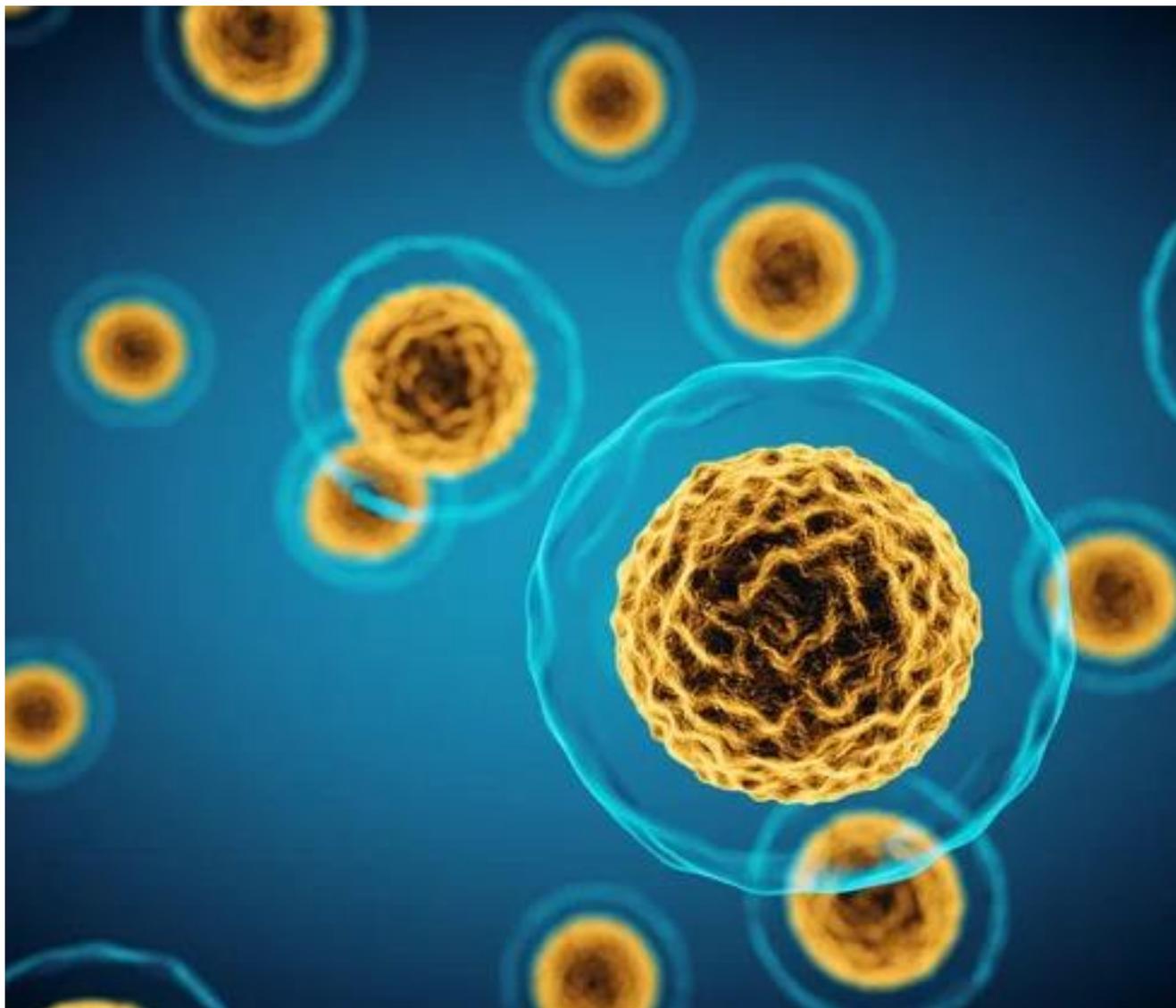

Tissue homogenization for biological and medical research

Tested with

OV 625 Digital (Code F20900475) and **D20-S5S-P-R5S** Dispersing tool (Code A00000473)



Introduction

Tissue homogenization is a sample preparation process in which animal and plant cells, or microorganisms are prepared prior to extraction of intracellular substances such as proteins, DNA or RNA. The cell membrane has to be ruptured to release the contents of the cell. In order to test the samples with chemical and physical analyses, samples are homogenized to an appropriate degree of fineness and uniformity. A proper sample preparation can impact throughput, data quality, and cost of analyses.

Cells homogenization can be achieved in many different ways, classified according to the methods used. One of these, is the use of the OV 625 Digital disperser.

Rotor/Stator working principle

The high-speed rotation of the rotor within the stator exerts a suction force, drawing liquid and solid materials towards the centre of the dispersing tool. The centrifugal force of the rotor allows larger particles to come into contact with the stator, resulting in a decrease in their size. The motion is continuous and constant throughout the mixing cycle and the new, smaller particles are ejected from the dispersing tool and new material is reintroduced maintaining the mixing cycle. The sample is thus subjected to a mechanical shear force which allows it to be homogenised, emulsified, suspended or rapidly disintegrated, to make it suitable for mechanical tissue disruption.

Instruments and experimental settings

The homogenization process of the biological tissue starts introducing the sample into a vial and operating the [OV 625 Digital](#) for 2 minutes, for the complete homogenisation.

The use of the **OV 625 Digital** with the **D20-S5S-P-R5S Dispersing tool** enables the homogenisation of biological tissues from 0.2 ml to 50 ml of volume.

Image A and Image B show the dispersion of a biological sample in 20 ml of solution; the Image C illustrates the dispersion of the same sample in 1 ml of solution.



Image A



Image B



Image C

It is important to remark that the sample homogenization required an extremely short time, avoiding the solution overheating which could negatively affect the entire analysis.

Conclusion

The [OV 625 Digital](#) enables to achieve excellent results in an extremely short time. It can be used in Life Science industry for tissue homogenization, when further analysis, such as extraction of intracellular substances such as proteins, DNA or RNA, have to be performed.