



## Genetic Markers for Bull Fertility

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**WARF: P120282US02**

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**The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in developing genetic markers associated with improved male fertility in cattle.**

### Overview

The decline in reproductive performance in cattle over the last four decades has been ascribed primarily to fertilization failure and early embryonic loss. Although the genetic makeups of both parents are crucial to reproductive success, most fertility studies in cattle have focused on the maternal role. The paternal contribution has not thoroughly been investigated.

A UW–Madison researcher previously identified single nucleotide polymorphisms (SNPs) in several genes associated with cow fertility, milk production and embryo viability. Identification of SNPs associated with reproduction traits in bulls clearly is needed.

### The Invention

The UW–Madison researcher now has identified several SNPs associated with improved bull fertility, as measured by sire conception rate. These SNPs are found in three spermatogenesis genes, *MAP1B*, *PPP1R11* and *DDX4*. These genes are highly conserved from flies to humans but were not known to affect reproduction in cattle.

### Applications

- Genetic markers for bull fertility

### Key Benefits

- Useful as a breeding tool in enabling selection decisions to be made earlier than in traditional breeding programs, thereby shortening the generation interval for cattle breeding
- First bovine SNPs associated with positive reproductive traits in bulls
- DNA markers are easy to measure, unambiguous and co-dominant.

### Stage of Development

The researcher has tested more than 2,000 bulls to validate the correlation between the three SNPs and a positive sire conception rate.

### Additional Information

#### For More Information About the Inventors

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- [Hasan Khatib](#)

Related Technologies

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- [See WARF reference number P06197US for a previously identified SNP in the STAT5 gene that is associated with cow fertility and early embryo death.](#)
- [See WARF reference number P08266US for a previously identified SNP in the FGF2 gene that is associated with embryonic survival and milk production.](#)
- [WARF reference number P09013US02 describes a panel of SNPs from the interferon- \$\tau\$  pathway that is associated with cow fertility and embryo survival.](#)

#### Related Intellectual Property

- [View Divisional Patent in PDF format.](#)
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#### Tech Fields

- [Animals, Agriculture & Food : Animal biotech](#)

For current licensing status, please contact Emily Bauer at [emily@warf.org](mailto:emily@warf.org) or 608-960-9842

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