

Acid-seeking 'warheads' promise safer, more effective cancer weapons

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Researchers in California report development of an anti-cancer “warhead” that targets the acidic signature of tumor cells in much the same way that heat-seeking missiles seek and destroy military targets that emit heat. These acid-seeking substances are not toxic to healthy cells, and represent a new class of potentially safer, more effective anti-cancer drugs, they say. Their study is scheduled for the March 6 issue of *ACS' The Journal of Physical Chemistry B*.

For years, scientists tried to develop anti-cancer drugs based on enediynes, a powerful class of natural, tumor-fighting agents derived from soil bacteria. However, as these substances kill both cancerous and healthy cells, their effectiveness as anti-cancer drugs is limited.

In the new study, Elfi Kraka and colleagues describe making unusual substances that become highly active only in the presence of low pH levels, or acidic environments. Since cancer cells have highly acidic environments in comparison to normal cells, compounds containing these substances — called dynemicin-amidines (DADs) — target and destroy tumor cells without affecting healthy cells, the researchers say. The substances represent “the design of the first nontoxic enediyne antitumor drugs based on the DAD principle,” the report states.

Source: American Chemical Society

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