

# RADIO IMMUNO ASSAY

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**JL IN MLT KSR GJC (G)**  
**ANANTAPUR**

# **Radioimmunoassay**

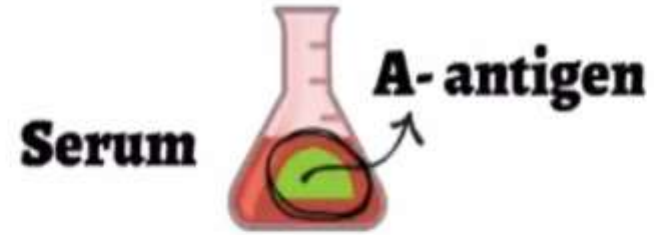


**to determine conc. of antigen  
(hormone, serum protein, drug, or vitamin)**

**-Berson and Yalow in 1960**

**-Nobel prize in 1977**

**-Sensitivity- 0.001ug/ml**



✓ 1.  
**Anti A  
Antibodies**



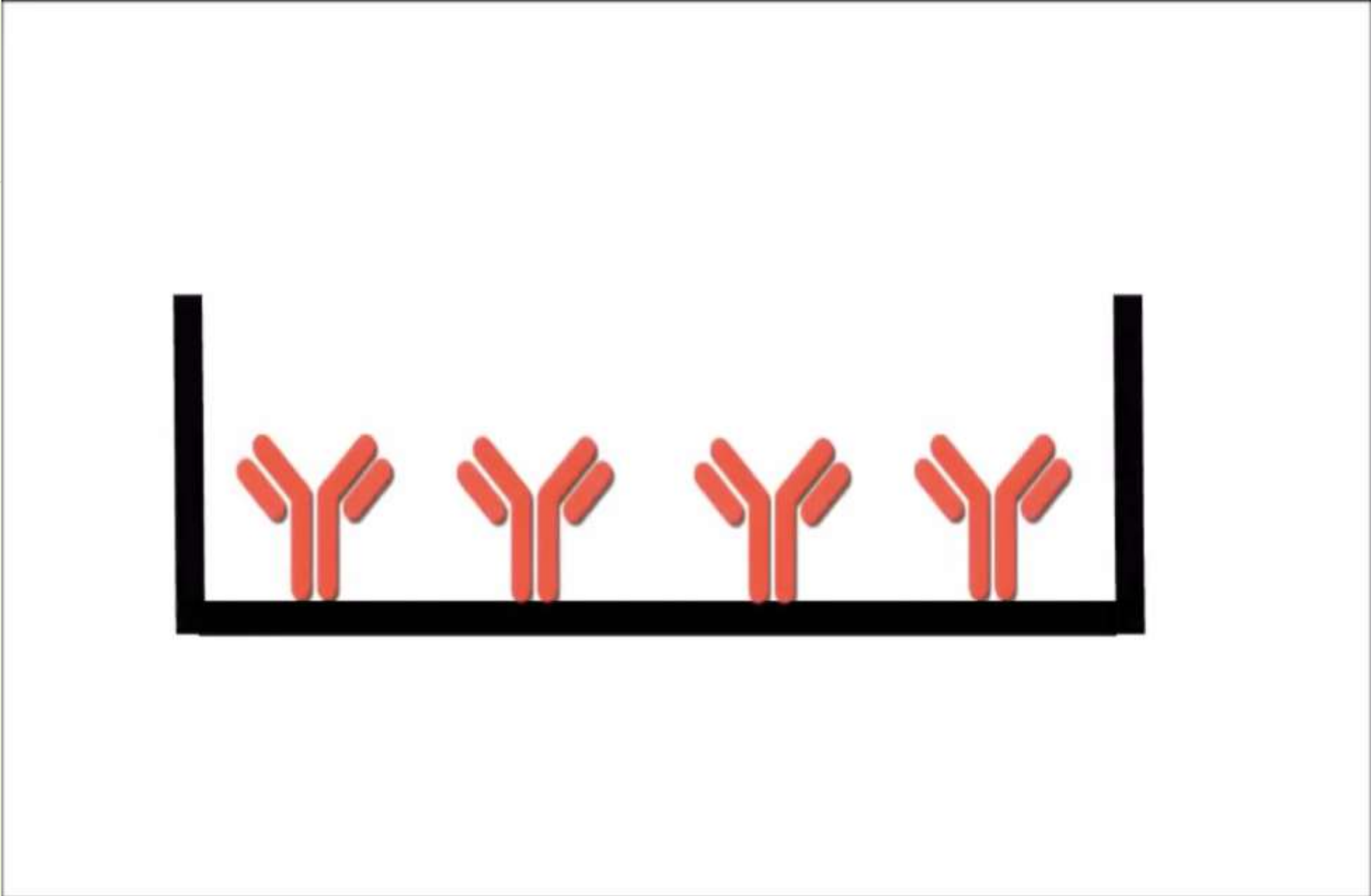
✓ 2.  
**Radiolabeled  
A antigen**

  
**radioisotopes**  
**Tritium <sup>125</sup> I**

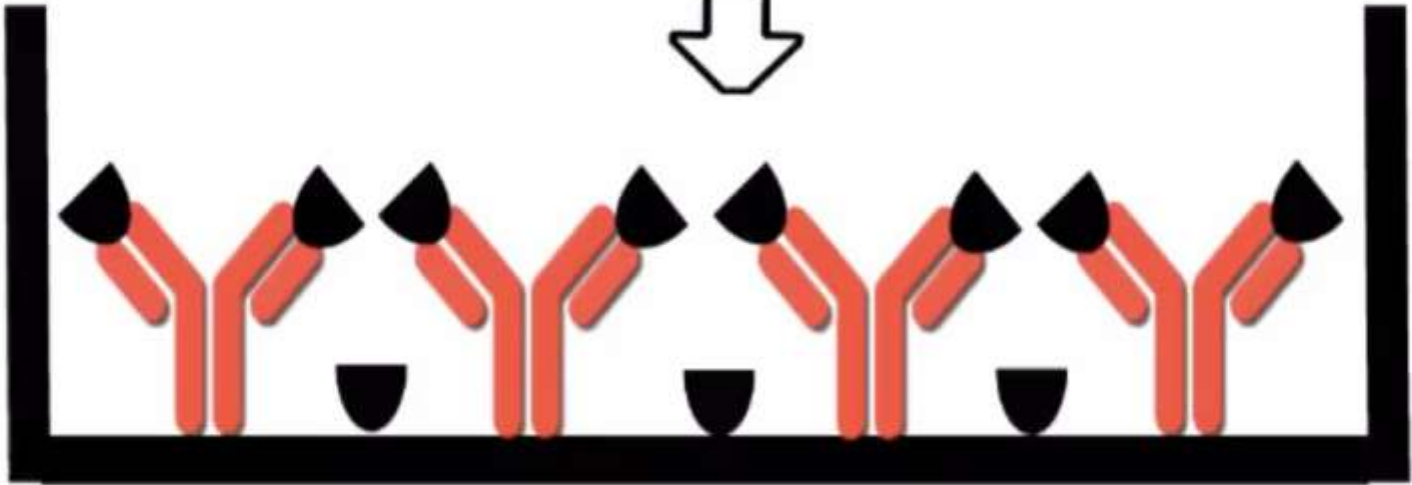
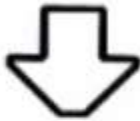
A black semi-circle icon representing a radioisotope, with the text "radioisotopes" and "Tritium <sup>125</sup> I" below it.

