

Progress Towards the Cloning of *lin-38* and Identification of New Class A SynMuv Genes

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Vulval induction in the *C. elegans* hermaphrodite requires a receptor tyrosine kinase/Ras signaling pathway and is antagonized by the products of the synthetic Multivulva (synMuv) genes. The synMuv genes are grouped into at least three redundant classes: A, B, and C. Animals with one or more mutations in any one class are non-Muv, but mutations in genes in any two of the classes cause a Muv phenotype. Many of the class B and C genes encode proteins predicted to act in chromatin remodeling and transcriptional regulation. Five class A synMuv genes have been identified to date, four of which have been cloned and found to encode novel proteins. We are cloning the class A synMuv gene *lin-38* and hope to identify new class A synMuv genes.

lin-38 had previously been mapped between *rol-1* and *unc-52* on chromosome II. Using SNP mapping we have placed *lin-38* in a 30 kb region. We are attempting to clone *lin-38* by testing PCR products from that interval for rescuing activity and by determining the sequences of candidate genes in *lin-38* mutant strains.

We are also seeking to identify additional class A synMuv genes. All known class A synMuv genes were identified in screens that were unable to recover mutations that also caused sterility. Therefore, we performed F₂ clonal screens in the class B synMuv mutant backgrounds *lin-15B(n744)* and *lin-52(n771)*. We screened 19,500 haploid genomes clonally and isolated 27 independent mutations that cause a Muv phenotype, including two that appear to confer sterility. Twenty-six of these mutations affect genes previously known to cause a Muv phenotype in a class B synMuv background. The remaining mutant, *n4441*, is wild-type as a single mutant and synMuv in combination with loss of function of class B synMuv genes. We are currently mapping and characterizing this mutation.

Poster

Cell Fate Specification – post-embryonic

Keyword: Development: the vulva

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