

## Mutations affecting the *kl-3* loop of the *Drosophila melanogaster* Y chromosome.

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Deletions of the *kl-3* fertility factor of the *Drosophila melanogaster* Y chromosome result in the simultaneous loss of the outer dynein arms from the sperm flagellar axoneme and of a single polypeptide thought to be a dynein heavy chain (1). In addition, deletions of the *kl-3* region cause the absence of a prominent lampbrush-like loop from primary spermatocyte nuclei (2). These and other recent results (3) have suggested that the *kl-3* fertility region contains an axonemal dynein gene and that the intranuclear lampbrush-like structure represents the cytological manifestation of its transcription. However, based on its peculiar molecular and cytological features, it was also suggested that the *kl-3* loop can fulfill an unconventional role, probably by binding proteins necessary for the proper assembly of the sperm tail (4).

In order to elucidate the functional role of the *kl-3* locus we isolated and characterized 4 autosomal male sterile mutations that suppress the formation of the *kl-3* loop. Complementation tests revealed that these mutations identify two loci that were named *Suppressor of kl3loop-1* (*Suk3l-1*) and *Suppressor of kl3loop-2* (*Suk3l-2*), respectively. Mutant males were then examined both for the presence of dynein polypeptides by PAGE-SDS of testis extracts, and for the presence and normality of the axonemal dynein arms by EM analysis of sperm tail sections. Both *Suk3l-1* and *Suk3l-2* do not impair the synthesis of the *kl-3* putative dynein subunit described by Goldstein et al. (1). Surprisingly, however, the stability of four high molecular weight polypeptides is simultaneously affected in each mutant, together with the regular assembly of the axonemal dynein arms, that are either absent or strongly reduced.

### References

1. Goldstein et al., PNAS 79:7405-7409 (1982)
2. Bonaccorsi et al., Genetics 120:1015-1034 (1988)
3. Carvalho et al., PNAS 97:13239-13244 (2000)
4. Pisano et al., Genetics 133:569-579 (1993)