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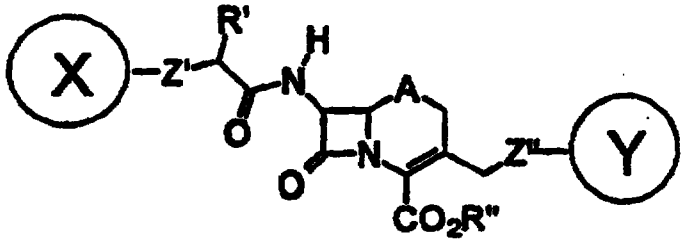
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(54) Title: SUBSTRATES FOR BETA-LACTAMASE AND USES THEREOF



(I)

(57) Abstract

Substrates for β-lactamase of general formula (I) in which one of X and Y is a fluorescent donor moiety and the other is a quencher (which may or may not re-emit); R' is selected from the group consisting of H, lower (i.e., alkyl of 1 to about 5 carbon atoms) and $(CH_2)_nOH$, in which n is 0 or an integer from 1 to 5; R'' is selected from the group consisting of H, physiologically acceptable metal and ammonium cations, $-CHR^2OCO(CH_2)_nCH_3$, $-CHR^2OCOC(CH_3)_3$, acylthiomethyl, acyloxy-alpha-benzyl, delta-butyrolactonyl, methoxycarbonyloxymethyl, phenyl, methylsulphinylmethyl, beta-morpholinoethyl, dialkylaminoethyl, acyloxyalkyl, dialkylaminocarbonyloxymethyl and aliphatic, in which R^2 is selected from the group consisting of H and lower alkyl; A is selected from the group consisting of S, O, SO, SO_2 and CH_2; and Z' and Z'' are linkers for the fluorescent donor and quencher moieties. Methods of assaying β-lactamase activity and monitoring expression in systems using β-lactamase as a reporter gene also are disclosed.