UNIVERSITY OF SOUTHERN CALIFORNIA

BISC320L: Formal Lab Report

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November 12, 2014

1 INTRODUCTION

DNA is present in all living organisms and encodes genetic information. It is made up of four bases **A**denine, **T**hymine, **G**uanine and **C**ytosine. These bases join each other through giving rise to an alternating sugar-phosphate backbone. C and T are pyrimidines while G and A are purines. DNA is a double stranded entity where A base pairs with T through a double bonded structure while G always pairs up with C through a triple bond.

Any study involving the DNA requires the DNA to be extracted from the cells. In this particular experiment we relied on cheek cells for extracting DNA. DNA is present in every cell. In

eukaryotes it is present inside the nucleus surrounded by a nuclear membrane. The cell itself is enclosed by a cellular membrane. The membranes are generally made of phospholipids.

1.1 Isolation of DNA from cheek cells

A good source for extracting DNA in humnans is the cheek where the cells from the lining can be easily scraped given that they are loose. In order to extract the DNA these cells, it needs to be separated from the rest of the molecules contained in the cell. The basic principle underlyting such a separation technique involves washing the cells with detergent that throws open the cell membrane and the nuclear membrane. Since these membranes are primarily lipids, they can easily be *digested* by lysis buffers. In order to separate the DNA from the rest of the cellular components we use protease stock solution that breaks the proteins into smaller pieces. This also causes the wound DNA to unwind and separate from the proteins. The last step involved adding alcohol(Ethanol). Alcohol reduces the solubility of DNA causing the DNA to precipitate while the rest of the proteins and lipids become part of the solution. This becomes evident as the DNA forms a white precipitate at the bottom of the test tube. http://www.sfponline.org/uploads/dnaextractlab.pdf

1.2 PCR

The amount of DNA extracted from cells is often limited. In order to perform further experiments the seq Polymerase Chain Reaction or PCR is a technology used to make multiple copies of a sequence of DNA.

Category	Number of Genotypes	Frequencies(# genotypes/Total)
Homozygous(+/+)		
Heterozygous(+/-)		
Homozygous(-/-)		
	Total=	=1

Category	Number	Class Allelic Frequencies
total (+) alleles = p		
Total (-) alleles = q		
	Total Alleles=	=1.00

4 Discussion

4.1 What important components are in the PCR Master mix?

4.2 Explain why precise target DNA sequence does not get amplified until the third cycle is completed. Make Diagram :-/

5 Conclusion