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Photocleavage of DNA by 4'-Bromoacetophenone-Pyrrole Carboxamides

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Genotoxic chemotherapeutics are irreversible DNA targeting agents, which can act as anticancer and antiviral drugs. Natural antibacterial and anticancer enediynes function through the formation of free radicals formed by Bergman-type cycloaromatization and being capable of cleavage of DNA strand. They have been focused primarily on the design and syntheses of simple enediyne structures, which can be mimic their mechanistic feature. Recently, I have been reported the possible application of 4'-bromoacetophenone as a simple photoactivatable DNA cleaving agent, which could be readily prepared and exhibit potent and selective DNA cleaving activity. Herein, we further investigated the activity of 4'-bromoacetophenone-pyrrolecarboxamides, which consist of both DNA cleaving element and recognition unit under various conditions in order to get more understanding of the mechanism of the action and find a broad spectrum of application.