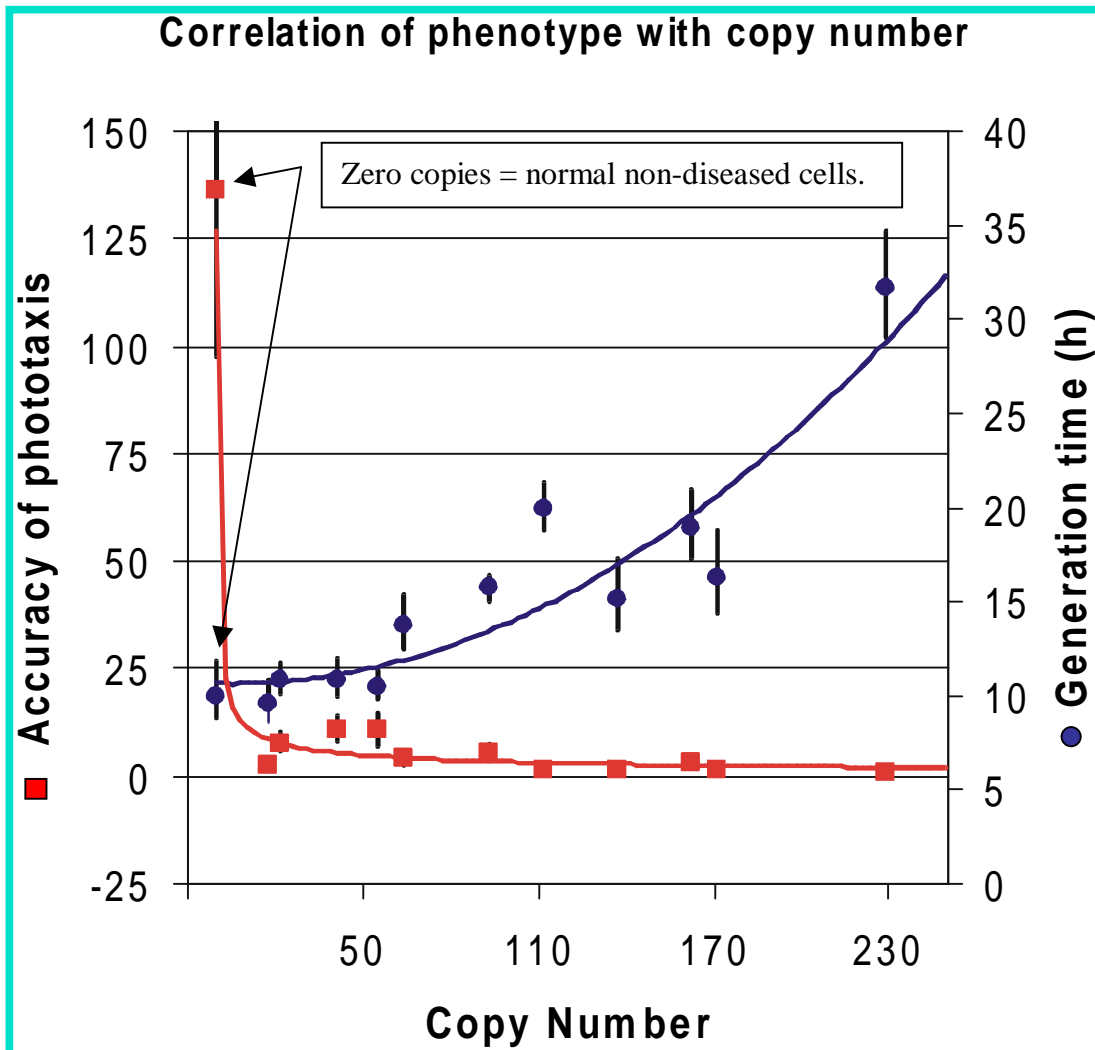


Example of a genetic dose-response curve.



Genetic dose response curve for chaperonin 60 deficiency

(Chaperonin 60 is encoded on a gene in the nucleus and its function inside the mitochondria is to ensure that mitochondrial proteins fold properly)

X axis - the number of copies of a chaperonin 60 antisense RNA construct:

More copies → more antisense RNA → greater inhibition of chaperonin 60 production → more severe deficiency in the folding of proteins in the mitochondria.

Y axis - The phenotype (in humans one would call it the clinical outcome):

Accuracy of phototaxis is a measure of how directly the slugs travel towards the light: all chaperonin 60-deficient strains are seriously impaired in phototaxis.

Generation time = number of hours between cell divisions (slow growth = long generation time): mild chaperonin 60 deficiency has no effect on growth (ie up to a threshold of about 60 copies of the antisense construct), more severe deficiencies cause more and more serious retardation of growth. By extrapolation, eventually growth would cease, generation time would be infinite ie. the cells would die.