**Broward County Regional Science & Engineering Fair**

**2017 Research Plan**

***To be Completed BEFORE Experimentation***

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| **Student Name** |  |
| **Broward County School** |  |
| **SSEF Category** |  |
| **Teacher Name** |  |

**Question or Problem being addressed - Title**

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**Hypothesis/Engineering Goals**

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**Rationale**

*Brief synopsis of the background that supports your research problem and explain why this research is important scientifically and if applicable, explain any societal impact of your research.*

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**Materials List**

*List of all items used in research. Make sure to include concentrations of all chemicals, source and amount of all living organisms, and all equipment used.*

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**Procedures**

Detail all procedures and experimental design to be used for data collection (see Research Plan/Project Summary Instructions, ISEF Rules and Guidelines, pg. 30). See pages 8-22 of the ISEF Rules and Guidelines for specific inclusions involving Human subjects, vertebrate animal, potentially hazardous biological agents, and/or hazardous chemicals, activities or devices. **Make sure to clarify which procedures will be completed by the researcher and which will be completed by others.**

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**Human participant research:** Procedure must include the following items!

* Describe who will participate in your study (age range, gender, racial/ethnic composition).
* Identify any vulnerable populations (minors, pregnant women, prisoners, mentally disabled or economically disadvantaged).
* Where will you find your participants?
* How will they be invited to participate?
* Will there be incentives for participation? Will they be coercive?
* What will participants be asked to do?
* Will you use any surveys, questionnaires or tests?
* What is the frequency and length of time involved for each subject?
* What are the risks or potential discomforts (physical, psychological, time involved, social, legal, etc.) to participants?
* How will you minimize the risks?
* List any benefits to society or each participant.
* Will any identifiable information (e.g., names, telephone numbers, birth dates, email addresses) be collected?
* Will data be confidential or anonymous? If anonymous, describe how the data will be collected anonymously. If not anonymous, what procedures are in place for safeguarding confidentiality?
* Where will the data be stored?
* Who will have access to the data?
* What will you do with the data at the end of the study?
* Describe how you will inform participants about the purpose of the study, what they will be asked to do, that their participation is voluntary and they have the right to stop at any time.

**Vertebrate animal research:** Procedure must include the following items!

* Describe potential ALTERNATIVES to vertebrate animal use and present a detailed justification for use of vertebrate animals
* Explain potential impact or contribution this research may have to science.
* Include methods used to minimize potential discomfort, distress, pain and injury to the animals during the course of experimentation.
* Detail chemical concentrations and drug dosages.
* Detail animal numbers, species, strain, sex, age, source, etc.
* Complete a Mortality Form.
* Describe housing and oversight of daily care and disposition of animals at the termination of the study.

**Potentially Hazardous Biological Agents:** Procedure must include the following items!

* Describe Biosafety Level Assessment process and resultant BSL determination.
* Complete appropriate Biosafety Form. Include source of agent, source of specific cell line, etc.
* Detail safety precautions and specify methods of disposal.

**Hazardous Chemicals, Activities & Devices:** Procedure must include the following items?

* Describe Risk Assessment process.
* Detail chemical concentrations and drug dosages.
* Describe safety precautions and procedures to minimize risk.
* Specify methods of disposal.

**Safety and Risk Procedures**

Description in detail of method/procedures for limiting any risks, maintaining safety, and proper disposal if needed. See statements above for more information.

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**Data Analysis**

Describe the procedures you will use to analyze the data that answer research question, hypothesis, or engineering goals.

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**Bibliography**

List at least five (5) major references (e.g. science journal articles, books, internet sites) from your literature review. Please use a variety of sources, five sources from the internet will not suffice.

* If you plan to use vertebrate animals, one of these references must be an animal care reference.
* If you plan on using human subjects, one of these references must be from the listing of human subject reference in the ISEF Rules and Guidelines.
* Include MSDS/SDS citation for all hazardous chemicals used in experimentation.
* If you plan on using PHBAs, one of the references must include aseptic technique.

List of possible references/resources are included in the ISEF Rules and Guidelines, pages 20-22.

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**Broward County Regional Science & Engineering Fair**

**2017 Post Project Summary**

***To be Completed AFTER Experimentation***

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| **Student Name** |  |
| **Broward County School** |  |
| **SSEF Category** |  |
| **Teacher Name** |  |

**Question or Problem being addressed - Title**

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**Hypothesis/Engineering Goals**

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**Procedures**

Detail all procedures and experimental design to be used for data collection (see Research Plan/Project Summary Instructions, ISEF Rules and Guidelines, pg. 30). See pages 8-22 of the ISEF Rules and Guidelines for specific inclusions involving Human subjects, vertebrate animal, potentially hazardous biological agents, and/or hazardous chemicals, activities or devices. **Make sure to clarify which procedures will be completed by the researcher and which will be completed by others.**

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* What will participants be asked to do?
* Will you use any surveys, questionnaires or tests?
* What is the frequency and length of time involved for each subject?
* What are the risks or potential discomforts (physical, psychological, time involved, social, legal, etc.) to participants?
* How will you minimize the risks?
* List any benefits to society or each participant.
* Will any identifiable information (e.g., names, telephone numbers, birth dates, email addresses) be collected?
* Will data be confidential or anonymous? If anonymous, describe how the data will be collected anonymously. If not anonymous, what procedures are in place for safeguarding confidentiality?
* Where will the data be stored?
* Who will have access to the data?
* What will you do with the data at the end of the study?
* Describe how you will inform participants about the purpose of the study, what they will be asked to do, that their participation is voluntary and they have the right to stop at any time.

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* Describe Biosafety Level Assessment process and resultant BSL determination.
* Complete appropriate Biosafety Form. Include source of agent, source of specific cell line, etc.
* Detail safety precautions and specify methods of disposal.

**Hazardous Chemicals, Activities & Devices:** Procedure must include the following items?

* Describe Risk Assessment process.
* Detail chemical concentrations and drug dosages.
* Describe safety precautions and procedures to minimize risk.
* Specify methods of disposal.

**Safety and Risks Procedures**

Description in detail of method/procedures for limiting any risks, maintaining safety, and proper disposal if needed. See statements above for more information.

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**Data Analysis**

Discuss the data/results of the experimentation. Be sure to reference the tables/graphs/illustrations that you have collected.

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**Conclusion**

Draw a conclusion that supports or fails to support your hypothesis/engineering goals.

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**Bibliography**

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