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GENETIC AND MOLECULAR ANALYSIS OF ANTIOXIDANT ENZYMES
IN DROSOPHILA MELANOGASTER: A CORRELATION
BETWEEN CATALASE ACTIVITY
LEVELS, LIFE SPAN, AND
SPONTANEOUS MUTATION RATE

William J. Mackay^{1,3}, William C. Orr², and
Glenn C. Bewley^{1,4}

¹Department of Genetics, North Carolina State
University, Raleigh, North Carolina 27695-7614;

²Department of Biological Sciences,
Southern Methodist University,
Dallas, Texas 75275-0376

ABSTRACT Activated oxygen species have been demonstrated to be the important agents in oxygen toxicity by disrupting the functional and structural integrity of aerobic cells, primarily through damage to DNA, lipids, and proteins. The accumulated effect of oxygen free radical damage is thought to be a contributing factor to the aging process. We are developing genetic and molecular models for antioxidant enzymes that will provide an important source of material to assess the role of free radical damage in biological aging and if antioxidant enzymes play a significant role in minimizing these effects. Catalase and superoxide dismutase are two major antioxidant enzymes involved in scavenging activated oxygen species. We have isolated six acatalasemic mutants and three null SOD mutants in Drosophila melanogaster. We are interested in the role of these enzymes in protecting Drosophila from DNA damage and the relationship between oxyradical induced DNA damage

- 3) Present Address: Biology Department, Saint Anselm College, Manchester, New Hampshire 03102
- 4) To whom all correspondence should be addressed (919) 737-2285