

Antitumor versus Cytotoxicity

A recent paper by Miles *et al.*¹ bears the title "Tumor Inhibitors I . . ." However, the authors state that extracts of the plant under investigation showed no activity in the L-1210 and Walker carcinosarcoma test systems (both are *in vivo* systems). They did show that certain extracts exhibited cytotoxicity in the 9 KB system, but none of the isolated compounds was shown to be cytotoxic. (Inference was made, however, that betulinic acid isolated in their investigation might be cytotoxic because of its high concentration in the 9 KB active fraction.)

Not too long ago², I addressed this forum on the subject of investigators alluding to "antitumor" activity when in essence they were speaking of "cytotoxic" activity. The two terms are not synonymous and not all cytotoxic compounds have *in vivo* antitumor activity, nor do all antitumor compounds exert cytotoxicity. Apparently, neither the authors of the paper in question nor the reviewers of that paper are aware of the differences that exist between cytotoxicity and antitumor activity, and they also do not read the *Open Forum* section of *J. Pharm. Sci.*

It would be well for those investigating natural products for the presence of antitumor or cytotoxic agents to have their manuscripts reviewed by the Drug Research and Development Branch of the National Cancer Institute³ (if this is where the testing is done) prior to submission for publication.

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¹ D. H. Miles, U. Kokpol, L. H. Zalkow, S. J. Steindel, and J. B. Nabors, *J. Pharm. Sci.*, **63**, 613(1974).

² N. R. Farnsworth, *ibid.*, **62** (5), iv(1973).

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