

Dear Faculty, IGERT Fellows, IGERT Associates and Students,

You are cordially invited to attend a Seminar presented by Stephanie Coffman. Please plan to attend.

Stephanie Coffman

IGERT Fellow

Date: Friday, March 14, 2014

Location: Bourns A265

Time: 11:00am

Identification of genes required for RNAi-mediated antiviral immunity in the animal model, *C. elegans*

Abstract:

We have previously shown that replication of Flock House Virus (FHV), a positive-strand RNA virus, in *C. elegans* induces an RNAi-mediated antiviral defense. This defense is sufficient to block accumulation of FHV that is lacking the viral suppressor of RNAi, B2. Further genetic analysis has revealed that the antiviral RNAi response requires many of the core components in exogenous RNAi, as well as additional factors that are dispensable for exogenous RNAi. Notably, recent studies have demonstrated that this pathway also restricts natural infection by Orsay virus, which is closely related to FHV. In this study, we established a forward genetic screen in *C. elegans* and identified 13 mutants that restrict the *in vivo* accumulation of an FHV replicon lacking the B2 protein and is thus highly sensitive to antiviral RNAi. Five of these alleles are defective in RNAi and are likely components of the core RNAi machinery, while eight are capable of RNAi and may be uniquely required for antiviral RNAi. These results indicate that our viral replicon-based genetic screen is capable of identifying genes in antiviral immunity and RNAi pathways. Undergraduates from UCR are continuing to screen and we are establishing tools to streamline the screening process using Video Bioinformatics.

