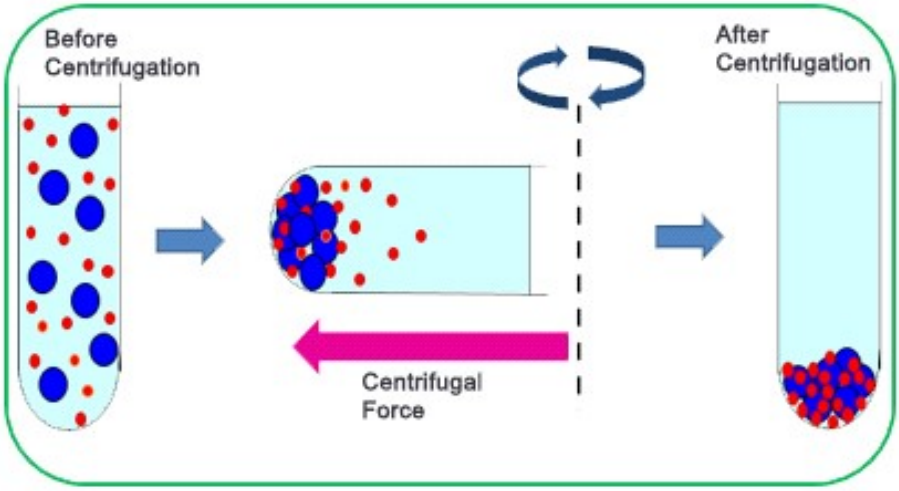
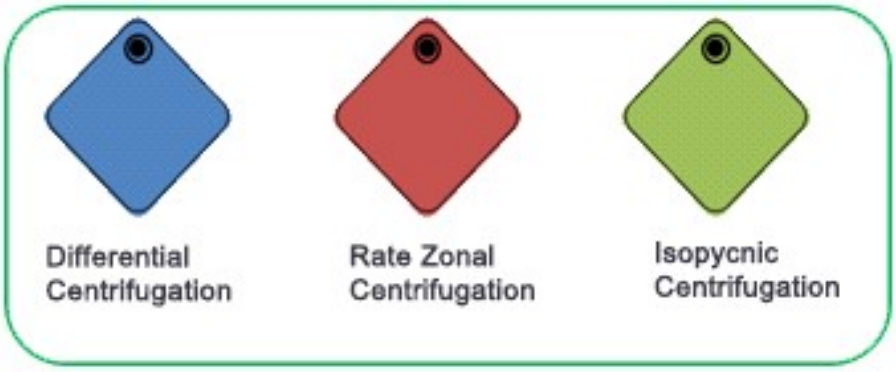
Introduction to the method of sample purification using a centrifuge

Centrifugation is a method of separating, concentrating, and purifying a sample using a centrifugal force of rotational motion with the difference in sedimentation coefficient or buoyancy density of a substance.

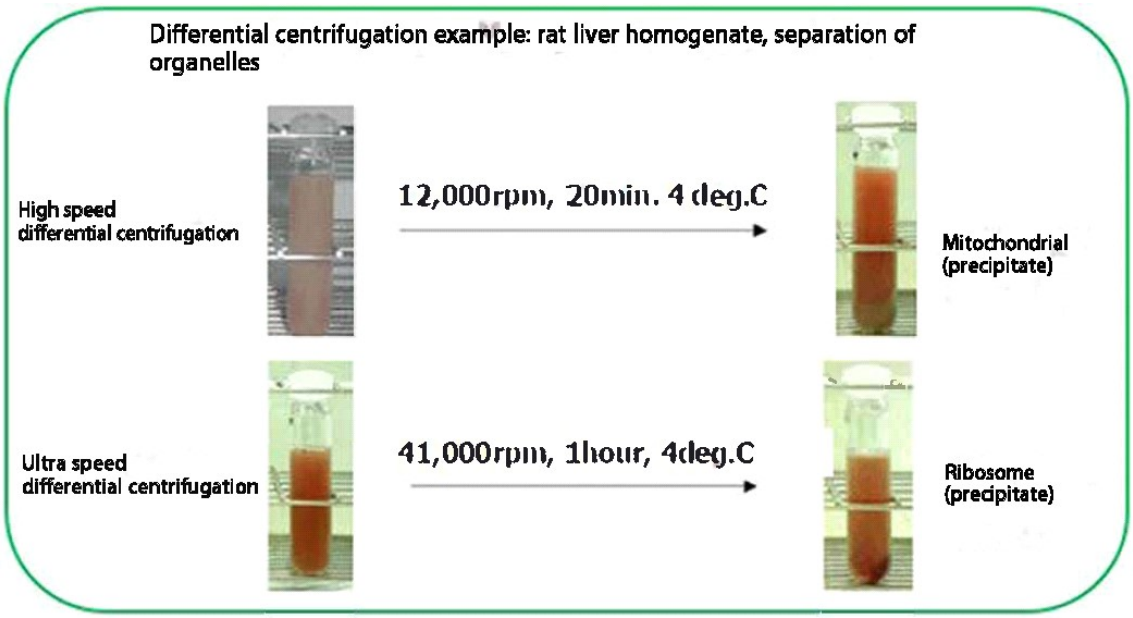
Centrifuge technology has been widely used in chemical, pharmaceutical, food, coal, bioengineering, nuclear raw material purification and other fields. Can be divided into super speed, high speed, low speed, multi-function, large capacity, micro, and other different types of centrifuges, is an indispensable technical means of biochemistry and molecular biology, widely used in separation and purification of biological macromolecules, cells, viruses, organelles, nucleic acids, proteins, and nanoparticles, etc.



