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Deactivation rate of camptothecin determined by factor analysis of steady-state fluorescence and absorption spectra

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Keywords

camptothecin, fluorescence, absorption, factor analysis

Abstract

Camptothecin is a fluorescent compound exhibiting strong anticancer properties. A serious limitation to clinical application of this compound is its hydrolysis, when biologically active lactone form converts into inactive carboxylate. There are some differences in the shapes of both fluorescence and absorption spectra of the lactone and carboxylate forms of camptothecin. Therefore, during hydrolysis resultant fluorescence and absorption spectra evolve. Factor analysis of fluorescence/absorption spectra recorded during the hydrolysis process of camptothecin enables one to determine the temporary concentration of the lactone and carboxylate forms and obtain the deactivation rate of this compound.



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