

كلية المستقبل الجامعة

قسم هندسة تقنيات
الأجهزة الطبية



Clinical Biochemistry

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HPLC

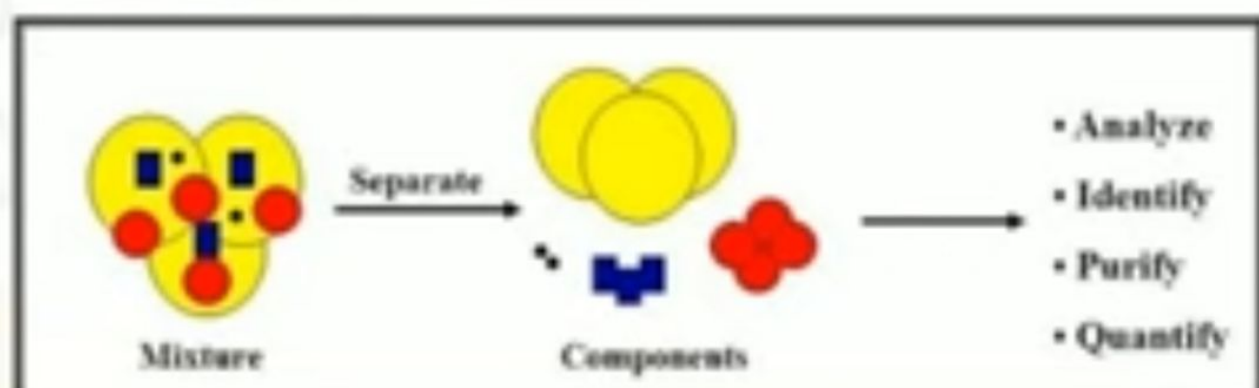
High performance liquid chromatography



Chromatography

- Chromatography is a separation technique which is used to separate a mixture of compounds into its individual components based on certain physical and chemical properties.

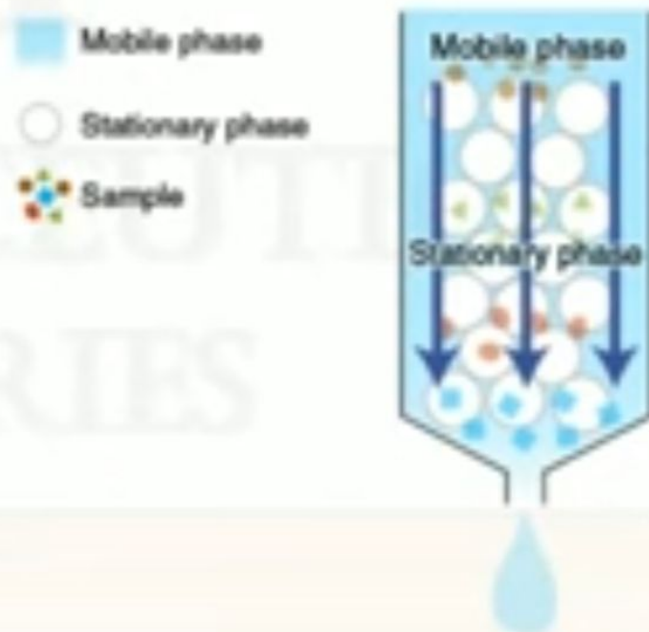
Chromatography is a technique for separating mixtures into their components in order to analyze, identify, purify, and/or quantify the mixture or components.



