

Dear Customer

Thank you for your genetic conditions testing request. We are pleased to deliver the accompanying report, which provides test results for the DNA samples you recently submitted.

A complete list of all available genetic conditions and associated acronyms is provided as a footnote on each results page of the report. The concluding pages of the report communicate more detailed information about each condition and possible reported genotypes.

For each of these simple recessive inherited genetic conditions, carrier animals are visually indistinguishable from animals that are free of the condition. Free versus carrier status are reported for animals using letter designations following the acronym associated with each genetic condition. Animals tested "Free" are designated with an "F". Carrier animals are identified with a "C" and possess one copy of the allele (gene pair) that causes the condition. Affected animals with two alleles for the genetic condition are designated with an "A". In isolated instances, an "NR" status representing "No Result" may be reported to indicate that it was not initially possible to derive a definitive test result for the submitted sample.

Again, thank you for your business. If you have questions or feedback regarding your genetics condition testing, please contact a Customer Service representative or visit www.zoetisUS.com/genetics.

Customer Service,
Genetics

GENETIC CONDITIONS CUSTOMER JOB RESULTS FINAL REPORT

US/GC/01

Job Number: US806077
Date Requested: 5/13/2020
Customer Name: Avila Farms
Bill To: Avila Farms
Animal Count: 1
Customer Address: 2291 SCR 70
Mize Mississippi 39116
United States

Customer ID: 27902
Contact:
Customer Phone:
Customer Fax:
Customer Email: tinybars@yahoo.com

		Genetic Defect Testing		
		Test	Status	Explanation
Animal ID/Tag : 69/6		HP	PP	Homozygous Polled
Name : LMC Polled ELY	Sex: M			
Reg No. : 953167	Breed : Brahman			
Barcode : NE01038251	Sample Type : Allflex			

Test Name	Test Acronym	Status	Explanation	Genetic Condition Descriptions
Alpha-Mannosidosis	MA	MAF	MA Free	MA is a simple recessive lethal genetic condition that impacts the nervous system, causing progressive incoordination, aggressive disposition and usually death before reaching sexual maturity. MA is found in isolated lines of Red Angus, Murray Gray and Dexter cattle.
		MAC	MA Carrier	
		MAA	MA Affected	
		N/A	See Testing Status Table	
Arthrogryposis Multiplex	AM	AMF	AM Free	AM is a lethal genetic condition caused by a recessive gene in Angus and Angus-influenced cattle. Affected calves are known to be still-born with twisted spines and extended and contracted limbs.
		AMC	AM Carrier	
		AMA	AM Affected	
		N/A	See Testing Status Table	
Contractural Arachnodactyly	CA	CAF	CA Free	CA is a non-lethal genetic condition of simple recessive inheritance that affects Angus and Angus-influenced cattle, Affected calves have hip, stifle and hock joints with reduced range of motion and compromised soundness and performance.
		CAC	CA Carrier	
		CAA	CA Affected	
		N/A	See Testing Status Table	
Developmental Duplication	DD	DDF	DD Free	DD is an often lethal recessive found mainly in Angus cattle. Many animals die in utero (embryonic death). Animals that do not die in utero are typically born with extra front limbs that originate from the neck or shoulder area. Affected animals may also be born as conjoined twins.
		DDC	DD Carrier	
		DDA	DD Affected	
		N/A	See Testing Status Table	
Dwarfism - D2	D2	D2F	D2 Free	Dwarfism associated with the PRKG2 gene mutation. Affected animals are smaller than normal with short legs and bodies. The head may also be shorter in length. Affected cattle generally appear to be thicker due to smaller stature and normal muscle mass.
		D2C	D2 Carrier	
		D2A	D2 Affected	
		N/A	See Testing Status Table	
GeneSTAR Black	GSB	EDED	Homozygous Black	GeneSTAR color identifies the black (Ed), red (e) and wild-type (E+) alleles present at the Extension (E) locus. The order of dominance of these alleles for expression of color translates into black as dominant to red, and both black and red as dominant to wild-type. Homozygous black animals always transmit the black allele, while heterozygous black animals only transmit the black allele to one-half of their progeny. Importantly, additional genes that affect color exist that are not included in GSB.
		ee	Red (Homozygous)	
		EDe	Heterozygous Black	
		E+E+	Homozygous Wild Type	
		E+ED	Black - Wild Type Carrier	
		E+e	Red - Wild Type Carrier	
		N/A	See Testing Status Table	