✓ 3.  
**Unlabeled  
A antigen**



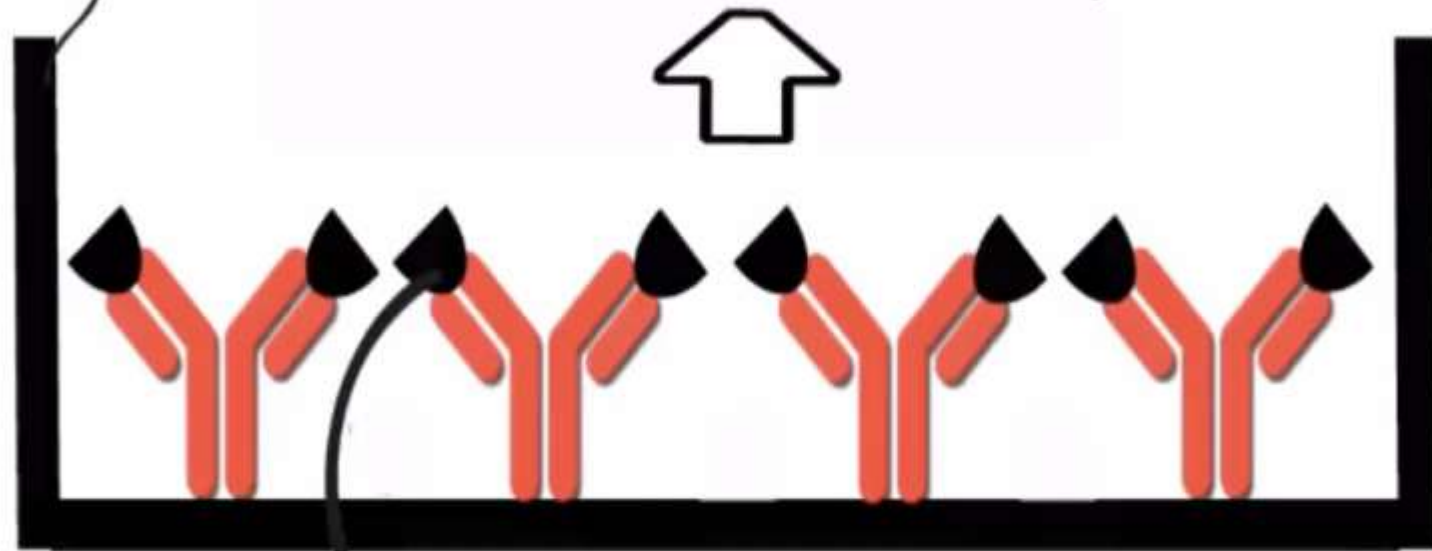


**Radiolabeled Ag  
in excess**



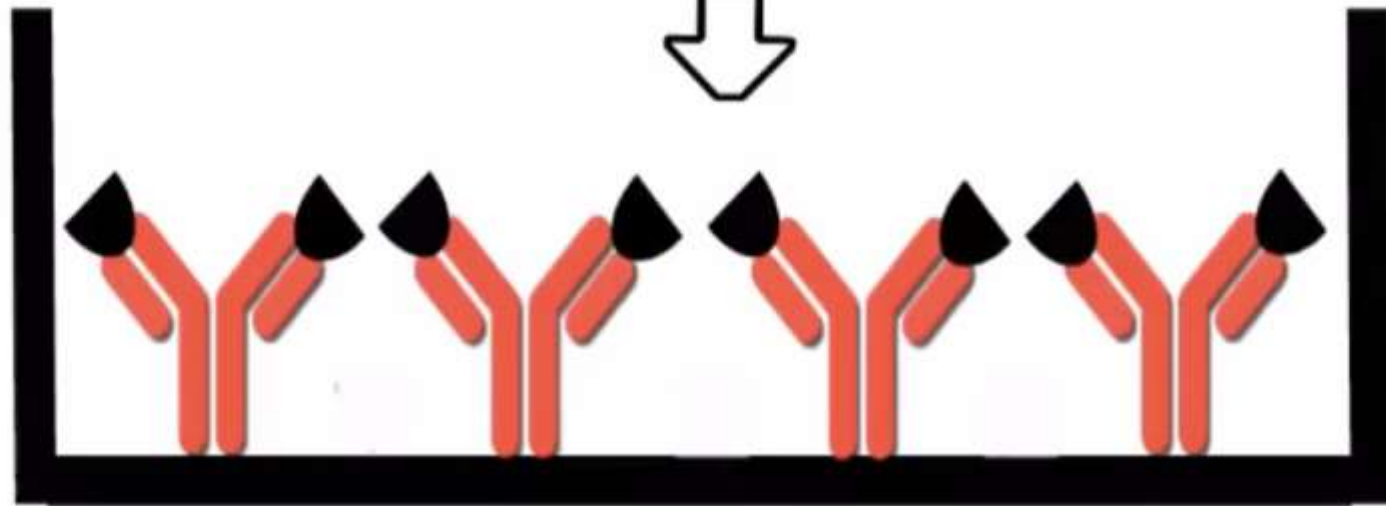
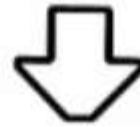
**Well**

