

# Centrifuge

- Centrifugation is one of the most important and widely applied research cellular techniques in bio-chemistry and molecular biology, pharmacy and in medicine.
- Centrifugation is a process which involves the use of the centrifugal force for the sedimentation of heterogeneous mixtures with a centrifuge.



o A centrifuge is used to separate particles or even macro-molecules:

Cells , Subcellular components , Proteins and Nucleic acid

o Basis of separation:

1- Size

2- Shape

3-Density

o There are various types of centrifugation:

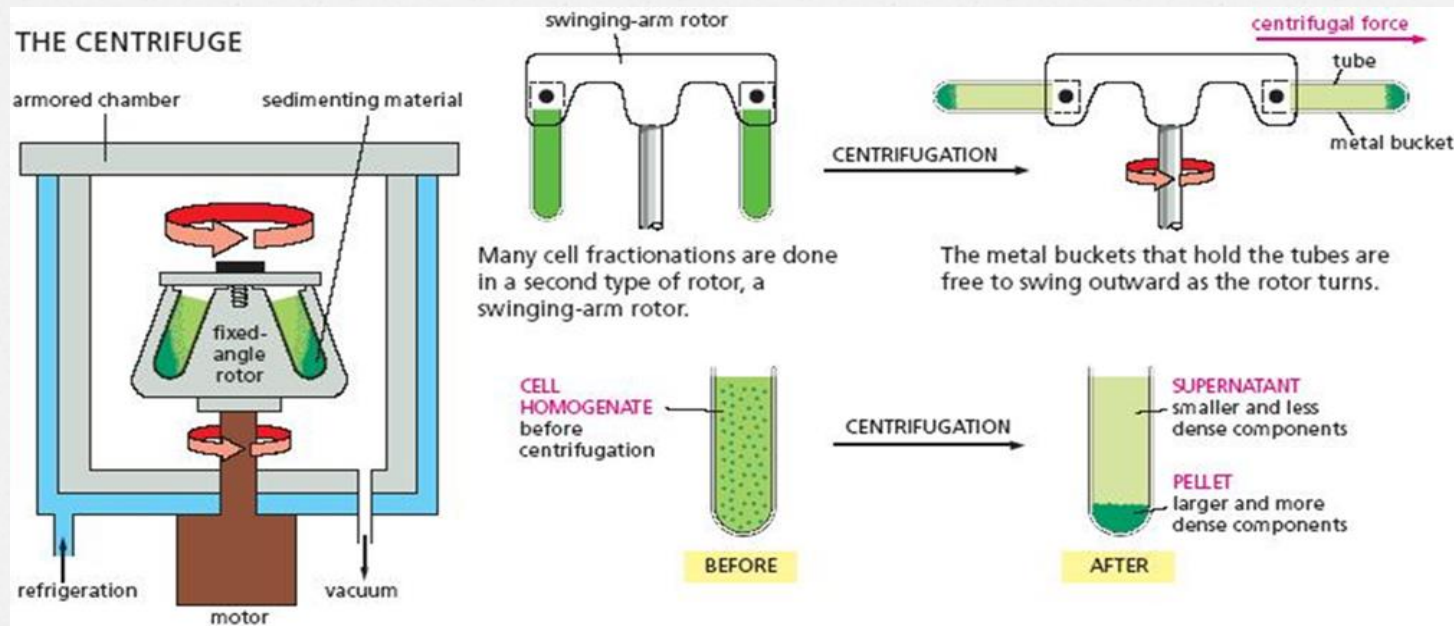
1. Differential Centrifugation
2. Isopycnic Centrifugation
3. Sucrose Gradient Centrifugation
4. Ultracentrifuges



## 1. Differential Centrifugation

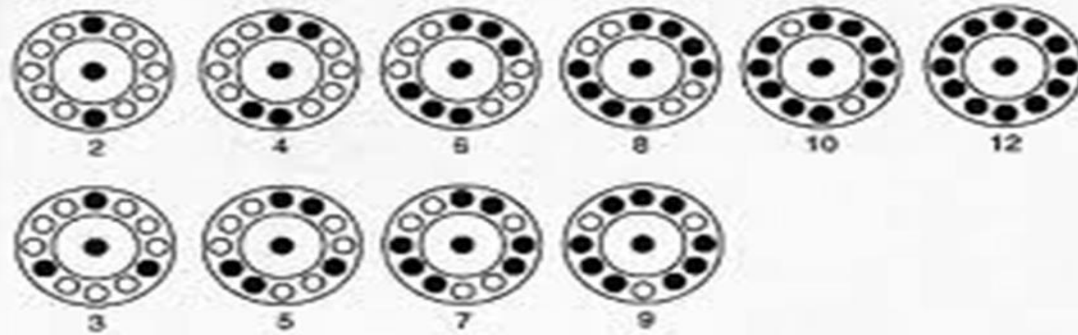
- Differential centrifugation is a common procedure in microbiology and cytology . Used to separate certain organelles from whole cells for further analysis of specific parts of cells .

- o It consists of two components, an electric motor to spin the sample and a rotor to hold tubes (solid piece of metal with 6-12 holes).
- o • Increasing the effective gravitational force will more rapidly and completely cause the precipitate to gather on the bottom of the tube as a "pellet".
- o • The remaining solution is called the "supernate" or "supernatant".





# عوامل الأمان في أجهزة الطرد المركزي



من أجل استخدام آمن لأجهزة الطرد المركزي يجب اتخاذ ما يلي:

1. قراءة ملف الأمان ودليل الاستخدام الخاص بكل جهاز
2. استخدام الحامل المناسب لنوعية الأنابيب المستخدمة
3. ضبط السرعة وأحيانا الحرارة (حسب نوع الجهاز)
4. خلق توازن أثناء تحميل العينات على الحامل الدوار
5. تنظيف الأجهزة بعد الاستخدام