

Separation Methods Based on Distributions in Discrete Stages (9/13/13)

1. Chemical Separations: The Big Picture

Classification and comparison of methods

2. Fundamentals of Distribution Separations

3. Separation Methods Based on Distributions in Discrete Stages

Such as solvent extraction and distillation

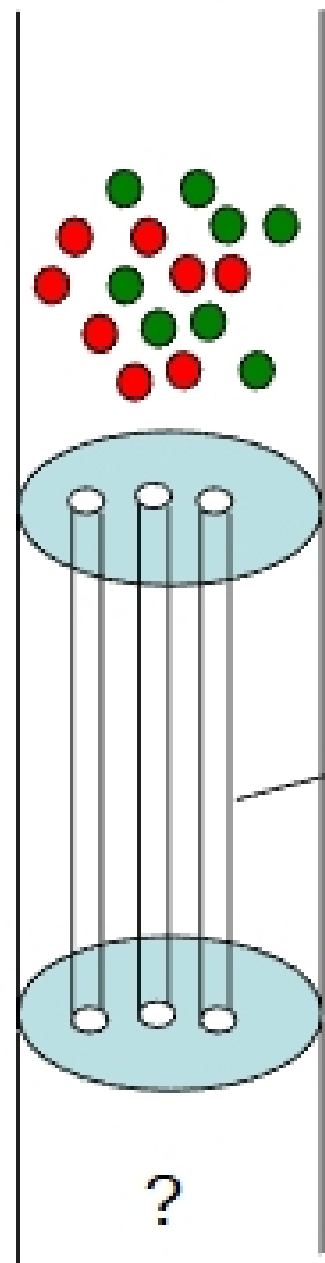
4. Introduction to Distribution Separations in chromatographic

methods. The plate theory, the rate theory; van Deemter's equation.

Selectivity of Nanotubes

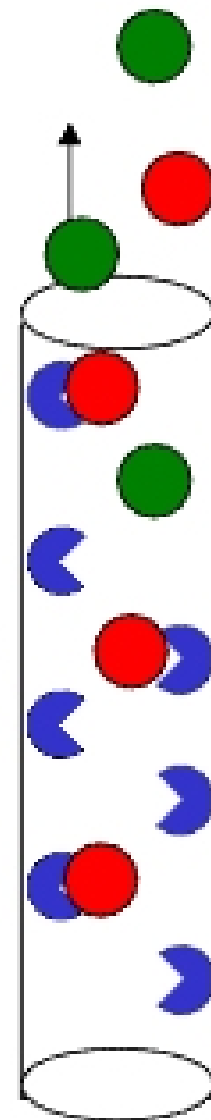
$$\Delta G^0 = \Delta \bar{H}_i^0 - T\Delta \bar{S}_i^0$$

Enantiomers



Non-affinity

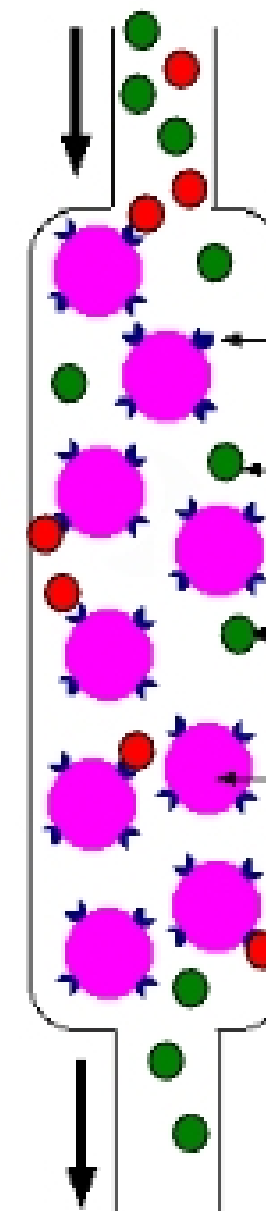
$$\Delta \bar{H}_i = 0$$



Affinity

$$\Delta \bar{H}_i < 0$$

nanotube



Antibody

Enantiomer with
Low affinity to the
antibody

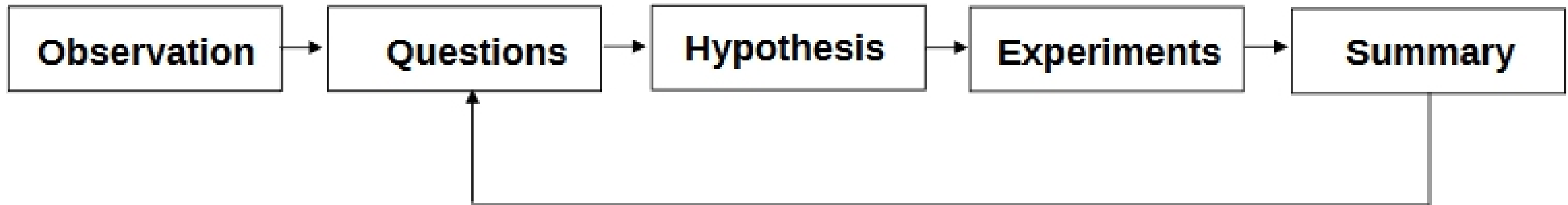
Insert matrix

Enantiomer with
high affinity to the
antibody

Affinity Chromatography

Problem Solving and Research

A scientific research activity:



Problem solving:



1. Understanding concepts and formulas

2. Logical Analysis

Formal logic laws: (a) A event is determined by many parameters; (b) All the parameters have some sort of connection between each other.

Basic method for problem solving:

- 1. Understanding the question.**
- 2. Lay out the parameters regarding this question.**
- 3. Try to use concepts and formulas to find the connections.**
- 4. Solving the question.**