**100% Radioactivity**

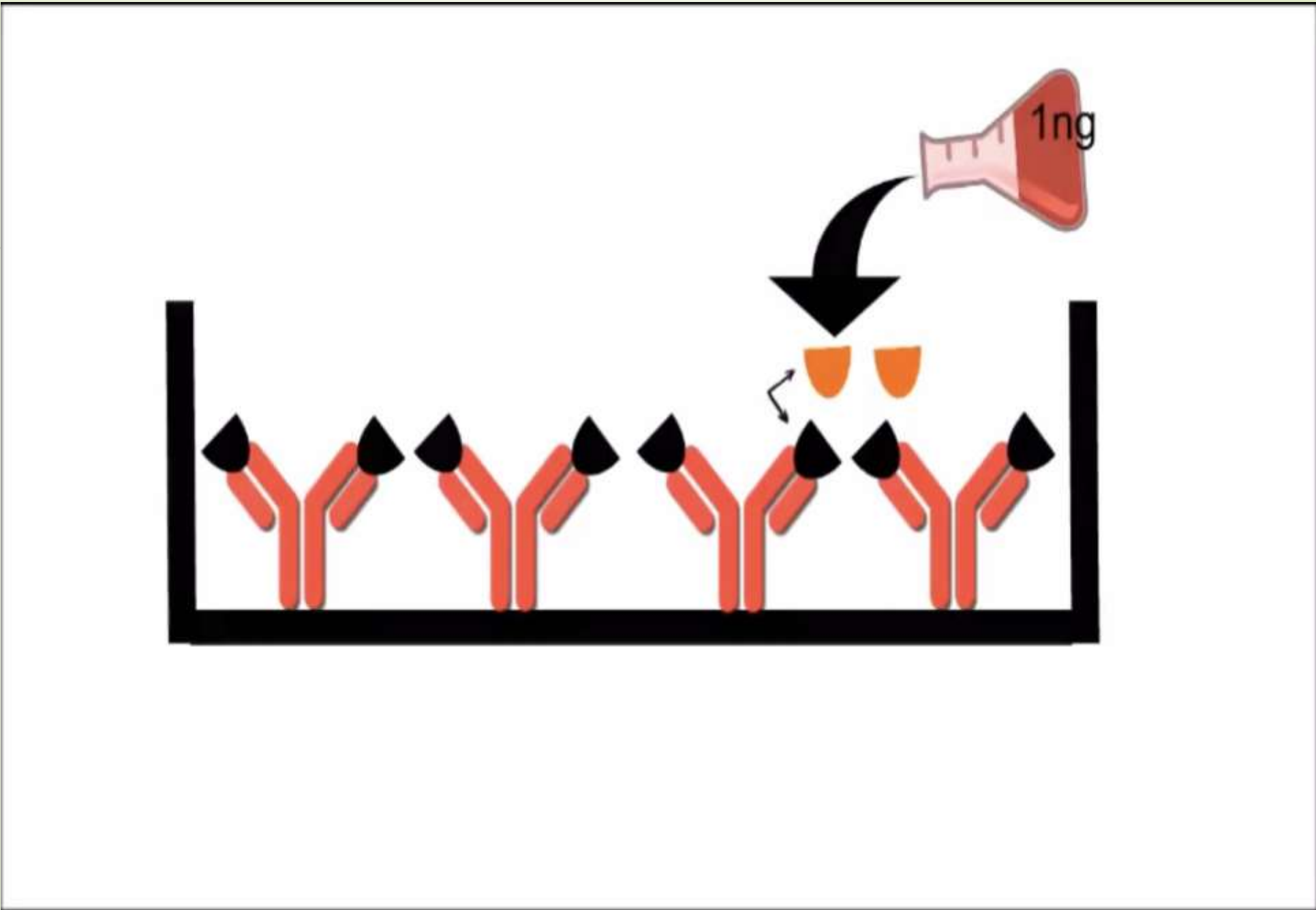


**Radiolabeled  
antigen**

**Radiolabeled Ag  
in excess**

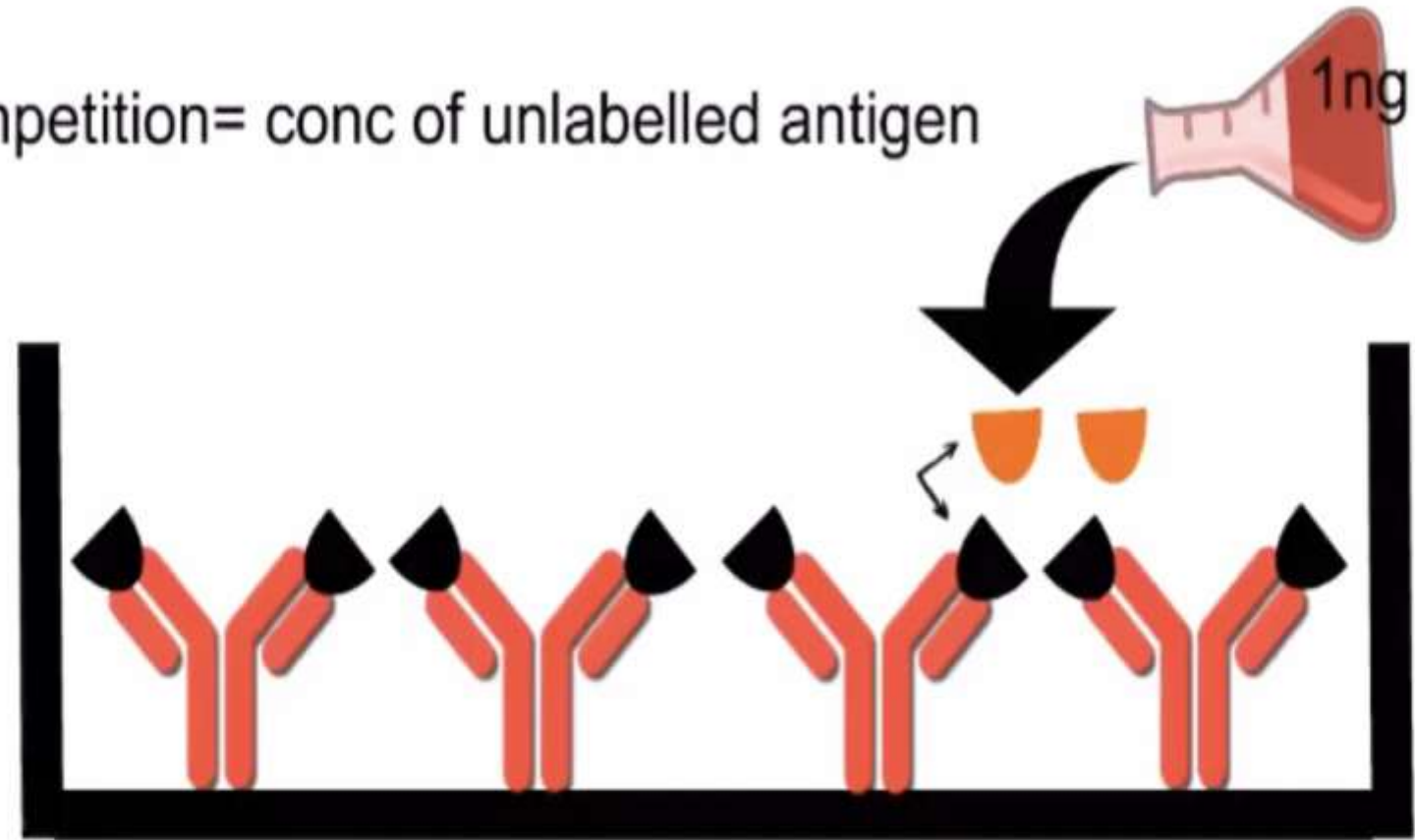




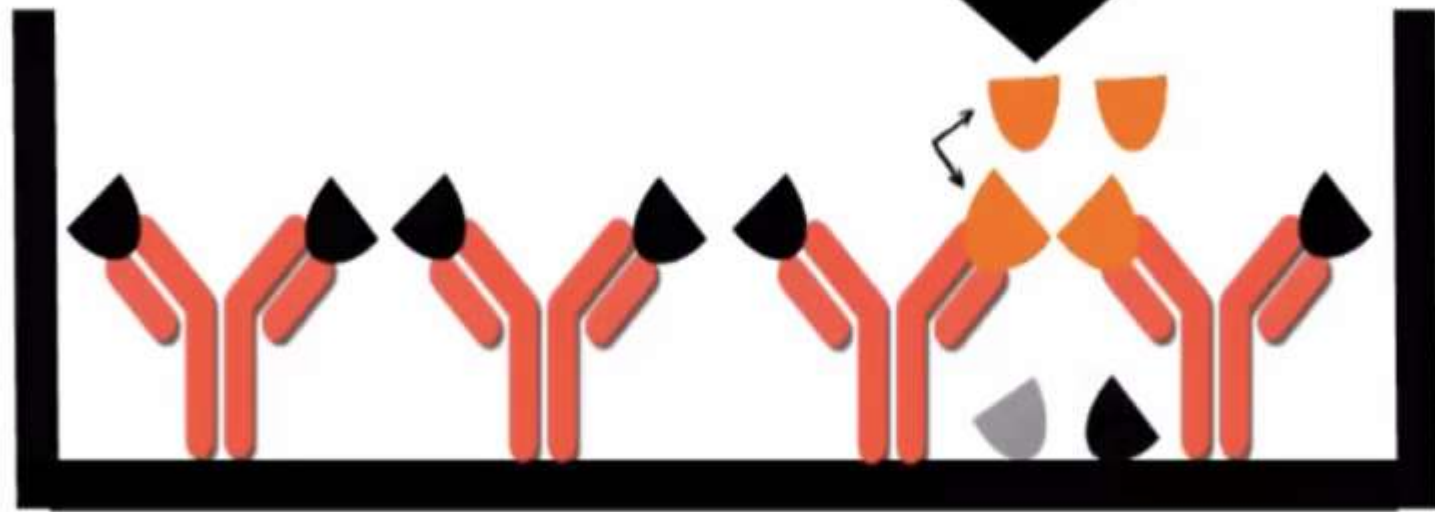