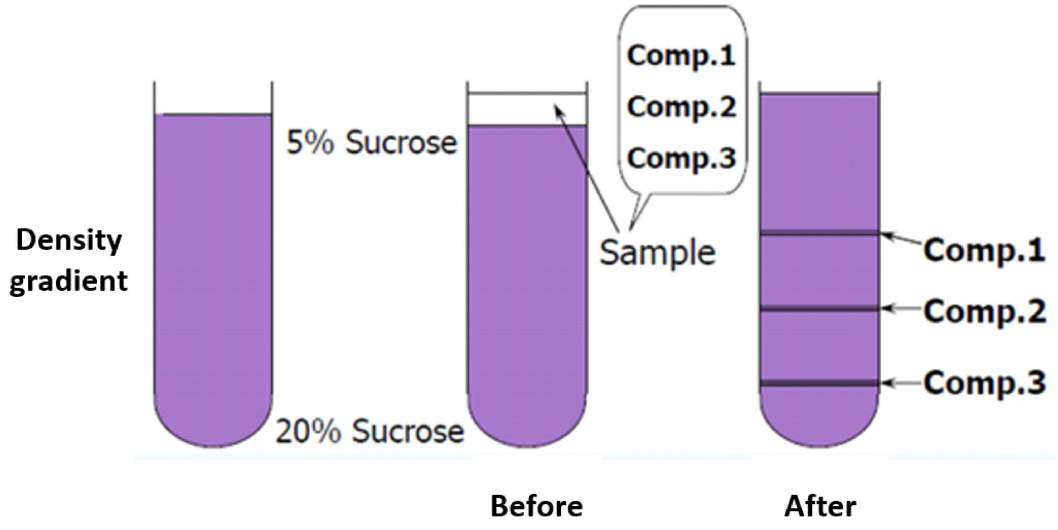
- **Overview of the centrifugation method::**



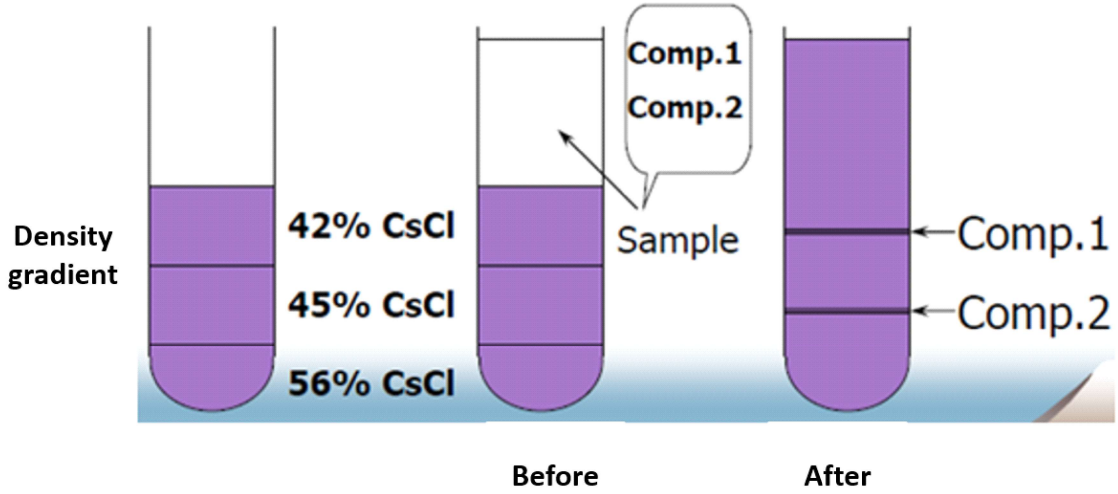
1. **Differential centrifugation: separation using the difference in sedimentation velocity of particles of different sizes and densities**



