

GREATER SAN DIEGO SCIENCE & ENGINEERING FAIR (GSDSEF)
PROJECT PROPOSAL/SIGNATURE* FORM (GSDSEF-1, 2015)

This form must be completed and signed prior to starting project work. It must be placed in the student's notebook with an ABSTRACT OF THE PROJECT for the GSDSEF Screening Fair. (Use the "Tab" key to move from line to line)

1. Project Title The Anti-cancer Effect of Green Tea and Ashwagandha

Is this a continuation of a previous project? Yes No

2. STUDENT'S NAME (Last, First, Middle) Lu Lynn Xia

2a. Partner's Name (for Senior Division 2 person projects only) _____

EACH SENIOR DIVISION PARTNER MUST SUBMIT A SEPARATE PROJECT PROPOSAL FORM.

3. Address, City, Zip 11347 Legacy Canyon Place, San Diego, 92131

4. Phone 619-373-5841 email skater.lynn@gmail.com

5. School Marshall Middle School Grade 8th

6. Teacher Mrs. Gillum

7. This project involves (check all that apply):

Live Vertebrate Animals (GSDSEF-2, 2015)

Humans as subjects, helpers, or interviewees (GSDSEF-3, 2015)

Hazardous Substances (anything that could cause injury) (GSDSEF-4, 2015)

Chemicals

Infectious Agents

Bacteria, Fungi and/or Molds

Mutagenic Agents

Carcinogenic Agents

Teratogenic Agents

Human or Other Vertebrate Tissue (GSDSEF-5, 2015)

8. WHERE REQUIRED (see #7 above), the following supplemental forms must be completed and included with the project proposal form (CHECK ALL THAT APPLY):

Certification of Humane Treatment of Live Vertebrate Animals (GSDSEF-2, 2015)

Certification of Compliance of Research Involving Humans (GSDSEF-3, 2015)

Certification of Hazards Control (GSDSEF-4, 2015)

Certification of Vertebrate Tissue Source & Safety (GSDSEF-5, 2015)

9. Location where experimental procedures will take place: They will take place in a company lab.

10. People, companies, etc. providing equipment, materials, workspace: Optimum Therapeutics, Dr. Ze Lu

11. Describe, in 200 – 250 words, the planned project/experiment and the procedures to be used:

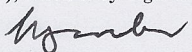
The object of this study is to investigate if there is a therapeutic benefit in combining green tea and ashwagandha, in the form of dietary supplements, to fight against cancer. Three human cancer cell lines including breast cancer MCF-7, prostate cancer PC3 cells, and pancreatic cancer Hs766t cells are used. Cells will be maintained in a growth culture medium supplemented with fetal bovine serum, non-essential amino acids, and penicillin/streptomycin antibiotic at a temperature of 37°C in a humidified atmosphere containing 5% CO₂. Green tea and Ashwagandha supplements will be purchased from CVS pharmacy. 6- and 24 well plates will be used for cell culture and drug treatment. The drug effect will be evaluated by short-term MTT assay and long-term clonogenic assay. For MTT assay, briefly in each well of 24 well plates, 10,000 cells in 1 ml of medium will be seeded overnight. On the next day the culture medium in each well is replaced with 1 mL of a culture medium containing drugs or no drugs (untreated or control group). After 48 hours, the cells are incubated with MTT reagent for 4 hours prior to the addition of 200 µL freshly prepared isopropanol-HCl solution. The absorbance read at 570 nm using a microplate spectrophotometer. For clonogenic assay, the cells are detached from each well after 48 hours of treatment. 1,000 cells from each group will be further seeded into a petri dish. After 9 days, the formed colony is fixed in 10% buffered formalin for 10 minutes, stained with crystal violet and then finally counted.

GREATER SAN DIEGO SCIENCE & ENGINEERING FAIR
(GSDSEF) PROJECT PROPOSAL/SIGNATURE FORM (GSDSEF-1, 2015)
REQUIRED SIGNATURES:

Student:

I have read the *Rules and Regulations* of the GREATER SAN DIEGO SCIENCE AND ENGINEERING FAIR and certify that my project complies with them. I understand that failure to meet the terms of these rules and regulations will result in the disqualification of my project.

SENIOR DIVISION: GSDSEF forms meet the requirements of California law; therefore, all Senior Division students agree that, should they be selected to compete at the 2015 *Intel International Science and Engineering Fair (Intel ISEF)*, when they sign all required *Intel ISEF* forms they will predate them to agree with the date on this form.

 9/1/14

Student Signature/Date

Parent/Guardian:

I am aware of all potential safety hazards connected with this project, approve the precautions being taken to ensure my student's safety and will, when appropriate, provide guidance and/or supervision. I understand that failure to comply with *Rules and Regulations* of the GREATER SAN DIEGO SCIENCE AND ENGINEERING FAIR will result in the disqualification of the project.

 9/1/14

Parent Signature/Date

Teacher:


I approved this project prior to the student beginning work on it and verified that it complies with the *Rules And Regulations* of the GREATER SAN DIEGO SCIENCE AND ENGINEERING FAIR. Any concerns about the project's design, appropriateness, safety, or legality were submitted to the GSDSEF Scientific Review Committee (SRC) for approval prior to allowing the student to proceed. I understand that failure to comply with the Fair's *Rules And Regulations* will result in the disqualification of the project. I will provide all needed supervision (other than that specified on other included forms) and will ensure that this proposal and all required supplemental forms are included in the student's notebook at the screening fair. I will have the student, if invited to apply for entrance to the GSDSEF, submit all SRC requested certification forms with their *2015 Application for Entrance*.

 9-1-14

Teacher Signature/Date

Additional Advisor (if required)

When certification forms (*GSDSEF 2, 3, 4 or 5, 2015*) are signed by someone in addition to the science teacher, a signature here ensures that the procedures described on these forms will be followed.

 9/1/14

Additional Advisor Signature/Date