PHOSPHONATE AND PHOSPHINATE COMPOUNDS AS GLUCOKINASE ACTIVATORS

Abstract

Compounds are provided which are phosphonate and phosphinate activators and thus are useful in treating diabetes and related diseases and have the structure of Formula (I), wherein Formula (II) is a heteroaryl ring; R_4 is $-(CH_2)_n-Z-(CH_2)_m-PO(OR_7)(OR_8)$, $-(CH_2)_nZ-(CH_2)_m-PO(OR_7)R_9$, $-(CH_2)_n-Z-(CH_2)_m-OPO(OR_7)R_9$, $-(CH_2)_nZ-(CH_2)_m-OPO(R_9)(R_{10})$, or $-(CH_2)_nZ-(CH_2)_m-PO(R_9)(R_{10})$; R_5 and R_6 are independently selected from H, alkyl and halogen; Y is $R_7(CH_2)_s$ or is absent; and X, n, Z, m, R_4, R_5, R_6, R_7, and s are as defined herein; or a pharmaceutically acceptable salt thereof. A method for treating diabetes and related diseases employing the above compounds is also provided.