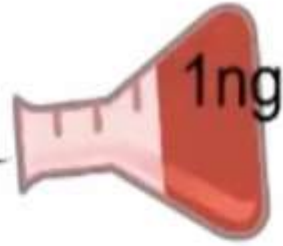




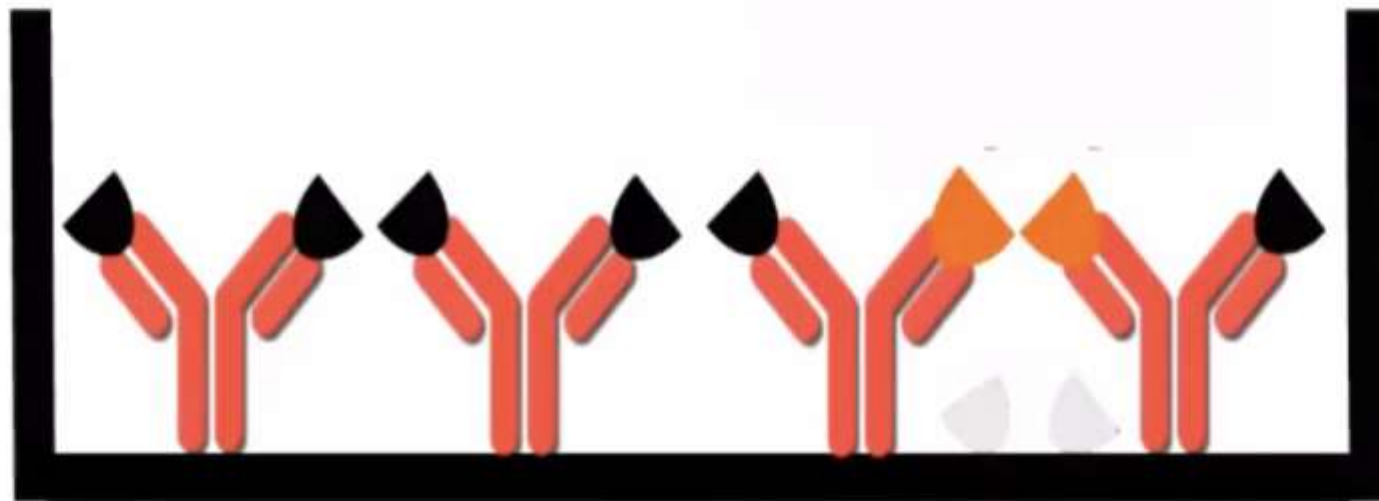
competition= conc of unlabelled antigen



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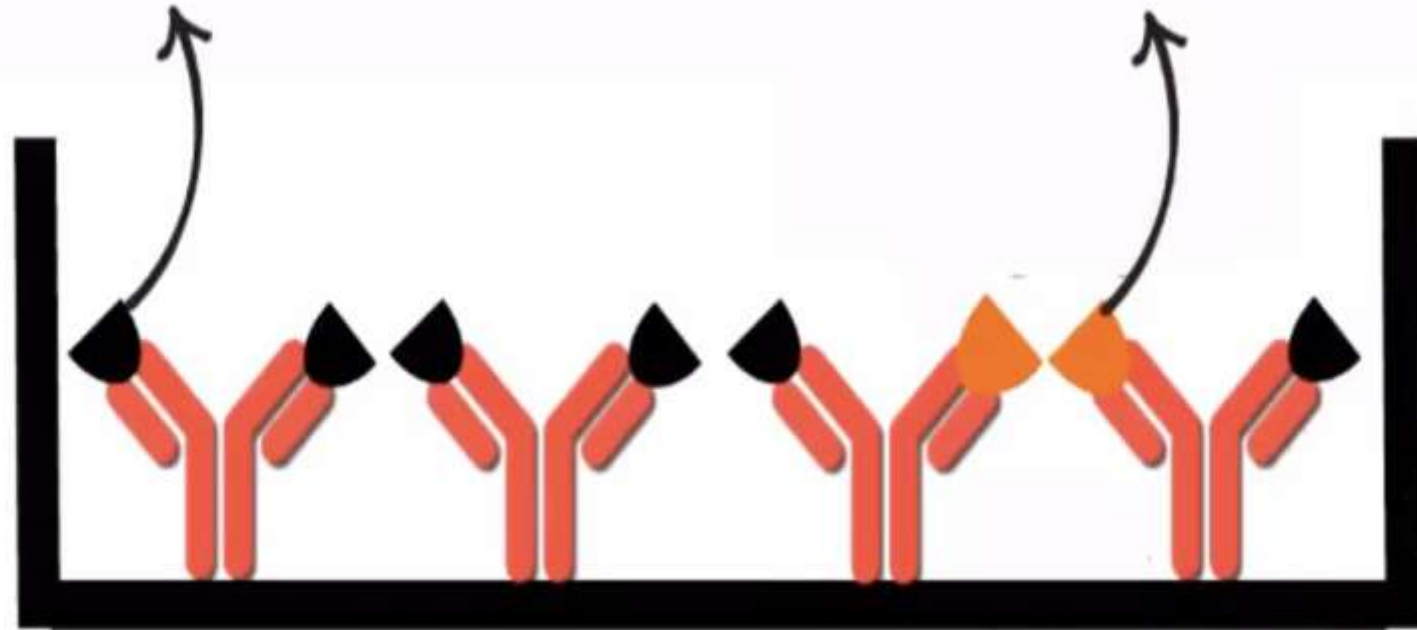


