

# Carrot regeneration essay sample

[Science](#), [Genetics](#)



Carrot tissue culture laboratory is an experiment designed to explore regeneration and the totipotency of carrot tissue through asexual reproduction. Tissue culture is used as a method for commercial and research applications through which a single plant cell can be modified and grown into a mature plant with either the same or different characteristics. This is helpful in genetic engineering by mass production of plants that are disease-free, secondary plant products and mutants. For this procedure a portion of a desired plant called an explant, is cultured in vitro in a special medium that fosters rapid multiplication. The theory of plant tissue culture comes from plant's ability of totipotency, which allows nonembryonic organ or cell to develop along a path similar to that of a zygote in which a new organism is formed identical to the previous organism that the cell came from.

For this experiment, explant tissue will be used from a carrot taproot and the stages of plant tissue culture will be observed. The tissue is taken from a carrot in vivo and is placed into a test tube culture conditions. The test tube culture conditions will stimulate the cells to divide and form an undifferentiated, irregular mass of cells called the callus. Through sub culture the carrot callus is induced to form roots and shoots. At the development of new plants, when the callus is 2.5-5cm tall, the tissue is removed from culture and transferred into a potting medium for further growth.