

## Abstract/Session Information for Program Number 885C

[Print](#) [Close window](#)**Abstract Content**Program Nr: **885C**Functional Studies of the Class B SynMuvs and Characterization of the Class B SynMuv Gene *lin-61*.**Melissa Harrison**, Xiaowei Lu, Bob Horvitz. HHMI, Dept. Biology, MIT, Cambridge, MA 02139, USA.

The receptor tyrosine kinase/Ras pathway necessary for vulval induction in *C. elegans* is negatively regulated by two redundant pathways defined by the synthetic Multivulva (synMuv) class A and class B genes. Loss-of-function mutations in members of either class alone do not result in a Multivulva (Muv) phenotype, but animals homozygous for mutations in both a class A and a class B gene are Muv. The molecularly characterized synMuv class A genes encode novel proteins. Many of the class B synMuv genes, including *lin-35* Rb, *dpl-1* DP, *efl-1* E2F, *lin-53* RbAp48, *hda-1* HDAC, and *let-418* Mi-2, have homologs in other species that are involved in chromatin remodeling and transcriptional repression.

We have molecularly characterized a new class B gene, *lin-61*. LIN-61 is predicted to contain four MBT repeats, which are loosely defined sequences of approximately 100 amino acids found in a number of nuclear proteins, including the *Drosophila* Polycomb group protein Sex Comb on Midleg. We have identified the molecular lesions in ten *lin-61* alleles. *n3809*, a nonsense mutation at amino acid 159, is predicted to delete two-thirds of the protein and is a presumptive null. Animals homozygous for *lin-61* mutations, including *lin-61(n3809)*, are viable. We have used antibodies to characterize the expression and localization of LIN-61 in N2 as well as in class A and class B synMuv mutants. We are trying to identify proteins that interact with LIN-61 by performing yeast two-hybrid screens and co-immunoprecipitation experiments. Pothof et al. have shown that RNAi of *lin-61* results in an increased mutation rate<sup>1</sup>. We are therefore testing various loss-of-function *lin-61* alleles for this phenotype.

Some of the proteins that act in the synMuv B pathway physically interact *in vitro*<sup>2,3</sup>, in yeast two-hybrid assays<sup>4</sup>, or *in vivo* based upon co-immunoprecipitation experiments<sup>5</sup>. These results along with homology to proteins in other species suggest that many synMuv proteins may function together in transcriptional regulatory complexes. We are using co-immunoprecipitation experiments to further explore *in vivo* physical interactions among the synMuv proteins. Such studies may allow us to assign functionality to some of the novel class B genes, to analyze the effects of various synMuv mutations on physical interactions, and to identify potential sub-complexes among the synMuv proteins.

<sup>1</sup>Pothof et al. *Genes Dev* **17**: 443-448, 2003; <sup>2</sup>Ceol and Horvitz. *Mol. Cell* **7**: 461-473, 2001; <sup>3</sup>Lu and Horvitz. *Cell* **95**: 981-991, 1998; <sup>4</sup>Walhout et al. *Science* **287**:116-122, 2000; <sup>5</sup>Unihavaithaya et al. *Cell* **111**: 991-1002, 2002.

**Session Information****Session Title:** CELL CYCLE REGULATION, CYTOKINESIS, MITOSIS**Session Type:** POSTER, **Session Time:** Monday-Wednesday**Location:** ACKERMAN GRAND BALLROOM**Abstract Information****Poster Board Number:** 885C, **Presentation Time:** WED, JULY 2, 2003 3:00-4:30PM**Title:** FUNCTIONAL STUDIES OF THE CLASS B SYNMUVS AND CHARACTERIZATION OF THE CLASS B SYNMOV GENE LIN-61.**Author:** HARRISON,MELISSA,\* LU,XIAOWEI; HORVITZ,BOB.**Keywords:** KW13:24 - CELL FATE SPECIFICATION - POST-EMBRYONIC; DEVELOPMENT: THE VULVA[Print](#) [Close window](#)