmacological evaluation, demonstrating enhanced glycemic control, improved insulin sensitivity, and a favorable safety profile with reduced risk of weight gain, fluid retention, and cardiovascular complications. The compounds exhibit improved pharmacokinetic properties, including enhanced bioavailability, metabolic stability, and sustained systemic exposure, offering a promising multifunctional therapeutic approach for managing complex metabolic disorders. Accompanied Drawing [FIGS. 1-2]

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