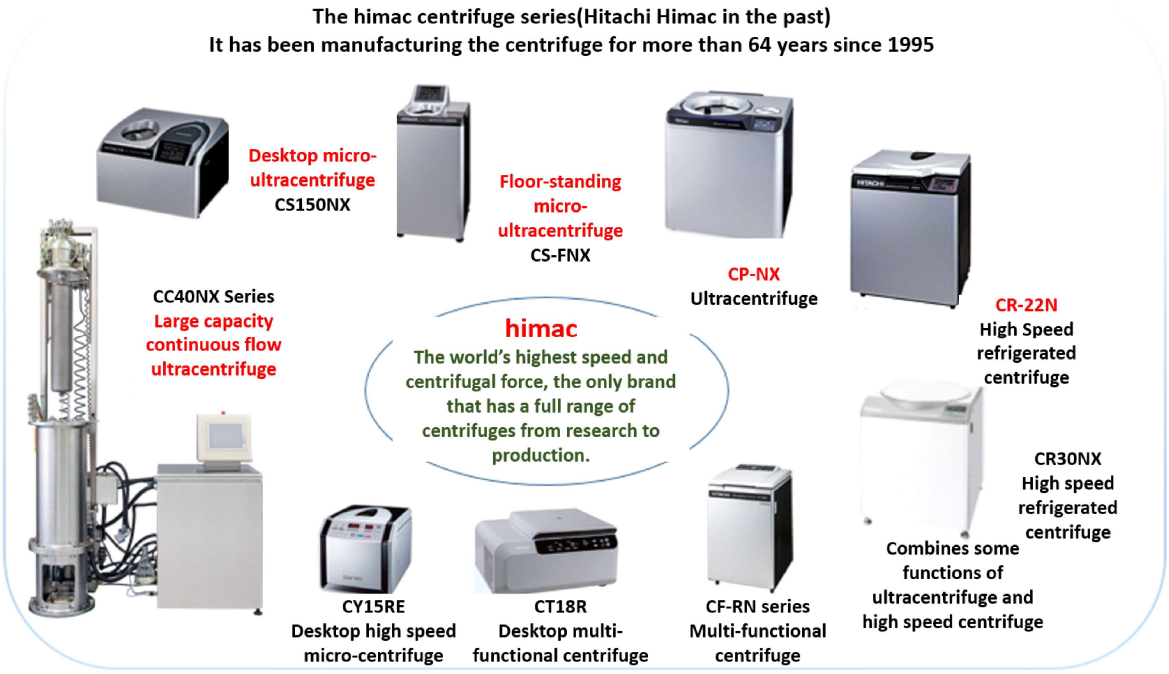
2. Rate-zonal Centrifugation: The mixed sample is spread on the upper part of the gradient in a very thin layer. During the centrifugation, due to the difference in the sedimentation rate of the different components "particles" in the gradient, at some point in the centrifugation several "zones" have been formed. The centrifugation process stops before the "most vertical" sample (or the sample with the fastest sedimentation) forms a precipitate, which is an incomplete centrifugation and stops centrifugation at the appropriate time. The sample is separated during the sedimentation process, not after the formation of the pellet, and the maximum density of the gradient fluid must be less than the density of the sample particles. This method uses low rotation speed and is suitable for separation and purification of samples with similar density but different molecular weight/shape.



2. **Isopycnic Centrifugation: Equal density centrifugation is dependent on the different densities of the sample particles. The density gradient can be performed or self-formed and is one of the primary means of separation of the highest purity. The sample is finally stopped in the same density zone as it is, it is a complete centrifugation, the required rotation speed is high, and the centrifugation time is long, which is suitable for sample separation with similar molecular weight and different density.**



● Regardless of the sample, the above methods and sample centrifugation can be performed using the following himac centrifuge, or Dynamica benchtop centrifuge, NuAire benchtop centrifuge:



Dynamica desktop refrigerated centrifuge V18R

This rotor is applicable for 50ml test tube under 14000rpm centrifugation and result better differentiation of supernatant and pellet

FA14C Rotor

NuAire desktop large volume refrigerated centrifuge C300R

108 5-7ml tubes at single run of centrifugation

4 225ml cell culture flask at single run of centrifugation

For more information, please feel free to contact:

Techcomp Limited
6/F, Mita Centre, 552-566 Castle Peak Road, Kwai Chung, Kowloon, Hong Kong
Tel: +852-2751 9488 / Fax: +852-2751 9477
Web: www.techcomp.com.hk
Email: techcomp@techcomp.com.hk
WhatsApp/WeChat HK: +852-5593 4763
Email: techcomp@techcomp.com.hk