

Batch Detail Report

Batch : 17286U
 Owner :JG Viljoen and seuns
 Farm :Gelibar Bonsmaras
 Account : VILJG1
 Origin : BONSMARA SA
 Invoice To : Owner

Created : 2024-03-15

SAMPLE	ANIMAL	SPECIES	BREED	DAM	SIRE	TEST	Tissue Type	RESULT	INVOICE
17286U001	CRV21-0087 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U002	MBT21-0073 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U003	EHE22-0351 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U004	EHE22-0363 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U005	EHE22-0364 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U006	EHE22-0375 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U007	EHE22-0382 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U008	EHE22-0407 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U009	EHE22-0088 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U010	EHE22-0094 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U011	EHE22-0144 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U012	EHE22-0193 (N/S,1)	CATTLE	BONSMARA			SNP50_C	Hair	IG50 :	

Report Date : 11-Apr-2024 15:26

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CHARNÉ ROSSOUW
 DIVISION MANAGER

SAMPLE	ANIMAL	SPECIES	BREED	DAM	SIRE	TEST	Tissue Type	RESULT	INVOICE
			(1)					IGENITY 50K	
17286U013	EHE22-0195 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U014	EHE22-0227 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U015	EHE22-0239 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U016	EHE22-0254 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U017	EHE22-0256 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U018	EHE22-0265 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U019	EHE22-0263 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U020	EHE22-0269 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U021	EHE22-0270 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U022	EHE22-0274 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U023	EHE22-0277 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U024	EHE22-0286 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U025	EHE22-0289 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U026	EHE22-0306 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U027	EHE22-0304 (N/S,1)	CATTLE	BONSMARA			SNP50_C	Hair	IG50 :	

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CHARNÉ ROSSOUW
DIVISION MANAGER

SAMPLE	ANIMAL	SPECIES	BREED	DAM	SIRE	TEST	Tissue Type	RESULT	INVOICE
17286U028	EHE22-0309 (N/S,1)	CATTLE	(1) BONSMARA (1)			SNP50_C	Hair	IGENITY 50K IG50 : IGENITY 50K	
17286U029	EHE22-0318 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U030	EHE22-0324 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U031	EHE22-0330 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U032	EHE22-0358 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U033	EHE22-0383 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U034	EHE22-0418 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U035	EHE22-0421 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U036	EHE22-0428 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U037	EHE22-0436 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U038	EHE22-0446 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U039	EHE22-0458 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U040	EHE22-0495 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U041	EHE23-0001 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U042	EHE23-0002 (N/S,1)	CATTLE	BONSMARA			SNP50_C	Hair	IG50 :	

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CHARNÉ ROSSOUW
DIVISION MANAGER

SAMPLE	ANIMAL	SPECIES	BREED	DAM	SIRE	TEST	Tissue Type	RESULT	INVOICE
			(1)					IGENITY 50K	
17286U043	EHE23-0003 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U044	EHE23-0008 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	
17286U045	EHE23-0009 (N/S,1)	CATTLE	BONSMARA (1)			SNP50_C	Hair	IG50 : IGENITY 50K	

Report Date : 11-Apr-2024 15:26

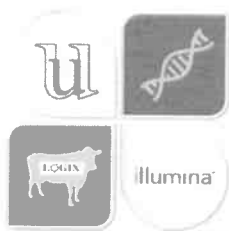
Page : 4

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CHARNÉ ROSSOUW
DIVISION MANAGER



Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
 EHE22-0458
 17286U039

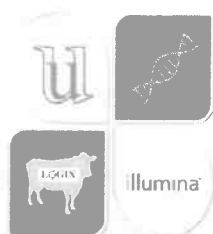
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A1
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Increased milk fat yield, fat & protein %
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0495

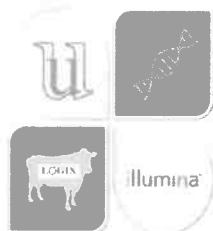
17286U040

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A1
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	B/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/A
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Normal milk fat yield, fat & protein %
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Homozygous Polled

