The Effects of Spontaneous Mutations upon Male Fitness in Caenorhabditis elegans

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Central to evolution, fitness influences the abilities of individuals to reproduce and become more abundant in new generations. The majority of mutations with observable effects are deleterious and are expected to lessen fitness. To study the impact of spontaneous mutations upon male fitness, males from different strains of Caenorhabditis elegans with accumulated mutations and their ancestral wild-type strain (N2) were crossed with hermaphrodites from a recessive reporter strain. F1 offspring from these crosses were studied for presence of the recessive reporter to determine heredity. Male competitive fitness was determined by comparing the ratio of male-sired versus hermaphrodite-sired offspring. We found that a majority of male lines, including that of the ancestor, was less likely to fertilize eggs than hermaphrodites. Furthermore, expectations for lesser fitness in mutation strains were not met and no significant differences were found in lines harboring spontaneous mutations and their ancestral line.

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