

ABSTRACTS

Behavior Genetics Association Abstracts

The following are abstracts of papers presented at the Ninth Annual Meeting of the Behavior Genetics Association held June 20-23, 1979, at Wesleyan University, Middletown, Connecticut.

Further Investigations on a Possible Single Genetic Locus Determining Differences in Competitive Fighting of Highly Inbred Rats

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A progress report is presented on a study of the gene or genes responsible for the differences in competitive fighting behavior in several highly inbred strains of rats. The DA strain (both males and females) has a high level of competitive fighting (Zook and Adams, *J. Comp. Physiol. Psychol.* 88:418, f915), which in four replications has averaged 0.68 bite-and-kick attacks per test. The Fischer and WAG-Rij strains have low levels of competitive fighting, which in four replications have averaged 0.025 and 0.016 bite-and-kick attacks per test. DA/Fischer and DA/WAG~Rij hybrids have frequencies of bite-and-kick attack which are intermediate (0.51 and 0.20, respectively). In order to isolate the genetic factors determining these differences, the aggressive offspring of each backcross generation have been backcrossed repeatedly onto the nonaggressive parent stock for eight generations. Results from six generations were reported at a previous meeting of the Association, at which time it was noted that the backcross lines still had levels of competitive fighting about half as high as those of the DA/Fischer and DA/WAG~Rij hybrids. Since that report, the seventh and eighth backcross generations, along with new replications of parental and hybrid strains, have been tested for competitive fighting, and similar data have been obtained. Since in the eighth backcross generation it is likely that only about 0.1% of the genetic loci are heterozygous and resemble those of hybrids rather than those of the nonaggressive parental strain, this indicates that a single locus may be responsible for the behavioral differences both between DA and Fischer and between DA and SAG-Rij strains. Backcrossing and selection is continuing in order to produce coisogenic strains which differ only at the locus of interest. Study of such strains may serve to illuminate brain mechanisms which presumably reflect genetic differences and underlie the behavioral differences.

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