# Washing



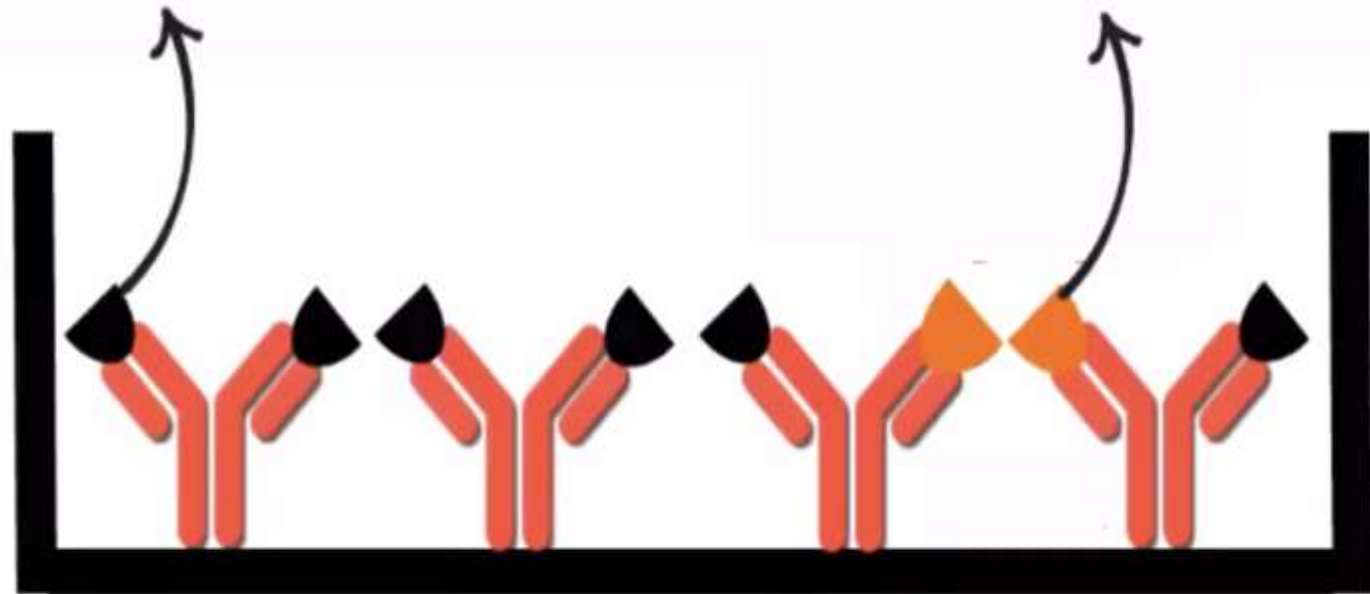
Radiolabeled Ags decreased

Unlabeled Ag



Radiolabeled Ags decreased

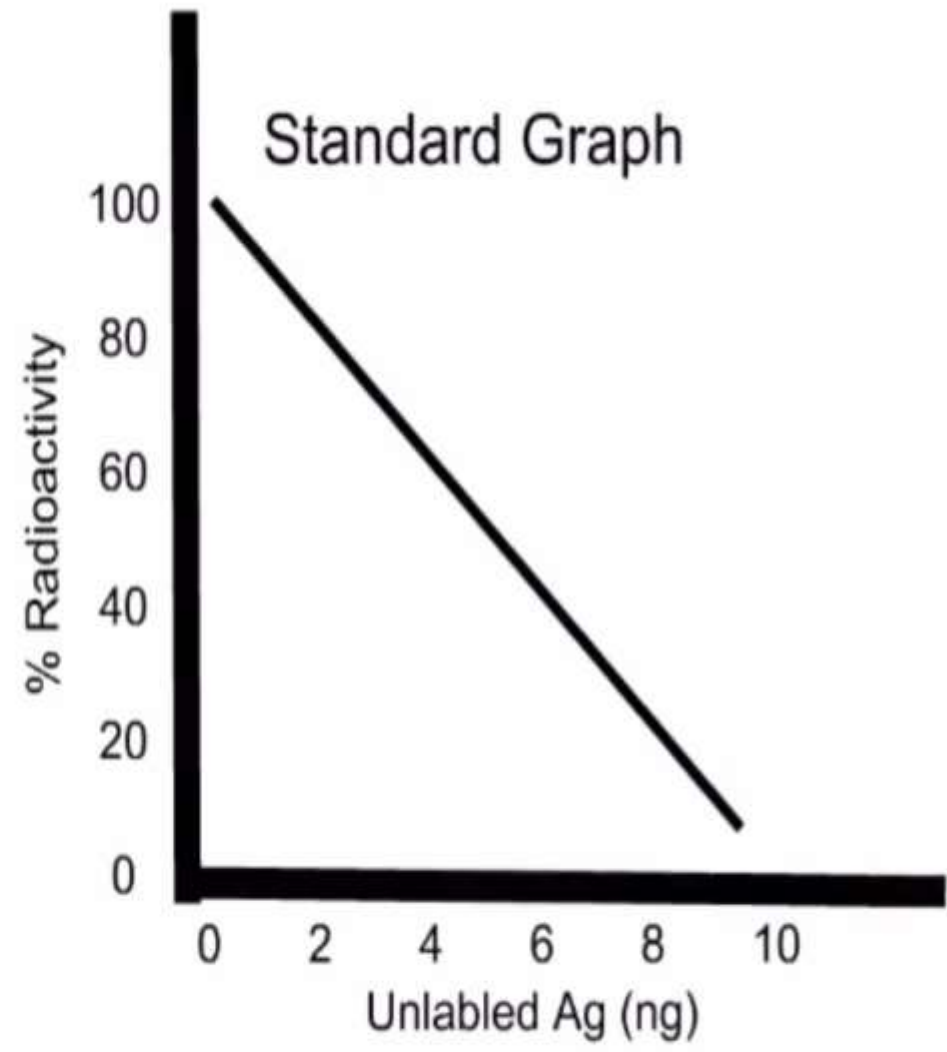
Unlabeled Ag

