

MASTER'S SEMINAR ANNOUNCEMENT
Department of Statistics

"Different Age Distribution Patterns of Human, Nematode, Arabidopsis Duplicate Genes"

Thursday, September 30, 2004, 8:30 am
Eckhart Hall, Room 110, 5734 S. University Avenue

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ABSTRACT

We studied the age distribution of duplicate genes in each of four eukaryotic genomes: human, *Arabidopsis thaliana*, *Caenorhabditis elegans* and *Drosophila melanogaster*. The four distributions differ greatly from each other, contrary to the previous proposal of a universal L-shaped distribution in all eukaryotic genomes studied. Indeed, only the distribution in human is L-shaped. The distribution in *Arabidopsis* is consistent with the hypothesis of an ancient genome duplication with no recent burst of duplication events, while the distribution in *C.elegans* is nearly uniform. We also applied a nonparametric method to the human distribution to show that the rate of loss of duplicate genes decreases over time, contrary to the proposal of an exponential decay. One possible explanation of the decreasing rate of loss of duplicate genes over time could be rapid functional divergence between duplicate genes, providing an advantage for the retention of both duplicates.