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
EHE23-0001
17286U041

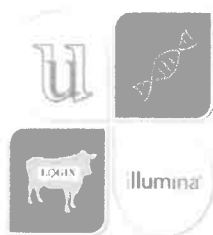
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	T/T - Normal breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	A/G - Intermediate breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A2/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Carrier		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/A
	Myostatin F94L	Clear		Kappa Casein - 506	B/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Increased milk fat yield, fat & protein %
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Horned

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JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
EHE23-0002
17286U042

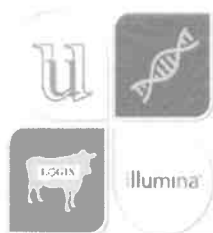
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/G - Intermediate inhibition of Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A2/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/G1
	Myostatin D182N	Clear		Kappa Casein - 470	A/A
	Myostatin F94L	Clear		Kappa Casein - 506	B/B
POMPE Status	Myostatin S105C	Clear		Kappa Casein - 526	A/A
	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance				Growth Hormone 2291	Increased milk fat yield, fat & protein %
	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%		AcylCoA - milk fat percentage	Normal fat, protein & milk yield. Normal fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras

Bonsmara

EHE23-0003

17286U043

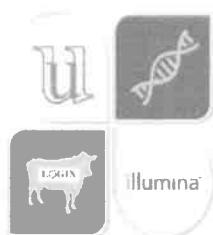
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/C - Intermediate breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	A/G - Intermediate breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/G1
	Myostatin D182N	Clear		Kappa Casein - 470	A/A
	Myostatin F94L	Clear		Kappa Casein - 506	B/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
				Growth Hormone 2291	Increased milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Increased milk & protein yield. Decreased fat yield, fat % & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Horned

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Unistel Medical Laboratories Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

EHE23-0008

17286U044

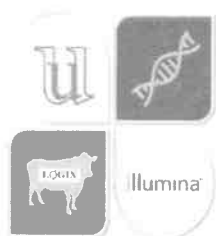
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status	
Coat colouration	MC1R - e	E+ / E+	Meat	Calpain 1 - 316	G/G - Normal breakdown	
	MC1R - ED	E+ / E+	Tenderness	Calpain 1 - 4751	T/T - Normal breakdown	
	Dun Dexter Dilution (TYPR1)	+ / +		Calpain 1 - 530	A/G - Intermediate breakdown	
	Silver Dilution type 1	+ / +		Calpastatin - 282	C/C - Does not inhibit Calpain	
	Silver Dilution type 2	+ / +		Calpastatin - 2870	G/G - Does not inhibit Calpain	
Myostatin Status	Myostatin C313Y	Clear		Milk status	Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear	Milk quality		Beta Casein - 245	A1/A2
	Myostatin E291X	Clear			Beta Casein - 411	B/B
	Myostatin nt419	Clear			Kappa Casein - 352	A/A
	Myostatin nt821	Clear			Kappa Casein - 467	A/A
	Myostatin Q204X	Clear		Kappa Casein - 470	A/B	
	Myostatin D182N	Clear	Kappa Casein - 506	A/B		
	Myostatin F94L	Clear	Kappa Casein - 526	A/A		
	POMPE Status	Myostatin S105C	Clear			
		E13 mutation	Clear			
E18 mutation		Clear				
	E7 mutation	Clear				
Heat Tolerance	SLICK	No added resistance		Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield	
				Growth Hormone 2141	Decreased milk protein & fat yield	
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		Growth Hormone 2291	Normal milk fat yield, fat & protein %	
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %	
Bone Disorder	Osteopetrosis	Clear		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.	
				Trimethylaminuria excess in milk	Clear	
				Yellow milk fat	Normal yellow fat	
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled	