Level 2

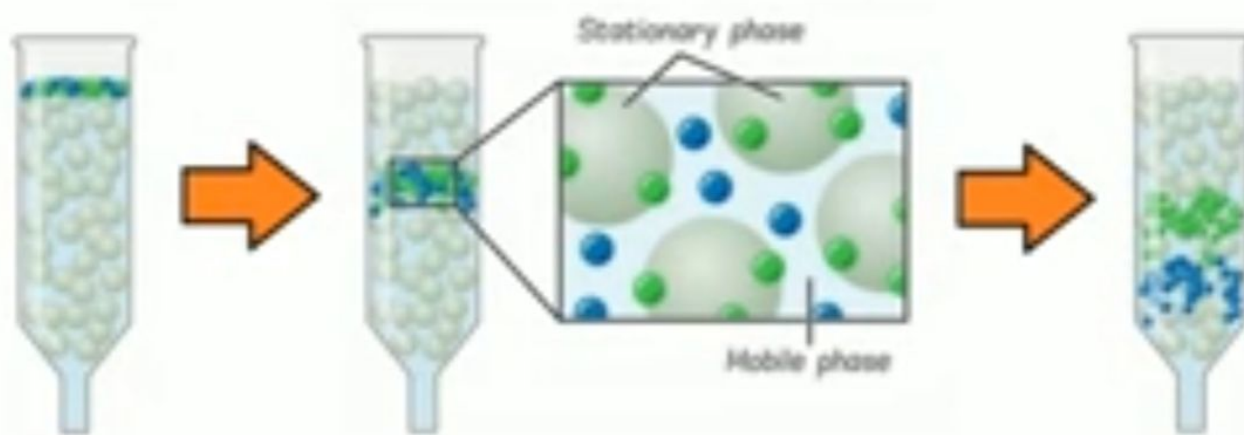
What is Liquid Chromatography?

- Liquid chromatography is a separation technique that involves:
 - the placement (injection) of a small volume of liquid sample
 - into a tube packed with porous particles (stationary phase)
 - where individual components of the sample are transported along the
- packed tube (column) by a liquid moved by gravity.



Level 2

- **Stationary phase** : The substance on which adsorption of the **analyte** (the substance to be separated during chromatography) takes place . It can be a solid, a gel, or a solid liquid combination
- **Mobile phase** : solvent which carries the analyte (a liquid or a gas)

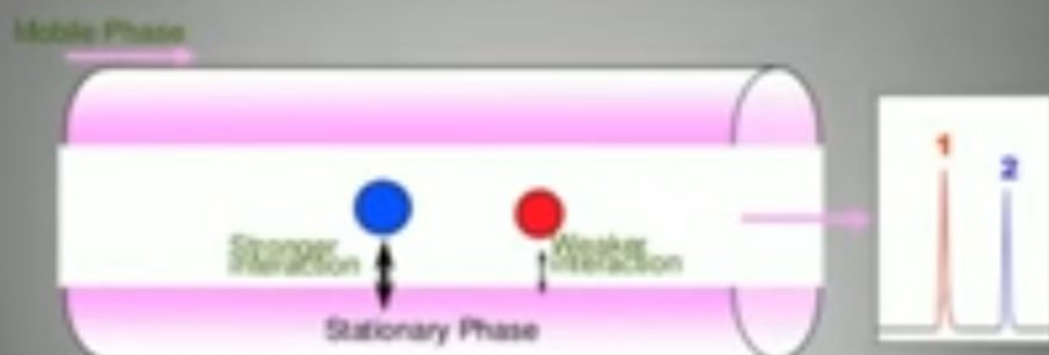


HPLC tech

- HPLC is a type of **liquid chromatography** where the
- sample is forced through a **column** that is packed with a
- stationary phase composed of irregularly or spherically
- shaped particles, a porous monolithic layer, or a porous
- membrane by a liquid (mobile phase) at high pressure

Separation Mechanism

Due to different interaction between stationary phase and different sample, the molecules move at different rate, therefore separation can be done.



Level-2

PARTS OF HPLC

- 1) MOBILE PHASE / SOLVENT RESERVOIR,
- 2) DEGASSER,
- 3) PUMP,
- 4) INJECTOR,
- 5) COLUMN,
- 6) DETECTOR,
- 7) RECORDER.

HPLC system

- Solvent Reservoir
- Degasser
- Solvent Delivery System (Pump)
- Injector
- Column & oven
- Detectors
- Recorder (Data Collection)



HPLC DIAGRAM

