Radioiodinated Peanut Agglutinin: A potential new tumor seeking agent (Part 1).

Peanut agglutinin (PNA), one of plant lectins, binds preferentially to the immunodominant group of Thomsen-Friedenreich (T) antigen, which is in reactive form on some human adenocarcinomas.

The lectin was labeled with I-125 by chloramine-T method and Iodogen method. The biological activity of PNA was determined by a preserved hemagglutination titer with a photometer.

Biodistribution study was performed. 2 x 10^6 Lewis lung cancer cells are inoculated subcutaneously to C57 BL/6 mice. The group of mice were sacrificed at 12, 24, 48, and 72 hours after caudal IV injection of I-125 PNA.

1. The biological activity of PNA after radiolabeling was decreased to 50.7% by chloramine-T method. On the other hand, 87.9% the activity was preserved by Iodogen method. These results suggest that Iodogen method is preferable labeling procedure because of its little damage to the biological activity of PNA.

2. I-125 PNA labeled by Iodogen was more rapidly cleared from the liver, spleen, bone, muscle, and blood than that by chloramine-T.

3. Radiolabeled PNA showed a rapid clearance from blood and good tumor localization. Tumor to Muscle ratio: 3.8 (at 48h) Tumor to blood ratio: 2.0 (at 72h).