

## Angus Foundation Research Project

**Name of project:** Characterization of Single Nucleotide Polymorphism (SNP) genetic markers in cattle, USDA-ARS

**Status:** Completed

**Timeline:** 2005

**Angus Foundation funding:** \$24,000

**Objective:** Genome sequencing had already been conducted on a number of cattle breeds, including Angus. The researchers with the USDA-ARS, along with university genomics specialists and various breed associations, worked to develop a large number of single nucleotide polymorphisms (SNPs), also known as DNA markers. The goal was to fully characterize 25,000 SNPs across 15 breeds.

**Results, if any:** By studying the bovine genome, researchers were able to identify genes that influence production traits and carcass traits. Research findings form the background for DNA technology applied in subsequent years to AAA genomic-enhanced EPDs.

**Application:** This initial SNP research allowed scientists to work toward genomic panels that are now applied to selection tools. The project produced public domain access of SNPs associated with the genome map. This level of accessibility enables the beef industry to apply SNPs to:

- Parentage;
- Traceback;
- Genetic selection;
- Continued study of the bovine genome and its evolution; and
- Technology applied to future genomic enhanced selection tools in Angus cattle.