

Quality Assurance for the PhysGen Genomics Component

PhysGen is committed to ensuring the genetic integrity of the rat strains produced within the PhysGen program at The Medical College of Wisconsin. Also, PhysGen will verify the genetic status of a representative sampling of all strains procured from outside providers.

PhysGen monitors the integrity of these rats by:

- (1) Use of a transponder animal ID tracking system. All animals that are used as breeders or in the phenotyping component receive a transponder at about 4 weeks of age. All transponder ID's are verified prior to use in a breeder pair or use by the phenotyping component.
- (2) Animal handling procedures are in place to ensure proper tracking of all animals. The QA program is managed by staff experienced in ensuring the genetic purity of rat colonies.
- (3) Maintenance of a Microsoft Access database of animal pedigree, transponder and genotyping information. For large breeding colonies of multiple strains, it is critical to maintain traceability information.
- (4) Genotyping Q.A.
The PhysGen genetic Quality Assurance program includes the use of PCR-based testing with selected genetic fluorescent markers. A marker set for the SS.BN lines and another marker set for the FHH.BN lines have been developed. All consomic and congenic progenitors will have a total genome scan with 95 markers. Validation of markers is based upon characterized allele sizes and an internal size standard run with every sample. Genetic information of PGA-related strains will be posted on the website quarterly, following completion of genotyping.

The Q.A. program includes:

- a. Routine genotyping of the parental foundation colonies to ensure that the rats are genetically pure.
- b. Genotyping throughout the backcross and intercross generations as well as confirmation of development of consomic or congenic status.
- c. Animals (or their ancestors) shipped to Charles River Laboratories for establishment of colonies are genotyped prior to shipment. Annual genetic monitoring of the PhysGen strains at CRL will occur throughout the PGA program.
- d. Genotyping a sampling of animals procured from outside providers to verify their genetic status.
- e. Maintenance of retained tissue samples from all animals that have had phenotyping data posted on the website, for future reference.