

# Liquid Chromatography

1. Introduction and Column Packing Material
  2. Retention Mechanisms in Liquid Chromatography
  3. Method Development
  4. Column Preparation
  5. General Instrumental aspects
  6. Detectors
- (Chapter 4 and 5 in The essence of chromatography)

# Retention Mechanisms in Liquid Chromatography

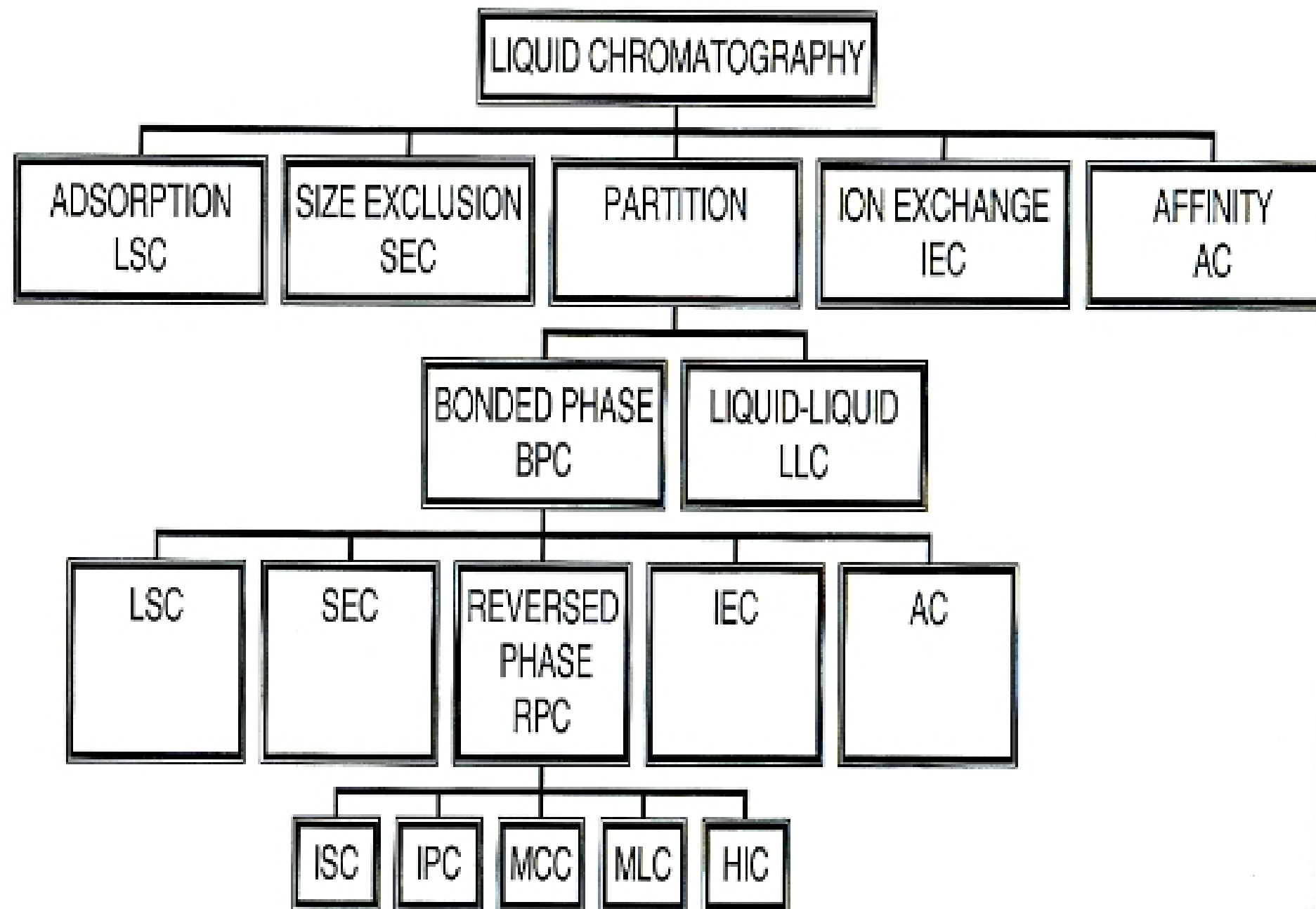


Figure 4.1. Family tree of liquid chromatographic separation modes. LSC = liquid-solid (or normal-phase) chromatography; SEC = size-exclusion chromatography; IEC = ion-exchange chromatography; AC = affinity chromatography; BPC = bonded-phase chromatography; LLC = liquid-liquid chromatography; RPC = reversed-phase chromatography; ISC = ion-suppression chromatography; IPC = ion-pair chromatography; MCC = metal-complexation chromatography; MLC = micellar-liquid chromatography; and HIC = hydrophobic-interaction chromatography.

## **A. Adsorption Chromatography**

- 1. A LC technique which separates solutes based on their adsorption to an un-derivatized solid particles is known as adsorption chromatography, or liquid-solid chromatography.**
- 2. Adsorption chromatography was the first type of column liquid chromatography developed (Tsweet, 1903). However, it is currently not widely used as other LC methods.**
- 3. Like gas-solid chromatography, supports in adsorption chromatography have the potential disadvantages of having very strong retention of some solutes and may be even cause catalytic changes in solutes. However, this is not as a big problem in LC as it is in since the mobile phase composition can be varied to control solute retention and lower operating temperature of LC make catalytic reactions less likely than in GC.**