

### 1. What type of testing does NABR offer?

*NABR offers testing through UC-Davis Veterinary Genetics Laboratory. They currently utilize microsatellite technology.*

*Microsatellites are tracts of repetitive DNA in which certain DNA motifs (ranging in length from 2–5 base pairs) are repeated, typically 5–50 times. Microsatellites occur at thousands of locations in the genome and they are notable for their high mutation rate and high diversity in populations.*

### 2. What is the difference between mitochondrial and nuclear DNA testing and which does the NABR offer?

*NABR tests both aspects of DNA and both tests are required for Registry where mitochondrial DNA is only from maternal contributions and nuclear DNA is half from paternal and half maternal.*

### 3. What is the difference between the Parentage, and Gene(tic) Diversity/Historical Lineage and Hybridization tests?

- **Parentage test** – A selected group of markers used to identify offspring of an individual animal
- **Gene(tic) Diversity** – The percent of the total genetic markers recognized in the North American Bison species that are present - in one individual animal test result of 55% is considered good. 60% to 70%, and up, is considered excellent.
- **Historic Lineage test** – The presence of genetic markers that have been identified as present in herds recognized for post great-slaughter-era preservation of the species.
  - **Note:** Genetic Diversity & Historic Lineage tests are the same test, but correlating markers from historic preservation herds is a separate lab function.
- **Hybridization test** – Presence of commonly accepted cattle introgression markers in both mitochondrial and nuclear DNA

### 4. What is included in Diversity/Historical lineage testing?

*Diversity reporting is a basis of percent of total genetic markers recognized in an individual, or as a population. Historic lineage is a comparison of markers associated with 11 populations identified as historic herds including; National Bison Range, Wichita Mountains Refuge and Fort Niobrara. This testing can show lineage affiliations to these herds.*

**5. What is included in Hybridization testing?**

*Hybridization testing through the NABR and UC-Davis includes 15 microsatellite markers plus the mitochondrial DNA marker originally developed at Texas A&M. This panel is the same used for most federal herds*

**6. How long does it take to receive my test results?**

*Although several factors may cause delay, typically, 2-4 weeks is expected after submission.*

**7. If I have test results from other labs can I register my animals without testing again?**

**YES.** *NABR accepts testing results from any accredited laboratory, we require copies of the results for archival information.*

*Currently we use microsatellite technology, however, as new technology and tests become available, such as SNPs (single nucleotide polymorphisms), we will consider these forms of results as well.*

**Note:** *The NABR is; 'A Species Registry' and as such, it must allow all accredited forms of genetic analysis that have been committee and/or NBA board approved.*

*Microsatellite testing and SNP test results are not compatible. Linking animals tested via different forms of technology may require additional testing for parentage verification and/or allele tracking function.*

**8. Am I required to register animals in the NABR if I DNA test them?**

*NO, any animals can be tested and are only added to the Registry if the owner chooses to do so (and) if the animal, or herd, qualifies.*

**9. Am I required to DNA test my animals to register them in the NABR?**

*Depending on which section of the registry testing may be required. In the 'Conservation Herd Registry' DNA testing is not required unless new animals are introduced to the herd which are not offspring of that herd. To participate in the 'Individual Animal Registry' parentage testing is required, unless the offspring are single herd-sired and mothered-up from DNA registered parentage, those offspring are not required to be DNA tested; however, DNA samples must be submitted for storage and reference for the offspring. 'DNA Parentage Certified' animals are required to be individually tested in order to verify the sire and dam. For more information please see our requirements and registry By-Laws (Hyperlink) <requirements for Registry in By-Laws>*

**10. What is the difference between Registration Certificates, Pedigrees, and DNA Parentage Certified?**

- *A Registration Certificate includes Sire/Dam, Grandsire/Granddam information, if available.*
- *A Pedigree includes the full known maternal and paternal history, or family tree, of an individual animal.*
- *DNA Parentage Certified means, the sire and/or dam have been DNA tested to verify parentage*