

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 Developing a Contact Lens Solution with an Expanded Range of Antimicrobial Activity
Is this a continuation of a previous project? Yes No

2. STUDENT'S NAME (Last, First, Middle) Kim, Janie

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 11415 Mayapple Way, San Diego, 92131

4. Phone (858)-603-2788 email janie98@gmail.com

5. School Scripps Ranch High School Grade 10

6. Teacher Mrs. Elaine 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: At UCSD: Biomedical Research Facility
4th Floor, Room 4220

10. People, companies, etc. providing equipment, materials, workspace: Dr. Victor Nizet
(UCSD Health Sciences)

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

This project will expand on the previous experiments from Year One and Year Two that tested five contact lens solutions against Methicillin-Resistant Staphylococcus Aureus and Pseudomonas Aeruginosa. This experiment will test two pairs of contact lens solution preservatives (biocides)—Chlorhexidine Gluconate and Polyaminopropyl Biguanide, and Benzyl Alcohol and Edetate Disodium (EDTA)—for effectiveness against the Gram-Positive bacteria Pseudomonas Aeruginosa and the Gram-Negative bacteria MRSA. It was already found that Chlorhexidine Gluconate combined with Polyaminopropyl Biguanide is a very effective combination against the Gram-Positive MRSA; it remains to be seen whether whether Benzyl Alcohol and Edetate Disodium will be very effective against the Gram-Negative Pseudomonas as hypothesized. This project will test this hypothesis by performing the same serial dilutions to find the minimum inhibitory concentration (MIC).

The MICs will be done by diluting the preservatives with CA-MHB in an assay plate, then transferring the diluted mixtures to a different, fresh assay plate. A bacterial solution will be prepared by plating bacteria, growing it, taking a single colony, growing it in liquid media, washing it, diluting it to optical density 0.40, and diluting this again to 10%. This bacterial solution will be added to the second assay plate and the plate will be incubated.

This project will also test whether Benzyl Alcohol, EDTA, and Chlorhexidine combined will have a greater range of antimicrobial effectiveness, also with a serial dilution to find the minimum inhibitory concentration (MIC).

Just before the screening fair, attach a 200-250 word ABSTRACT of your project to this form.

*Continue to next page for required Signatures

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 prodate them to agree with the date on this form.

Janie Van 8/3/14
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.

Summer 8/3/14
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*.

ESPOK 8-3-14
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.

Lee M 1/2/15
Additional Advisor Signature/Date