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
 EHE23-0009
 17286U045

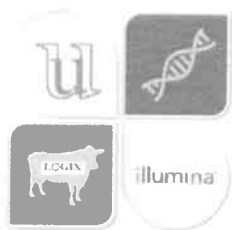
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	Insufficient data	Meat	Calpain 1 - 316	C/C - Faster breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A1
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/A
	Myostatin F94L	Clear		Kappa Casein - 506	B/B
POMPE Status	Myostatin S105C	Clear		Kappa Casein - 526	A/A
	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
				Growth Hormone 2291	Normal milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Normal fat, protein & milk yield. Normal fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Homozygous Polled

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
CRV21-0087
17286U001

Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	T/T - Normal breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	A/A - Faster breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/G1
	Myostatin Q204X	Clear		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
POMPE Status	Myostatin S105C	Clear	Milk quality	Growth Hormone F279Y	Intermediate milk, casein & lactose yield, slightly reduced protein & fat yield
	E13 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
	E18 mutation	Clear		Growth Hormone 2291	Increased milk fat yield, fat & protein %
Heat Tolerance	E7 mutation	Clear		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
	SLICK	No added resistance		AcylCoA - milk fat percentage	Increased milk & protein yield. Decreased fat yield, fat % & protein %.
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		Trimethylaminuria excess in milk	Clear
Bone Disorder	Osteopetrosis	Clear		Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories
Genetic Report
BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras
Bonsmara
MBT21-0073
17286U002

Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear	Milk status	Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear		Beta Casein - 245	A1/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
	POMPE Status	E13 mutation		Clear	Milk quality
E18 mutation		Clear	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield	
E7 mutation		Clear	Growth Hormone 2141	Normal milk protein & fat yield	
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Normal milk fat yield, fat & protein %
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%		AcylCoA - milk fat percentage	Increased milk & protein yield. Decreased fat yield, fat % & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Homozygous Polled

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara

Animal Tested:

EHE22-0351

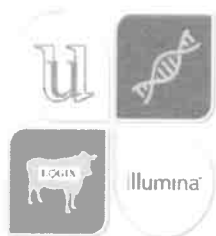
17286U003

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat Tenderness	Calpain 1 - 316	G/C - Intermediate breakdown
	MC1R - ED	E+/E+		Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear	Milk status	Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear		Beta Casein - 245	A1/A1
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/G1
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
	POMPE Status	E13 mutation		Clear	Milk quality
E18 mutation		Clear	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield	
E7 mutation		Clear	Growth Hormone 2141	Normal milk protein & fat yield	
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Normal milk fat yield, fat & protein %
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelbar Bonsmaras
 Bonsmara
 Animal Tested: **EHE22-0363**
17286U004

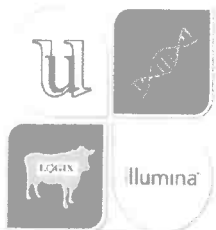
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/C - Intermediate breakdown
	MC1R - ED	E+/E+		Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+	Tenderness	Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/G - Intermediate inhibition of Calpain
	Myostatin E226X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/G1
	Myostatin Q204X	Clear		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
	Myostatin S105C	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
POMPE Status	E13 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
	E18 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
	E7 mutation	Clear		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Heat Tolerance	SLICK	No added resistance		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%		Trimethylaminuria excess in milk	Clear
Bone Disorder	Osteopetrosis	Clear		Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara

Animal Tested:

EHE22-0364

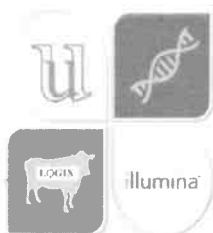
17286U005

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/C - Intermediate breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/G1
	Myostatin Q204X	Clear		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
	Myostatin S105C	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E13 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
	E18 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
	E7 mutation	Clear		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
POMPE Status				AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Heat Tolerance	SLICK	No added resistance		Trimethylaminuria excess in milk	Clear
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		Yellow milk fat	Normal yellow fat
Bone Disorder	Osteopetrosis	Clear			
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
EHE22-0375
17286U006

