Title (Bold)
Student Name with Faculty Mentor's name
Department/Institution (probably either UW or community college)
Type of presentation (Oral, poster, or both)
Supporting Program(s) (INBRE, McNair, WRSP, Honors) Hometown, State

Investigating the Role of *ari-1* in *C. elegans*.

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ABSTRACT. The attachment of one or several ubiquitin (Ub) molecules to a target protein, ubiquitination, is an important post-translational protein modification. Ubiquitination of a target protein may lead to degradation via the proteasome, translocation, or alteration of activity. This process requires an E1 (Ub-activating), E2 (Ub-conjugating) and E3 (Ub-ligase) enzyme. A *C. elegans* homolog of the highly conserved Ariadne RBR E3 (ARIH1), *ari-1 (C27A12.8)* is highly expressed in muscles, neurons, and the germline, and has previously been found to function in pharyngeal development. However, deletion of *ari-1(tm2549)* did not produce any observable effect. This result is likely due to genetic redundancy as *C. elegans* possess two *ari* paralogs, C27A12.7 and C27A12.6. Recently, our lab generated a deletion in all 3 *ari* homologs (*ari3X*) using CRISPR technology. Partial sterility was observed and quantified in *ari3X* null mutants. The data indicate increased sterility OF *ari3X*, compared to wild type controls. Further analyses indicate a Mog (masculinization of germline) phenotype in sterile *ari3X* mutants, resulting in increased sperm production. An RNAi screen of a known E2 partner of *ari-1, ubc-18*, revealed increased sterility with *fbf(RNAi),* which has been shown to function in germline development. Based off this preliminary information, *ari3X* mutants were evaluated on *fbf(RNAi)* to elucidate their role in germline development. A drastic increase in sterility due to Mog, along with an unanticipated multivulval phenotype was observed for *ari3X* mutants on *fbf(RNAi)*. Taken together, these results indicate an important role for ARI-UBC-18 ubiquitination in germline development.