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Comparison of tumor imaging using antibody pretargeting and conventional methods

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One of the newer methods for imaging and treating cancer is pretargeting. Pretargeting is a relatively simple concept to understand. First, a non-radioactive antibody conjugated to streptavidin is injected into the blood stream. The antibody is given time to reach the tumor and then it is cleared from the blood. Next, radioactive small molecules, like biotin, are administered and after a given amount of time, bound to the streptavidin-antibody at tumor site and cleared from the blood. Finally, the subject goes for imaging to get an accurate look at the size and growth of the tumor for possible treatment. One traditional form of imaging/treatment is radioimmunotherapy (RIT). Although antibodies are good at targeting tumor cells, with this approach, they were extremely toxic to the patient. Other limitations of RIT are high uptake into the blood, slow blood clearance, and slow and uneven penetration into tumors. Pretargeting is a good alternative because there is immediate uptake of radioactive material into the tumor and high tumor-to-normal tissue ratios.