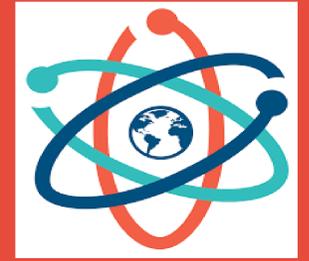




Ultraviolet Yeast Experiment



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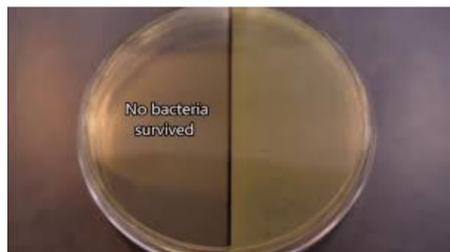
Introduction

Within skin cancer research and prevention, there has been many revolutionary ways to prevent this cancer. One of the most popular ways that most people use is sun block! Sun block absorbs or reflects some of the sun's ultraviolet radiation and thus helps protect against sunburn. In our experiment, we have taken mutant yeast and normal yeast (*Saccharomyces Cerevisiae*) used the yeast as a substitute for our skin. Similar to our skin, the yeast is also sensitive to ultraviolet radiation. We have created a hypothesis that expired sunblock does NOT protect you from the sun.



Purpose

The purpose of this experiment was to conclude whether expired sunscreen could work as well as non expired sunscreen through testing yeast on agar plates under UV ray lights.



Background

Why did we choose to do this experiment? It's simple! Most people don't think that expired and non expired sun blocks matter. We came to test that theory since a large majority of us use sun block: whether it's going to the pool or just sitting outside, sunblock has become an important essential to our lives. We mostly overlook this simple product but in actuality it does wonders for us. It helps to protect our skin from the awful UV rays the sun produces and prevents certain cancers from growing. It reduces the appearance of sun damage, discolorations, and dark spots. It also helps prevent saggy, leathery skin, and wrinkles.

Sunblock comes in many different types FPS and types such as spray or a cream. Out of all the options we could have chose from, we chose to test expired versus non expired because we felt like that mattered the most. We felt like that we the most overlooked part about sunblock and most people don't pay attention to expiration dates. We came to test the theory of "if expired and non expired sunblock really makes a difference".



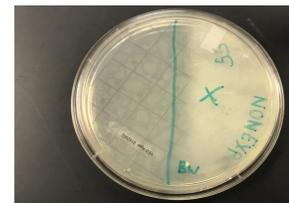
Method

1. Take two plates with agar and add "Saccharomyces cerevisiae" yeast to plates
2. Cover plates with plastic wrap
3. Add expired sunscreen to one half of plate and put under UV ray light
4. Add normal sunscreen to second plate on one side and also put under led light
5. Observe results to see if there was growth. (Growth means that the sunscreen worked; It protected against the light)

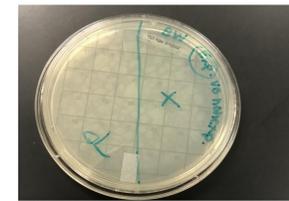


Results

In our results... the one below is the non expired sunblock, as you can see, the mutated yeast was able to flourish and grow. This proves that the sunblock DOES work against the sun's ultraviolet rays.



In the results below was the expired sunblock, As you can see, the side that was covered by the foil was unaffected, so the yeast grew. But with the side that was exposed to direct ultraviolet lights, nothing grew!



Hypothesis

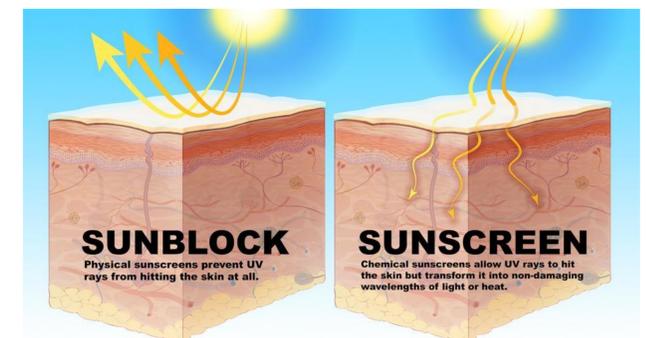
The expired sunscreen will not protect the yeast while the non-expired one will protect the yeast and see growth.



Conclusion

In conclusion, our hypothesis was correct! We learned that expired sunblock doesn't work as well as non-expired sunblock. As you can see by the evidence on the left, the expired sunblock (while exposed to ultraviolet rays) died and could not reproduce. This is similar to your skin cells while exposed to the sun's ultraviolet rays.

On the other hand, the non-expired sunblock did work. As you can see on the left, the yeast was able to grow and flourish in the ultraviolet light while protected by the sunblock. What we learned from this experiment is that you should be safe and throw out all your old sunblock since it doesn't work!



Why Yeast?

Our group used a type of yeast called "saccharomyces cerevisiae." Yeast is a good choice to simulate human skin cells because humans share some of the same DNA as yeast. Yeast cells also replicate and divide every two hours or so making culture labs go quicker. Not to mention yeast is safe to humans!