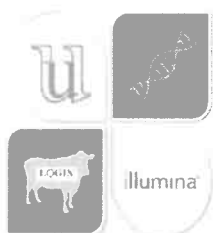
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status	
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/C - Intermediate breakdown	
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown	
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown	
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain	
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain	
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain	
	Myostatin E226X	Clear				
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A1	
	Myostatin nt419	Clear		Beta Casein - 411	B/B	
	Myostatin nt821	Clear		Kappa Casein - 352	A/A	
	Myostatin Q204X	Clear		Kappa Casein - 467	A/G1	
	Myostatin D182N	Clear		Kappa Casein - 470	A/A	
	Myostatin F94L	Clear		Kappa Casein - 506	B/B	
	Myostatin S105C	Clear		Kappa Casein - 526	A/A	
	POMPE Status	E13 mutation	Clear			
		E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
E7 mutation		Clear	Growth Hormone 2141		Decreased milk protein & fat yield	
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Normal milk fat yield, fat & protein %	
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %	
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.	
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear	
				Yellow milk fat	Normal yellow fat	
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled	

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
 EHE22-0382
 17286U007

Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status	
Coat colouration	MC1R - e	Insufficient data	Meat	Calpain 1 - 316	G/C - Intermediate breakdown	
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown	
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	A/G - Intermediate breakdown	
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain	
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain	
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain	
	Myostatin E226X	Clear				
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A1	
	Myostatin nt419	Clear		Beta Casein - 411	B/B	
	Myostatin nt821	Clear		Kappa Casein - 352	A/A	
	Myostatin Q204X	Clear		Kappa Casein - 467	G1/G1	
	Myostatin D182N	Clear		Kappa Casein - 470	A/A	
	Myostatin F94L	Clear		Kappa Casein - 506	B/B	
	Myostatin S105C	Clear		Kappa Casein - 526	A/A	
	POMPE Status	E13 mutation	Clear			
		E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
		E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Normal milk fat yield, fat & protein %	
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %	
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.	
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear	
				Yellow milk fat	Normal yellow fat	
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled	

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara

Animal Tested:

EHE22-0407

17286U008

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A1
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/G1
	Myostatin D182N	Clear		Kappa Casein - 470	A/A
	Myostatin F94L	Clear		Kappa Casein - 506	B/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
				Growth Hormone 2291	Increased milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Normal fat, protein & milk yield. Normal fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

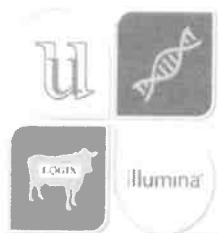
Disclaimer: Unistel reports these results on the premise that the biological samples received are from the individuals nominated by the owner/breeder/requestee. This certificate replaces all previous issued certificates. While every effort is made to prevent incorrect results, Unistel Medical Laboratories does not accept any responsibility for any losses that may occur as a result of human or technical error. Should gross negligence be proven, the claim shall not exceed the value of the contract.



17286U009

Sample type:

Hair



Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras

Bonsmara

EHE22-0094

17286U010

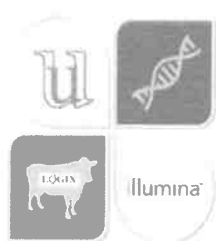
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status	
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown	
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/C - Faster breakdown	
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown	
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain	
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain	
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain	
	Myostatin E226X	Clear				
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A2/A2	
	Myostatin nt419	Clear		Beta Casein - 411	B/B	
	Myostatin nt821	Clear		Kappa Casein - 352	A/A	
	Myostatin Q204X	Clear		Kappa Casein - 467	A/G1	
	Myostatin D182N	Clear		Kappa Casein - 470	A/B	
	Myostatin F94L	Clear		Kappa Casein - 506	A/B	
	Myostatin S105C	Clear		Kappa Casein - 526	A/A	
	POMPE Status	E13 mutation	Clear			
		E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Intermediate milk, casein & lactose yield, slightly reduced protein & fat yield
	E7 mutation	Clear	Growth Hormone 2141		Normal milk protein & fat yield	
		Growth Hormone 2291	Normal milk fat yield, fat & protein %			
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %	
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Normal fat, protein & milk yield. Normal fat & protein %.	
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear	
				Yellow milk fat	Normal yellow fat	
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled	

