

## ANIMAL SCIENCE

**Title:** Development of additional genetic markers for QTL in Swine  
**NPB #97-1862**

**Investigator:** Leeson Alexander

**Institution:** Regents of the University of Minnesota

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### ABSTRACT

This project involved the construction of porcine radiation hybrid maps, which is an very useful adjunct to genetic linkage mapping. Radiation hybrid panels are created by the use of x-ray radiation to physically break chromosomes of the species of interest into discrete fragments, the size of which are inversely proportional to the dose of radiation. These chromosomal fragments are then introduced into a rodent cell line for propagation and maintenance. The use of radiation hybrids avoids the necessity of markers having to be polymorphic in pedigrees. In addition, markers not resolved in genetic linkage groups due to an insufficient number of meioses can be resolved using radiation hybrids and the position of other markers with low number of meioses confirmed or correctly placed on the linkage map.

We have currently analyzed 901 markers on the radiation hybrid panel and have constructed framework maps of chromosomes with these markers. Due the increased resolution of radiation hybrid mapping the resultant maps consisted of 187 linkage groups compared to 19 on the genetic linkage map. The orders found are essentially the same as those indicated on our genetic linkage map (Rohrer et al. 1996). The power of radiation hybrid mapping has been demonstrated in that we have been able to resolve and order some markers that were clumped together on the genetic linkage map. Using this radiation hybrid panel markers can be mapped to a resolution of 61,000 base pairs compared to a minimum of 500,000 base pairs on the genetic map.

*These research results were submitted in fulfillment of checkoff funded research projects. This report is published directly as submitted by the project's principal investigator. This report has not been peer reviewed*

**For more information contact:**

**National Pork Board, P.O. Box 9114, Des Moines, Iowa USA**

800-456-7675, **Fax:** 515-223-2646, **E-Mail:** [porkboard@porkboard.org](mailto:porkboard@porkboard.org), **Web:** <http://www.porkboard.org/>