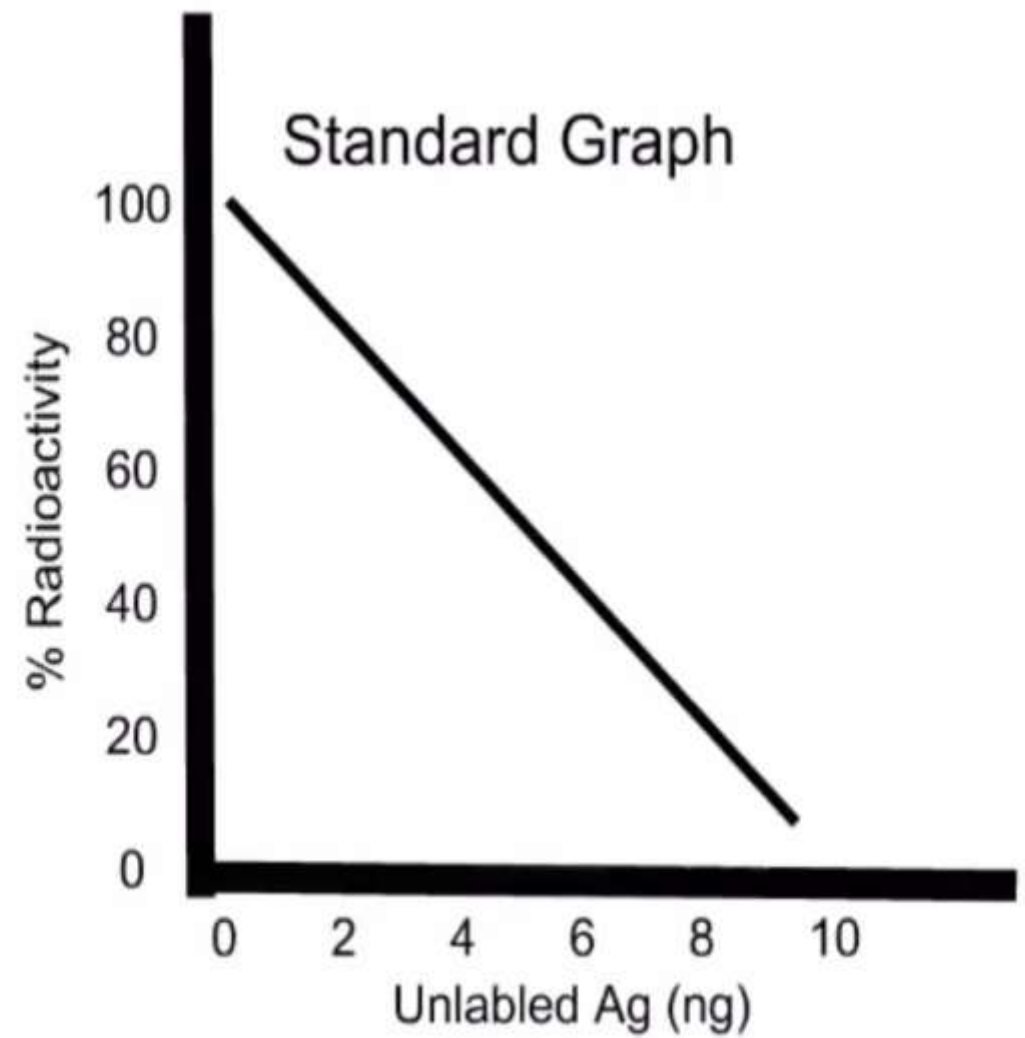
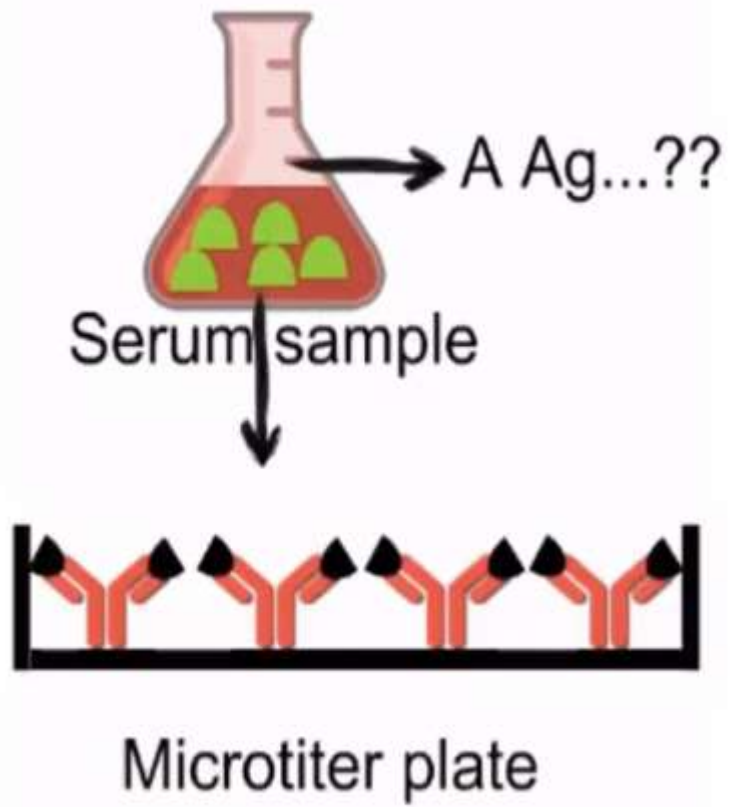


0 ng - 100%

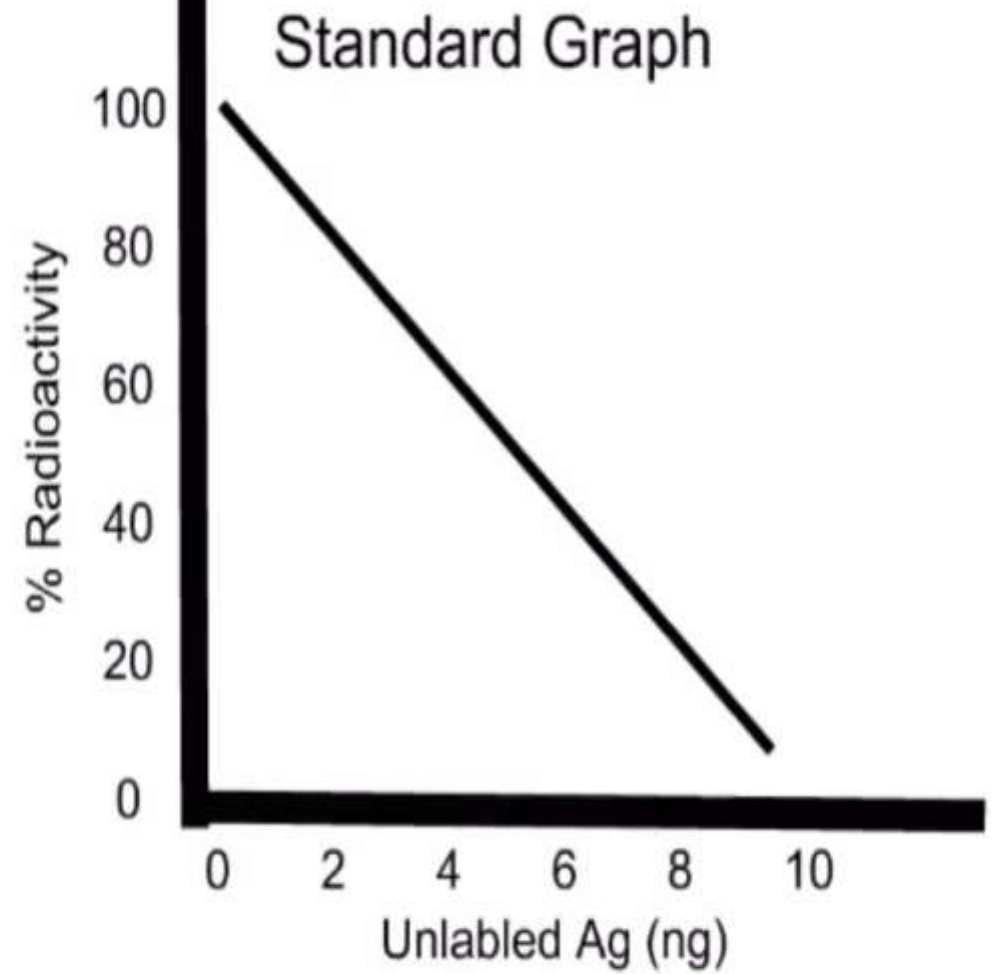
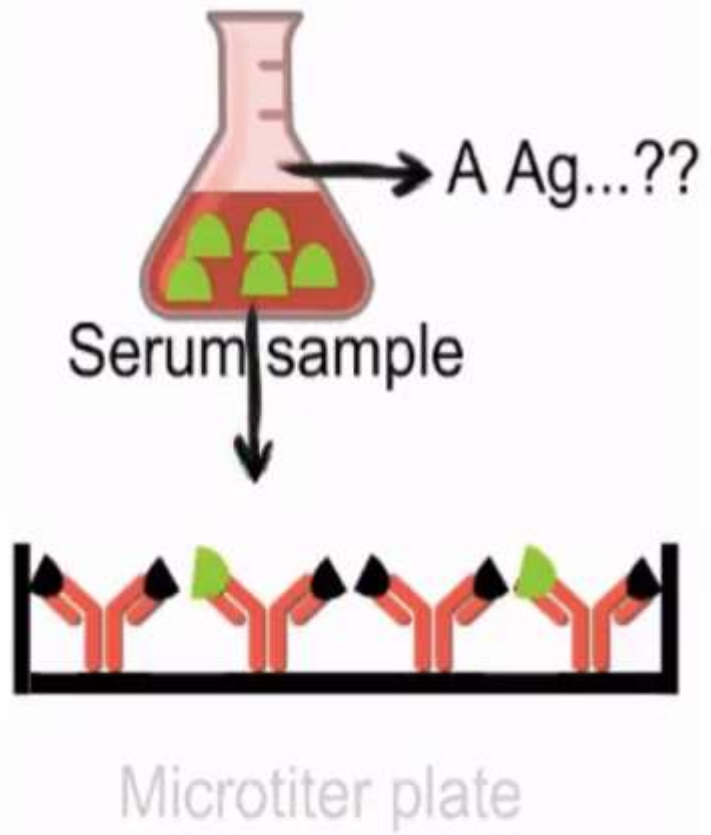
1 ng - 90%

