

Cell fractionation and mitochondrial function - lab report example

[Science](#), [Biology](#)



Cell Fractionation and Mitochondrial Function

Introduction The main aim of this laboratory report was to use differential centrifugation method in determination of cell fractionation and mitochondrial function. This is a technique in which the cell's contents are spun first at a low speed to separate out larger particles such as the nucleus; what does not sediment at this speed is then placed in a clean tube and spun at a higher speed to separate out the next-larger particles - in this case, the mitochondria. The particles which have sediments, forms a pellet in the bottom of the tube (or on the lower side in the case of rotors which hold the tubes on an angle) and, particularly in the first spin, cell membrane material may appear as a floating skin or pellicle on the surface of the tube. The remaining liquid in the tube is called the supernatant, or " supe" for short.

Materials and methods

We followed laboratory procedures from the laboratory manual from page 50 to 53

Discussion

Graph representation resulting from reduction of DCIP as a function of time for DCIP tube 2.

Graph representation resulting from reduction of DCIP as a function of time for DCIP tube 4.

Graph representation resulting from reduction of DCIP as a function of time for DCIP tube 6.

The higher the concentration of mitochondria, the lower the absorbance density. This is because in the mitochondria cell membrane, there is an integral membrane protein referred to as succinate dehydrogenase that has

the capacity to reduce the DCIP and when DCIP is reduced, the OD is reduced as well. Basing on the graphs represented above, it is clearly evident that the mitochondria came down in pellet from 12000xg. In graph representing tube 1, it is observed that the O. D decreased with time. This means that There was mitochondria in the solution which reduced the DCIP with time. The enzyme Succinate dehydrogenase is the one responsible for this reaction. In graph representing tube 4, it is observed that, there is no change of O. D with time. this means that mitochondria was absent indicating that there was no mitochondria in the supernatant. Hence went down in the pellet as indicated in graph representing tube 2. In graph representing tube 6 it is also observed that, there is no change in the O. D with time and this as well indicate that there was no mitochondria in the tube because it was water which was added. Therefore in conclusion, it is evident that the mitochondria came down in the pellet