Test Name	Test Acronym	Status	Explanation	Genetic Condition Descriptions
Horn-Polled	HP	PP	Homozygous Polled	The Horn-Polled test determines whether phenotypically polled animals are heterozygous or homozygous polled. Animals tested Homozygous Polled are designated with an "PP". Animals tested Heterozygous Polled are designated with "Ph". Some animals may have results classified as Indeterminate designated with an "I", which indicates that the presence of a polled variant cannot be definitively determined or results are not consistent with an animal possessing a known polled genotype. In isolated instances, an "NR" status representing "No Result" may be reported to indicate that it was not initially possible to derive a definitive test result for the submitted sample.
		Ph	Heterozygous Polled	
		I	Indeterminate	
		N/A	See Testing Status Table	
Idiopathic Epilepsy	IE	IEF	IE Free	IE is a fatal recessive genetic condition primarily documented in Hereford cattle. Affected animals experience seizures which can occur at birth or up to several months of age.
		IEC	IE Carrier	
		IEA	IE Affected	
		N/A	See Testing Status Table	
MyoStatin - BB	MYO-BB	MYO-BBF	MYO-BB Free	A form of double muscling associated with the Belgium Blue variant of Myostatin
		MYO-BBC	MYO-BB Carrier	
		MYO-BBA	MYO-BB Affected	
		N/A	See Testing Status Table	
Myostatin - F94L	MYO-F94L	MYO-F94LF	MYO-F94LF Free	A form of double muscling associated with the Myostatin F94L substitution most commonly found in Limousin cattle.
		MYO-F94LC	MYO-F94LC Carrier	
		MYO-F94LA	MYO-F94LA Affected	
		N/A	See Testing Status Table	
Myostatin - M1	MYO-M1	MYO-M1F	MYO-M1 Free	A form of double muscling associated with the Myostatin nt821 gene deletion. Affected cattle are heavily muscled with abnormally large, wide and rounded rump and thighs.
		MYO-M1C	MYO-M1 Carrier	
		MYO-M1A	MYO-M1 Affected	
		N/A	See Testing Status Table	
Myostatin - Piedmontese	MYO-PDM	MYO-PDMF	MYO-PDM Free	A form of double muscling associated with the Piedmontese Myostatin substitution.
		MYO-PDMC	MYO-PDM Carrier	
		MYO-PDMA	MYO-PDM Affected	
		N/A	See Testing Status Table	
Neuropathic Hydrocephalus	NH	NHF	NH Free	NH is a lethal recessive genetic mutation that affects Angus and Angus-influenced cattle. Affected calves are often thought to be aborted during gestation or born dead with enlarged craniums and little to no brain material or spinal cord.
		NHC	NH Carrier	
		NHA	NH Affected	
		N/A	See Testing Status Table	

Test Name	Test Acronym	Status	Explanation	Genetic Condition Descriptions
Oculocutaneous Hypopigmentation	OH	OHF	OH Free	A non-lethal genetic condition characterized by pale blue irises and, sometimes, bleached coat color. Affected calves may be hypersensitive to light, but are otherwise functionally normal.
		OHC	OH Carrier	
		OHA	OH Affected	
		N/A	See Testing Status Table	
Osteopetrosis	OS	OSF	OS Free	OS is a lethal recessive genetic condition that affects Red Angus cattle. Affected calves are typically born premature and dead, have short lower jaws, impacted molars and long bones that are fragile and easily broken.
		OSC	OS Carrier	
		OSA	OS Affected	
		N/A	See Testing Status Table	
Pompes	Pompes	PompesF	Pompes Free	Pompes is a recessive lethal genetic condition that has been described in Brahman, Shorthorn and their derivatives including Droughtmaster cattle. Affected animals lack activity of the enzyme acidic a-glucosidase (AAG) and as a result, glycogen builds up inside muscle and nerve cells disrupting normal function thereby leading to death of the cells and eventually the animal.
		PompesC	Pompes Carrier	
		PompesA	Pompes Affected	
		N/A	See Testing Status Table	
Pulmonary Hypoplasia with Anasarca	PHA	PHAF	PHA Free	PHA is a lethal recessive genetic condition typically found in Maine-Anjou, Shorthorn and Dexter cattle. Affected calves are born with underdeveloped lungs and fluid caused by excessive fluid retention.
		PHAC	PHA Carrier	
		PHAA	PHA Affected	
		N/A	See Testing Status Table	
Tibial Hemimelia	TH	THF	TH Free	TH is a lethal recessive genetic condition documented in Shorthorn, Maine-Anjou and Dexter cattle. Affected calves are typically born with severe difficulty, twisted rear legs and fused joints, abdominal hernias and malformed skulls.
		THC	TH Carrier	
		THA	TH Affected	
		N/A	See Testing Status Table	

Zoetis Genetics is committed to working with breed associations to integrate genomics information from groups of animals into their performance programs. Authorization is required from customers for Zoetis to submit test results to the desired breed association(s).

As owner or co-owner of the animals included on this form or report, I authorize release of the test results for this group of animals, either immediately or in the future, to the breed association(s) listed below for defined uses in their performance programs and genetic evaluations. I also agree that the association has no liability or responsibility for the reliability or accuracy of the Test or the Test Results or the performance of the Test by Zoetis. If requested by the association, I also authorize these samples to be used for parentage testing or other reasonable purposes.

Breed Association(s): _____
Breed Association Herd ID: _____
Signature: _____ Print Name: _____
Date: _____

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- (i) the re-supply of the Services; or
 - (ii) the repayment of the fees paid by the Customer for the performance of the Services by Zoetis.
- Uncertainty measurements for the relevant tests are available upon request.

These test results are provided to you in accordance with Zoetis 's Terms and Conditions which are available at www.zoetisUS.com/genetics