➔ For the purpose of pre-college research, **Biological Agents** are defined as (but not limited to): microorganisms (bacteria, viruses, viroids, prions, rickettsia, fungi, and parasites), recombinant DNA technologies, human or animal fresh/frozen tissues, blood, or body fluids.

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## Working Title

## Rationale (Problem)

A few sentences to summarize your background research that supports your research problem.

(Prompts: *Why is this important? Is there a global or societal need for this research? Why does anyone care about this research?*)

## Hypothesis(es)

What is being tested and the expected outcome(s).

(Suggested format: *If, then. If* something is done*, then* something will result*.)*

## Procedure

➔ Review page 12-14 of the MSEF manual to see if there are specific guidelines, safety, or forms related to the materials and/or procedures you are using.

➔ If you determine that your experiment is listed as "**requires pre-approval**", you will be prompted to complete the form(s) below. *If you have completed this template, most of the required information will be ready for you to copy and paste when you create your project in zFairs!*

- Risk Assessment Form 3 *(preview-only)*
- Potentially Hazardous Biological Agents Risk Assessment Form (6A) *(preview-only)*
- Human and Vertebrate Animal Tissue Form (6B) *(preview-only)*

This portion can be subdivided into the sections below:

**Location**

Does this experiment require that you work in a science lab at school or business, called BSL-1 or BSL-2?

**Safety**

These steps will vary according to the types of projects. Identify any potential risks and how they are addressed/minimized in your experiment. Refer to all safety equipment used, including, but not limited to, goggles, gloves, closed toe shoes, working conditions (BSL cabinet, fume hood, fire extinguisher if combustion is possible) and supervision.

- ➔ For any biological agents, describe the BOTH proper level of PPE (personal protective equipment) AND the lab techniques, such as sterile or aseptic technique, that are used to reduce any potential risk.

**Experimentation**

Sequentially numbered steps that cover the procedure from beginning to end. The steps should be detailed enough for someone else to be able to replicate the study from your steps.

**Materials & Equipment**

Include, in list format specific names and concentrations of chemicals, equipment used, locations, how materials are obtained, etc.

- ➔ For any biological agents, you must provide the species name, the quantity being used, and the source of the sample(s) - either where purchased or if collected from the environment. *You will need to get this detailed information from your supervising teacher or scientist.*

**Data Analysis**

Include a description of the techniques or statistical tests that will be employed to analyze and discuss the results of the experimentation.

**Clean-up and Disposal**

For all biological agents, include the manner in which the biohazard materials are disposed of or cleaned for future use (ie, sterilization, incineration, etc.).

## Bibliography

Key sources on your topic, from your literature review and/or background research, that helped you write this plan. *APA format is recommended.*

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## Summary or Addendum

This section is only necessary if experimentation changed through the course of the research

If additional SRC or IRB approval was needed, you must also provide a letter from the SRC, explaining the changes, which is then signed and dated.