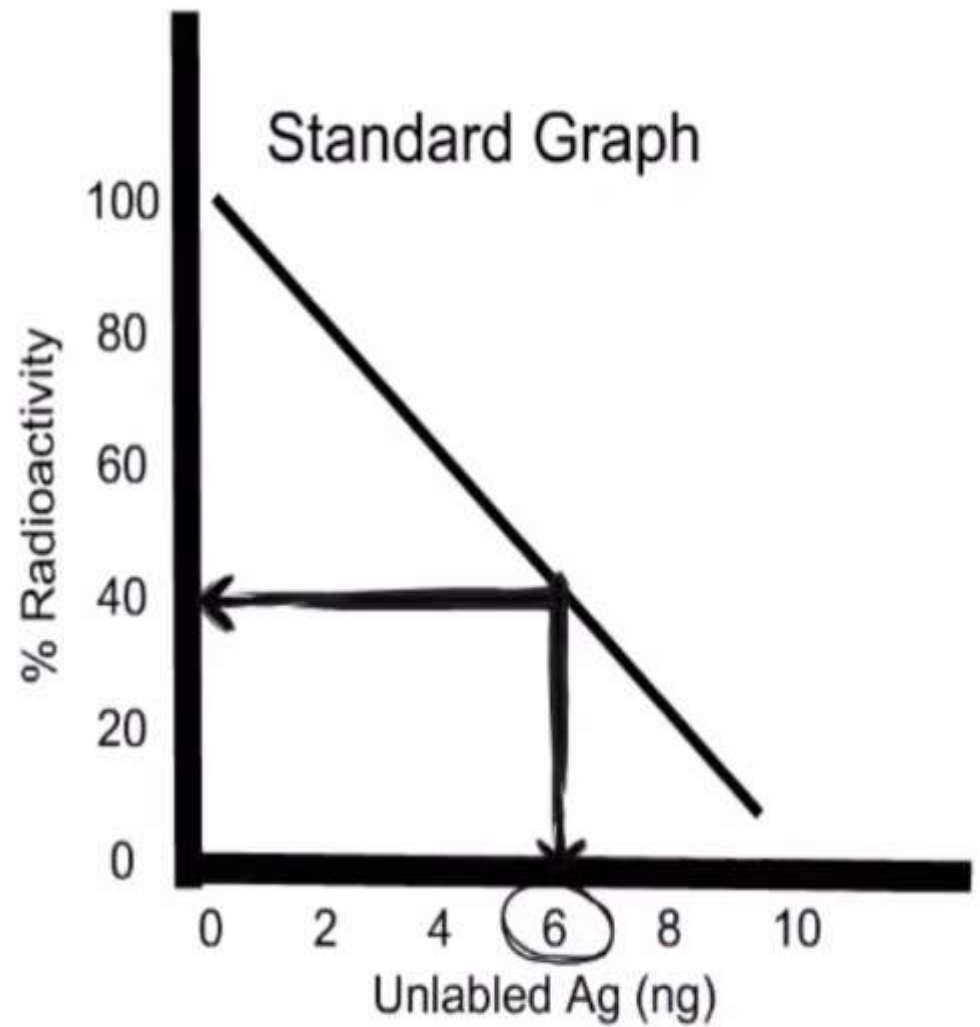
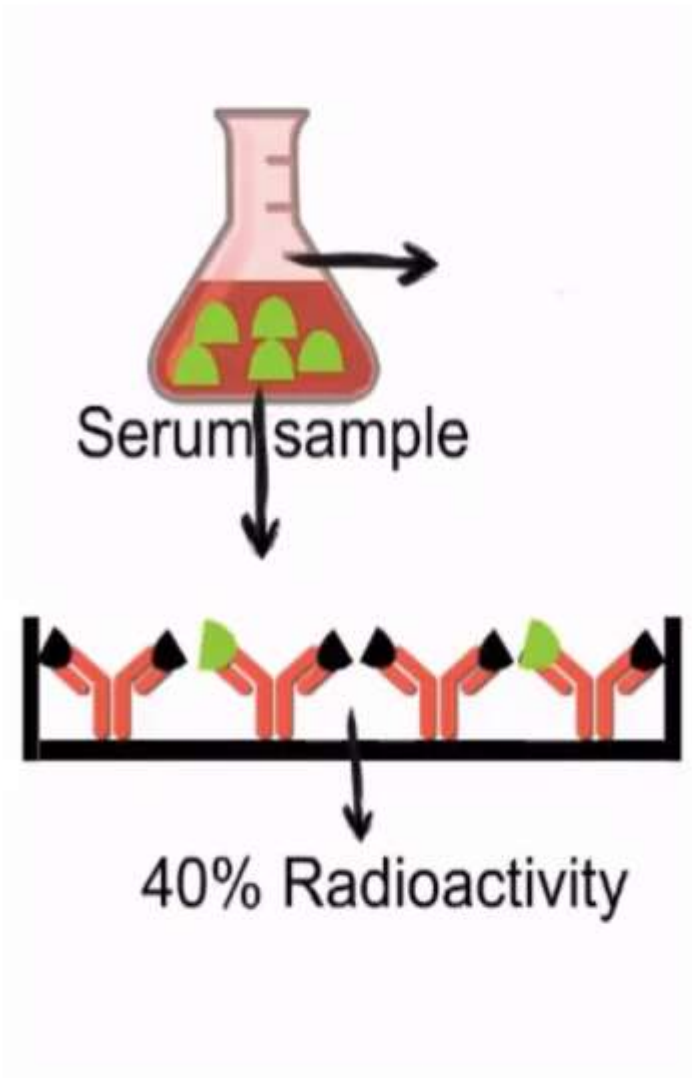
Unlabeled A	% Radioactivity
0	100
1	90
2	80
3	70
4	60
5	50
6	40
7	30

