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Carbon C14-labeled Carboplatin

National Cancer Institute

Source

National Cancer Institute. *Carbon C14-labeled Carboplatin*. NCI Thesaurus. Code C119702.

A radioconjugate composed of the platinum compound carboplatin conjugated to the isotope carbon C 14 (14C-carboplatin), which can potentially be used to predict chemoresistance to carboplatin using accelerator mass spectrometry (AMS). Upon administration of a microdose of 14C-carboplatin, the carboplatin moiety covalently binds to DNA and forms carboplatin-DNA monoadducts. Using AMS, the 14C-carboplatin-DNA monoadducts can be detected and measured. The levels of microdose-induced carboplatin-DNA monoadducts can be used to assess the degree of chemoresistance to carboplatin and can predict cancer response to carboplatin-based chemotherapy. The carboplatin microdose is defined as 1/100 of the pharmacologically effective concentration of carboplatin. Low levels of carboplatin monoadduct formation and increased DNA repair, measured by a decrease in the detection of carboplatin-DNA monoadducts over a given time period, are correlated with increased resistance to platinum-based chemotherapeutics.