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# Enzymatic Reactivity and Anti-tumor Activity of 1-(β-D-Arabinofuranosyl)-2-thiocytosine Derivatives

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Sixteen derivatives of 1- (β-D-arabinofuranosyl) -2-thiocytosine (araSC) including five 5'-esters, three 3'-esters, five N4-amides and three 5'-phosphodiesters were synthesized, and their reactivities to mouse tissue homogenates including plasma, liver and intestine, and antitumor activities in mice bearing P388 cells were measured. Reactivity of the ester derivatives to the enzyme systems was high while those of the amide and phosphodiester derivatives were low. The reactivity of ester derivatives was highly dependent on chemical structure. Reactivities of amides and phosphodiester derivatives to mouse plasma and intestinal homogenate were also dependent on the chemical structure, although that to the intestinal enzyme system was almostequivalent among these derivatives. Two of eight ester derivatives showed considerable antitumor activity in vivo, although they also showed serious toxicity indicated by weight loss in mice. Four of five amides and two

of three phosphodiesters showed antitumor activity, and two were highly ef fective (>200% in T/C) with very slight weight loss.