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Unistel Medical Laboratories

Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns

Gelibar Bonsmaras

Bonsmara

EHE22-0144

17286U011

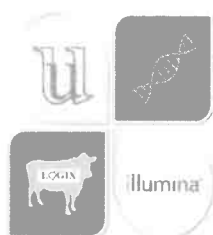
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/G - Inhibits effect of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/A - Inhibits effect of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A1
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Carrier		Kappa Casein - 467	A/G1
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Normal milk fat yield, fat & protein %
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Horned

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Unistel Medical Laboratories

Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns

Gelibar Bonsmaras

Bonsmara

EHE22-0193

17286U012

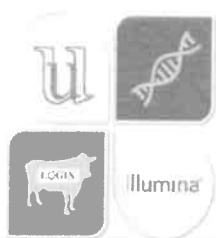
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	T/T - Normal breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A2/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Carrier		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
				Growth Hormone 2291	Normal milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%		AcylCoA - milk fat percentage	Increased milk & protein yield. Decreased fat yield, fat % & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Horned

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Unistel Medical Laboratories Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0195

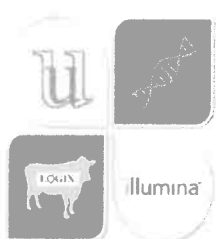
17286U013

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status	
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown	
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/C - Faster breakdown	
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown	
	Silver Dilution type 1	+/+		Calpastatin - 282	G/G - Inhibits effect of Calpain	
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/A - Inhibits effect of Calpain	
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain	
	Myostatin E226X	Clear				
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A1	
	Myostatin nt419	Clear		Beta Casein - 411	B/B	
	Myostatin nt821	Clear		Kappa Casein - 352	A/A	
	Myostatin Q204X	Clear		Kappa Casein - 467	A/G1	
	Myostatin D182N	Clear		Kappa Casein - 470	A/A	
	Myostatin F94L	Clear		Kappa Casein - 506	B/B	
	Myostatin S105C	Clear		Kappa Casein - 526	A/A	
	POMPE Status	E13 mutation	Clear			
		E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
		E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
				Growth Hormone 2291	Normal milk fat yield, fat & protein %	
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %	
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.	
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear	
				Yellow milk fat	Normal yellow fat	
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled	

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Unistel Medical Laboratories

Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0227

17286U014

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear	Milk status	Beta Casein - 245	A1/A1
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	G1/G1
	Myostatin Q204X	Clear		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
	Myostatin S105C	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E13 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
	E18 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
POMPE Status	E7 mutation	Clear		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
				AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
				Trimethylaminuria excess in milk	Clear
Heat Tolerance	SLICK	No added resistance		Yellow milk fat	Normal yellow fat
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%			
Bone Disorder	Osteopetrosis	Clear			
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories

Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0239

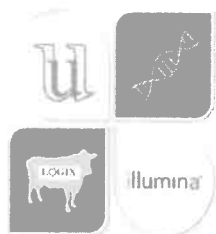
17286U015

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/C - Intermediate breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/G - Inhibits effect of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/A - Inhibits effect of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A2/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
				Growth Hormone 2291	Increased milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories

Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0254

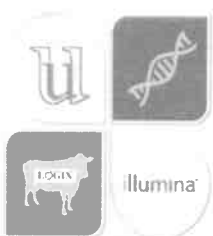
17286U016

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/C - Intermediate breakdown
	MC1R - ED	E+/E+		Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+	Tenderness	Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/G1
	Myostatin Q204X	Carrier		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
	Myostatin S105C	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
POMPE Status	E13 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
	E18 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
	E7 mutation	Clear	Hornedness	ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Heat Tolerance	SLICK	No added resistance		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		Trimethylaminuria excess in milk	Clear
Bone Disorder	Osteopetrosis	Clear		Yellow milk fat	Normal yellow fat

