



Colorado Science and Engineering Fair

2025 Individual Project Abstract Form

Please print 2 copies of the completed form. Sign both copies, keep 1 for your notebook and submit 1 copy to your Regional Fair Director with your other paperwork.

Title of Project: Light Triggers on Serotonin Levels

Finalist's Name: Levi Spencer

School and City: Liberty school, Joes

Sponsor's Name: Linda Fogale

Category: Animal Sciences

Division: Junior (grades 6 - 8)

Abstract (250 words or less):

The purpose of this project was to test if the levels of serotonin change in crayfish due to changes or flickers in light. The hypothesis was that when subjected to flashing lights there will be an increase in serotonin levels in the crayfish in a manner like those seen in humans. This was tested by putting the crayfish in separate groups. One group of crayfish were in the light control, and another group of crayfish were in the dark control. The other two tanks were the light experimental group and the dark experimental group. Blood samples were taken from two crayfish in each control tank once per day, over the span of three days. In the experimental tanks, blood was drawn from three crayfish. One blood sample before, and then the crayfish were put into a strobe light for one minute and a blood sample was taken after. Then the samples were put into the freezer. The levels of serotonin in the blood samples were tested using a competitive ELISA assay kit. The results from the tests show that the levels of serotonin in crayfish increased after being subjected to strobe light for one minute. The light control crayfish had higher levels of serotonin than the crayfish in the dark control. Both of these showed an increase in serotonin levels after the strobe. This data does support the hypothesis that when subjected to, there will be an increase in serotonin levels in the crayfish in a manner similar to those seen in humans.

I hereby certify that the above statements are correct and the information provided in the Abstract is the result of one year's research. I also attest that the above properly reflects my own work.

Finalist's Signature:

Date:

In addition, all students must complete the ISEF Student Checklist (1A), Research Plan, Approval Form (1B), and Checklist for Adult Sponsor (1), and any other ISEF forms required for this type of project. See the International Rules and Guidelines for form requirements. Return COPIES of all of these forms to your Regional Fair Director with you Finalist Verification/Permission Form. **A signed copy of this form must be included in your notebook.**