



# Applications of Selenium Telluride Nanoparticles in Medicine: In Search of an Alternative Cancer Treatment

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Intellectual  
Achievement  
and Research

## SUMMARY

This past summer I collaborated with Dr. Kelly Nash and the members of her Biophysics laboratory. I contributed to a project aimed at finding an alternative treatment to cancer by using the properties of Selenium Telluride nanoparticles and their effects on human body tissue. My daily responsibilities included reading scientific literature and synthesizing nanoparticles by Pulsed Laser Ablation in Liquid. Once the quantity and variety of nanoparticles were satisfactory, the nanoparticles were introduced to various cancerous and non-cancerous cell lines. The promising results of these tests helped me achieve my main goals:

- Learn more about the possible applications of physics concepts in medicine, and
- Positively impact the project I was involved in.



## SPICES

*Intellectual Achievement and Research:*

My first time conducting research outside the classroom has been an exhilarating experience that taught me the fundamentals of the scientific method. I look forward to applying this knowledge to complete this project and share it with the Biophysics community.

## HERBS

*Resilient:*

When procedures did not go as planned, I had to be resilient, determine the source of error, and try again.

## LEARNING OUTCOMES

- Learned how to fully operate a pulsed laser ablation system at various wavelengths and energies.
- Gained new skills for analyzing and discussing scientific articles, which contributed to my *Intellectual Dexterity*.
- Found the *Creative Courage* to come up with new ideas when facing experimental setbacks.

## IMPACT

- Heavily contributed to the synthesis of nanoparticles used for the project.
- To help future members of our lab group, I filmed and edited a video tutorial explaining all the steps required to synthesize nanoparticles by laser ablation.
- Brought new ideas to the lab team through weekly presentations.
- Modified a camera so that it can capture parts of the Infrared spectrum. Since the laser we used emits infrared light, it is not visible to the naked eye. This camera increases safety by allowing the observer to detect what comes in contact with the laser.

## ADVICE

UTSA has countless research opportunities for undergraduates. If you want to get started in research but don't know how, don't worry, it's a lot easier than it seems! Just email the professor of your choice, introduce yourself, and express your interest. Remember that research professors are very busy so do not be discouraged if you don't hear back promptly. Before meeting with the professor in person, **DEFINITELY** read some of their recent publications to show that you have done some homework.

You got this!