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Unistel Medical Laboratories Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0256

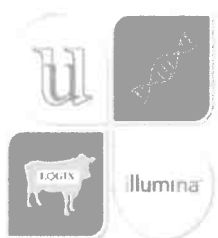
17286U017

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/C - Intermediate breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
POMPE Status	Myostatin S105C	Clear		Kappa Casein - 526	A/A
	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
				Growth Hormone 2291	Normal milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Horned

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Unistel Medical Laboratories Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0265

17286U018

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/C - Intermediate breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/A
	Myostatin Q204X	Carrier		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
POMPE Status	Myostatin S105C	Clear			
	E13 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E18 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance	E7 mutation	Clear		Growth Hormone 2291	Increased milk fat yield, fat & protein %
	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
					Increased milk & protein yield. Decreased fat yield, fat % & protein %.
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%		AcylCoA - milk fat percentage	Clear
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Normal yellow fat
				Yellow milk fat	
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras
Bonsmara

Animal Tested:

EHE22-0263

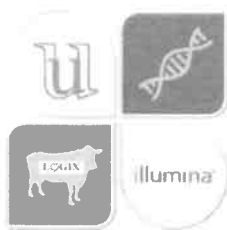
Sample type:

17286U019

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/A
	Myostatin F94L	Clear		Kappa Casein - 506	B/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
				Growth Hormone 2291	Normal milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%		AcylCoA - milk fat percentage	Increased milk & protein yield. Decreased fat yield, fat % & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Horned

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
EHE22-0269
17286U020

Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A2/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Carrier		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/A
	Myostatin F94L	Clear		Kappa Casein - 506	B/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Normal milk fat yield, fat & protein %
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
EHE22-0270
17286U021

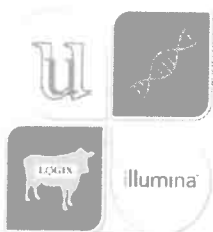
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear	Milk status	Beta Casein - 245	A2/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/G1
	Myostatin Q204X	Clear		Kappa Casein - 470	A/B
	Myostatin D182N	Clear		Kappa Casein - 506	A/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
	Myostatin S105C	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E13 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
	E18 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
POMPE Status	E7 mutation	Clear		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
				AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Heat Tolerance	SLICK	No added resistance		Trimethylaminuria excess in milk	Clear
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		Yellow milk fat	Normal yellow fat
Bone Disorder	Osteopetrosis	Clear			
			Hornedness	Polled (Celtic and Friesian)	Horned

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
 Animal Tested: **EHE22-0274**
17286U022

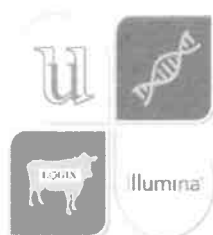
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat Tenderness	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+		Calpain 1 - 4751	T/T - Normal breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	A/G - Intermediate breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear	Milk status	Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear		Beta Casein - 245	A2/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/A
	Myostatin Q204X	Clear		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
POMPE Status	Myostatin S105C	Clear	Milk quality	Growth Hormone F279Y Growth Hormone 2141 Growth Hormone 2291 ABCG2 - protein yield milk AcylCoA - milk fat percentage Trimethylaminuria excess in milk Yellow milk fat	Increased milk, casein & lactose yield; decreased protein & fat yield Normal milk protein & fat yield Normal milk fat yield, fat & protein % Normal fat, protein & milk yield; normal fat & protein % Slightly increased milk yield. Slightly decreased fat & protein %.
	E13 mutation	Clear			
	E18 mutation	Clear			
Heat Tolerance	E7 mutation	Clear			
	SLICK	No added resistance			
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%	Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled
Bone Disorder	Osteopetrosis	Insufficient data			

