DEAN'S ADVISORY COMMITTEE
STUDENT VENTURE GRANT APPLICATION

Please read all instructions and regulations on the reverse side of this sheet prior to the completion of this form. The 8 copies of your proposal are due in the Dean's Office on the 2nd Friday of the Block by 1:00 p.m. If you have questions, please contact Rita Zook at x6686 or email rzook@coloradocollege.edu.

DATE SUBMITTED ______________________
NAME __________________ CLASS __ WORNER BOX ___________
ID # __________________ HOMETOWN (Not Address) ________________
NAME __________ CLASS __ WORNER BOX __ EXT. ______
ID # ______________ HOMETOWN (Not Address) ____________________
STUDENT RESEARCH √ LIFE OF THE MIND ______ CONFERENCE ______

PROJECT TITLE
______________________________

BRIEF DESCRIPTION OF INTENDED USE OF FUNDS
The money will be used entirely on supplies necessary to complete research on GASP in V. Fischeri. First, I will determine if GASP occurs among V. Fischeri. If they do, I will test V. Fischeri mutants for GASP activity to learn which genes are related to GASP.

PROPOSED DATE/BLOCK OF USE 2010 Blocks A-C
NAME OF FACULTY SPONSOR Prof. Phoebe Losstrah

HAVE YOU BEEN THE RECIPIENT OF A PREVIOUS VENTURE GRANT Yes ___ No √
IF SO, WHAT AMOUNT? ______ WHEN? ______ REPORT SUBMITTED? ______

TOTAL AMOUNT OF VENTURE FUNDS NOW REQUESTED $1,000

ARE YOU SEEKING OTHER FUNDING FOR THIS PROPOSAL? Yes ___ No

IF YES, WHAT IS THE SOURCE? Figge-Bourquin (WILL) $500

If this proposal is approved, I understand that it is my responsibility to notify the Dean's Office immediately if I do not pursue my project as proposed to the Dean's Advisory Committee. I further understand that all funds are to be used according to the proposal as submitted and approved by the Dean's Advisory Committee. Any changes to an approved project must be submitted to the Chair of the Committee for approval. Please note: the IRS requires that we report Venture Funds as taxable income.

SIGNATURE __________________ DATE Mar. 24, 2008

Approved $1000
If approved, I will use the Venture Grant to fund lab supplies in order to study the Growth Advantage in Stationary Phase (GASP) phenomenon in *Vibrio fischeri*. GASP is a phenotype in bacteria that gives them a survival advantage over other bacteria that do not have this phenotype. It is important to study because it can explain how some species of bacteria can survive extreme starvation. We hypothesize that *V. fischeri* do GASP, because part of their life cycle involves severe famine while waiting for their mutualist host to pick them up.

First, I will determine if *V. fischeri* are even capable of GASping. In order to do this, I will grow a culture of marked (probably marked with an antibiotic resistance gene) to starvation phase. The starvation phase of the bacterial growth curve occurs after nearly all (>99%) of all the bacteria remaining in stationary phase die due to a lack of resources and/or buildup of waste. These bacteria will be collected and co-grown with a strain of *V. fischeri* that had equal competitive fitness with the old bacteria before they were starved. This strain will be marked with a different antibiotic resistance gene. If the old strain of bacteria outcompetes the young strain, we can say that *V. fischeri* GASP.

If they are, the next step is to test GASP in mutants. Each strain of mutants contains a transposon that interrupts a specific gene. We know which gene is interrupted in each strain because of sequencing done by collaborators at the University of Wisconsin. If the mutants GASP differently than the wild-type, we can assume that the mutation affected a gene related to GASP. Learning which genes are related to GASP in *V. fischeri* will focus further research into the phenomenon.

This project will further my education and career goals in a number of different ways. First, I will expand my knowledge in a field that interests me. I chose Intro to Microbiology for my FYE and have already worked on two separate occasions on other projects in microbiology.
The GASP phenomenon is very interesting to me, and this project would give me an irreplaceable opportunity to study it. Second, I intend to use data from this study as the basis of a thesis. Beyond the obvious advantage of allowing me to graduate with honors, the research I will need to do for it will grow my knowledge yet further. Third, I intend to go to medical school after I leave Colorado College, and admissions committees look favorably upon lab work. Finally, the project will expose me further to a possible career. I may not end up at medical school later, so it is important to explore other careers that I have interest in.

In addition to the benefits to me, this project will benefit the college. As already mentioned, I will use this study to write a thesis, which will serve as a permanent resource for future students. For instance, I know that Prof. Lostroh has used theses from previous students in her classes and for other students that help her with her research. Also, I will present my research at the Biology Department's Bio Day. The event is well-attended by Colorado College students, and will expose them to an exciting field of research. The research also has the potential to boost the reputation of the college. My work may later be used by Prof. Lostroh in a study that is published in a highly regarded journal. Such favorable exposure of one of the school's tenured professors can only help this college.
<table>
<thead>
<tr>
<th>Material</th>
<th>Cost</th>
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<tr>
<td>Sterile 96 well plates-VWR #82050-721, 2 cases</td>
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<tr>
<td>Case of Petri dishes-VWR #25384-324, 2 cases</td>
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<td>Bacto-Agar-VWR #90000-760,</td>
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<td>Bacto-Tryptone- Fisher #DF0123-17-3,</td>
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<td>200 mL disposable filtration devices - VWR #28199-123,</td>
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<td>MOPS-VWR #AAA12914-36,</td>
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**Sum** $1,184.60

Note: Costs above $1000 will be covered by Prof. Lostroh's research funds or the Figge-Bourquin grant.