

A new mutation with a polycystin phenotypic spectrum in *Caenorhabditis elegans*

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Description:

lov-1 and *pkd-2*, which encode the *C. elegans* orthologs of human polycystin-1 and -2, are necessary for three particular aspects of male mating behavior. In a screen for male mating defective mutants with similar spectrum of mating defects, we identified a mutation that apparently defines a new locus, *lov-3*.

We isolated the *sy682* mutation in an ethyl-methane sulphonate (EMS)-screen of *Caenorhabditis elegans* strain PS1395 [genotype: *plg-1(e2001d); him-5(e1490)*] for mutant males that do not mate efficiently and hence do not form plugs on hermaphrodites (Liu et al, 2017). *sy682* is defective in the males' response to contact with hermaphrodite and in vulval location (Table 1). The vulval location defect is failing to stop at the vulva. These two phenotypes are associated with *lov-1* (Barr, 1999) and *pkd-2* loss-of-function mutations (Barr et al. 2001; Whittaker et al., 2017). *sy682* maps to the X chromosome and thus is distinct from *lov-1* and *pkd-2*, so it defines a likely new locus, *lov-3*.

Genotype	Phenotype	
	response	vulval location
+/+	47/59	57/57
<i>sy682/sy682</i>	12/61	25/44

Table 1. Phenotypic analysis of *sy682* mutation. Response, response to contact with hermaphrodite; proportion of males that responded to initial contact with a hermaphrodite. Vulval location, the proportion of males that located the vulva on the first attempt. See Barr & Sternberg (1999) for details

Reagents

Strains:

PS4770: *plg-1(e2001d); him-5(e1490); sy682*

PS6219: *plg-1(e2001); him-5(e1490); sy682*. *sy682* backcrossed 1x

PS1395: *plg-1(e2001d); him-5(e1490)*

References:

Barr MM, Sternberg PW. A polycystic kidney-disease gene homologue required for male mating behaviour in *C. elegans*. *Nature*. 1999 Sep 23;401(6751):386-9. PubMed PMID: 10517638.

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