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Seamless Genetic Modifications

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Project Title: Seamless Genetic Modifications

Faculty or Research Mentor

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I have participated in RCEU previously (but not recently).

Project Summary

In many current methodologies the modification of a genetic target is coupled to the insertion of a selectable marker. The goal of this project is to design, develop and/or test new methods that permit the seamless modification of a genetic target (meaning that no selectable marker or other extraneous sequences are permanently associated with the modification).

Student Prerequisites

The candidate student must have initiative, intellectual curiosity and good communication skills (both written and oral). The candidate should have skill or interest in two or more of the following areas: Biology, Chemistry, Computer Science and/or Mathematics.

Student Duties

The successful candidate will search literature, present papers, order supplies, learn methods, design experiments, troubleshoot experiments, refine experiments, repeat experiments, present results, present a poster, and write a final report. The student will be immersed in all aspects of the research process.

Mentor Supervision and Interaction

The successful candidate will interact effectively with the mentor, with other group members, and with the scientific community. The successful candidate will fully engage and participate in the following supervised activities:

- a) Literature meetings (formal weekly meetings to share, present and discuss scientific literature with other group members)
- b) Lab meetings (formal weekly meetings to share, present and discuss recent experimental problems and progress with other group members)
- c) Bench meetings (ad hoc meetings to learn, demonstrate or troubleshoot a laboratory technique)
- d) Strategic Design meetings (ad hoc meetings to generate, prioritize and plan future experiments)
- e) One-on-One meetings (ad hoc meetings to provide evaluation and feedback or to critique posters or reports)
- f) Informal meetings (daily meetings, with flexible membership, to address any current plan, problem or proposal)
- g) All RCEU meetings