1999 International Worm Meeting abstract 104

lin-55 DP and an E2F-like gene act in the *lin-35* Rb pathway to antagonize *let-60* ras signaling during vulval induction

CJ Ceol, HR Horvitz

HHMI, Dept. Biology, MIT, Cambridge, MA 02139 U.S.A.

The Ras signaling pathway of vulval induction is antagonized by the synthetic multivulva (synMuv) genes. On the basis of genetic interactions, the synMuv genes have been grouped into two classes, A and B. An animal is Muv if it has mutations in both a class A gene and a class B gene, whereas an animal has a wild-type vulva if a mutation is present in a gene or genes of a single class. *lin-35*, a class B synMuv gene, encodes a protein similar to the mammalian tumor suppressor pRb and the related proteins p107 and p130 (Lu and Horvitz, 1998, *Cell* **95**: 981-991). A well-characterized binding partner of pRb is the DP/E2F heterodimeric transcriptional activator. pRb/DP/E2F complexes are thought to repress transcription of DP/E2F-responsive genes, including genes required for S phase cell-cycle progression. We are determining the roles of DP and E2F proteins in the specification of vulval cell fates.

We cloned the class B synMuv gene *lin-55* and have found that it encodes a protein similar to the DP family of transcription factors. To investigate the null phenotype of *lin-55*, we isolated a deletion allele, *n3316*. In addition to a synMuv phenotype, *lin-55(n3316)* causes maternal-effect lethality.

We have also identified two *C. elegans* E2F-like genes. A deletion allele, *n3318*, of a gene we are temporarily calling *C.e.*E2F-1 behaves like a class B synMuv mutation. *n3318* also causes maternal-effect lethality. We are currently comparing the lethal phase of *n3318* embryos with that of *lin-55(n3316)* embryos and are investigating the role of the other E2F-like gene in vulval development and embryogenesis.

We propose that LIN-55 and *C.e.*E2F-1 form a complex with LIN-35 Rb and other class B synMuv proteins and that this complex represses transcription of genes that promote vulval development.