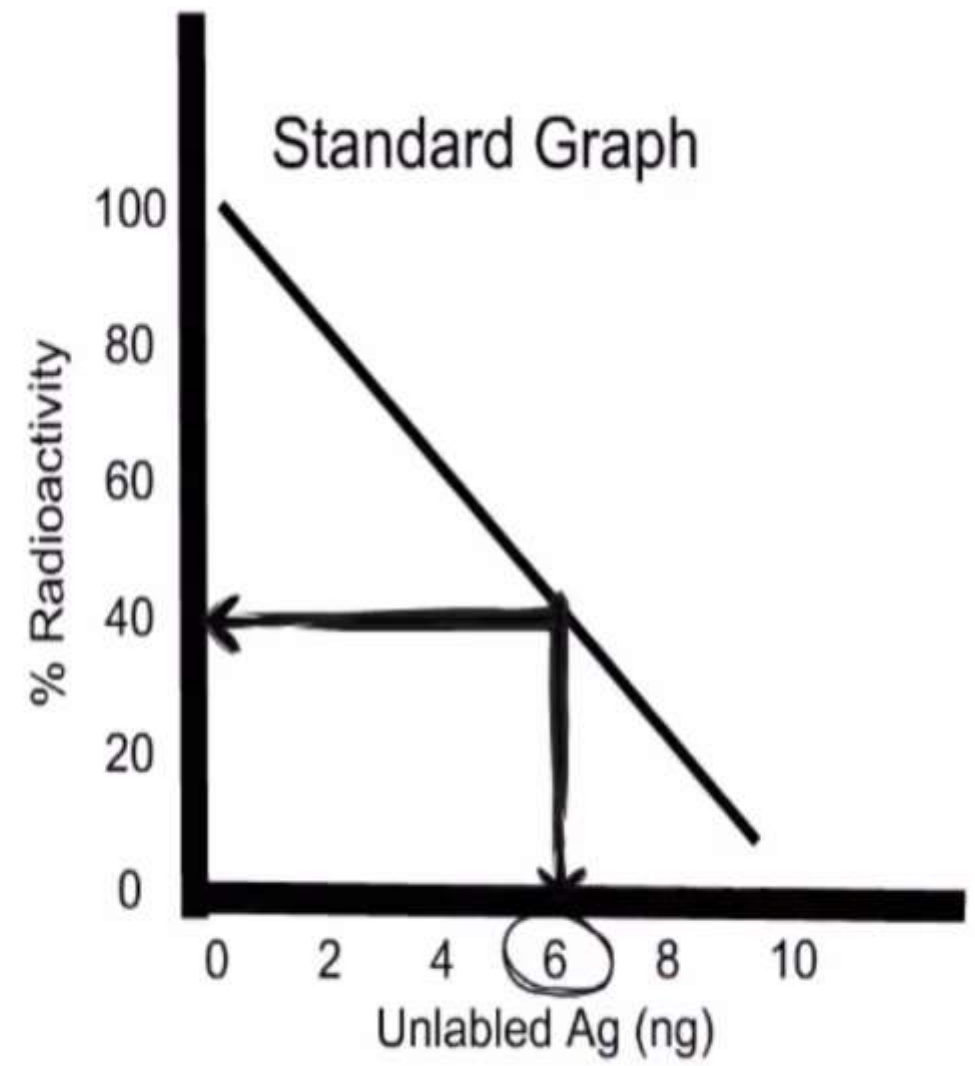
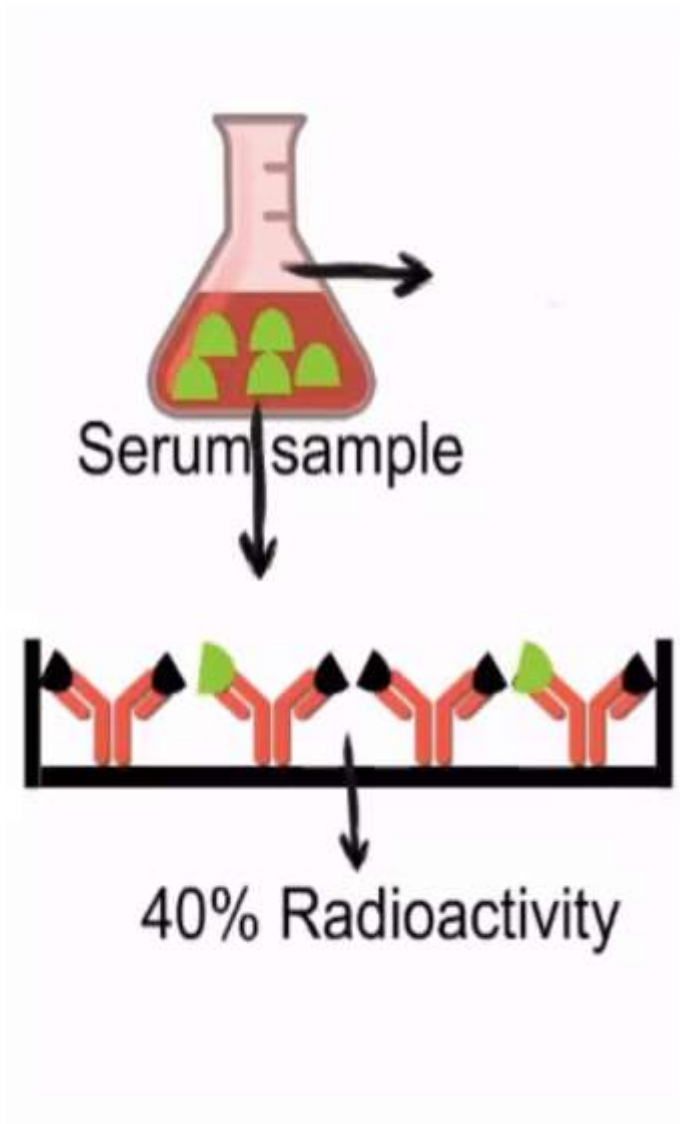














## Advantages

- Radioimmunoassay is widely-used because of its great sensitivity.
- Using antibodies of high affinity, it is possible to detect a few picograms ( $10^{-12}$  g) of hormone in the tube.
- The greater the specificity of the antiserum, the greater the specificity of the assay



## limitations

- The main drawbacks to radioimmunoassay are the expense and hazards of preparing and handling the radioactive antigen.
- Both  $^{125}\text{I}$  or  $^{131}\text{I}$  emit **gamma radiation** that requires special counting equipment
- The body concentrates iodine atoms — radioactive or not — in the thyroid gland where they are incorporated in thyroxine (T<sub>4</sub>).



**THANK YOU**