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
 EHE22-0277
 17286U023

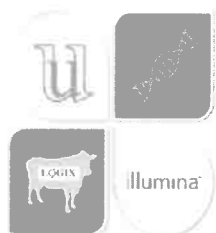
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
POMPE Status	Myostatin S105C	Clear		Kappa Casein - 526	A/A
	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
				Growth Hormone 2291	Increased milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories
Genetic Report
BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras
Bonsmara
Animal Tested: **EHE22-0286**
17286U024

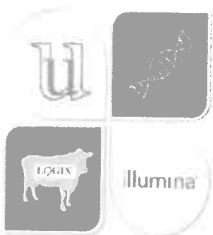
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/C - Intermediate breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear	Milk status	Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear		Beta Casein - 245	A1/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear	Milk quality		
	E18 mutation	Clear		Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Increased milk fat yield, fat & protein %
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Horned

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
EHE22-0289
17286U025

Animal Tested:

Sample type:

Hair

Sample type:			Hair				
Description	Mutations	Status	Description	Mutations Tested	Status		
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown		
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/C - Faster breakdown		
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown		
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain		
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain		
Myostatin Status	Myostatin C313Y	Clear	Milk status	Calpastatin - 2959	A/A - Does not inhibit Calpain		
	Myostatin E226X	Clear		Beta Casein - 245	A2/A2		
	Myostatin E291X	Clear		Beta Casein - 411	B/B		
	Myostatin nt419	Clear		Kappa Casein - 352	A/A		
	Myostatin nt821	Clear		Kappa Casein - 467	A/A		
	Myostatin Q204X	Clear		Kappa Casein - 470	A/A		
	Myostatin D182N	Clear		Kappa Casein - 506	B/B		
	Myostatin F94L	Clear		Kappa Casein - 526	A/A		
	Myostatin S105C	Clear					
	POMPE Status	E13 mutation		Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
		E18 mutation		Clear		Growth Hormone 2141	Decreased milk protein & fat yield
		E7 mutation		Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
	Heat Tolerance	SLICK		No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	No added resistance		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.		
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear		
				Yellow milk fat	Normal yellow fat		
				Hornedness	Polled (Celtic and Friesian)	Horned	

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0306

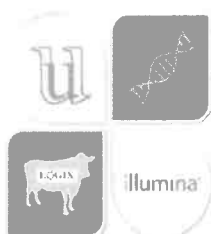
17286U026

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat Tenderness	Calpain 1 - 316	C/C - Faster breakdown
	MC1R - ED	E+/E+		Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear	Milk status	Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear		Beta Casein - 245	A2/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/A
	Myostatin Q204X	Clear		Kappa Casein - 470	A/B
	Myostatin D182N	Clear		Kappa Casein - 506	A/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
	Myostatin S105C	Clear			
	E13 mutation	Clear			
POMPE Status	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Intermediate milk, casein & lactose yield, slightly reduced protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
				Growth Hormone 2291	Normal milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Normal fat, protein & milk yield. Normal fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Horned

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Unistel Medical Laboratories

Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0304

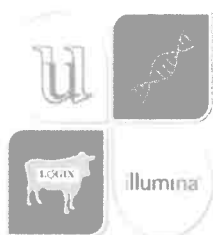
17286U027

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear	Milk status	Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear		Beta Casein - 245	A2/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/A
	Myostatin Q204X	Carrier		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
	Myostatin S105C	Clear			
POMPE Status	E13 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E18 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
	E7 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Normal fat, protein & milk yield. Normal fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0309

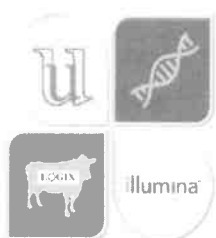
17286U028

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/G - Intermediate inhibition of Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A2/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Carrier		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/A
	Myostatin F94L	Clear		Kappa Casein - 506	B/B
POMPE Status	Myostatin S105C	Clear		Kappa Casein - 526	A/A
	E13 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E18 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance	E7 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

EHE22-0318

17286U029

Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	T/T - Normal breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	A/G - Intermediate breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/G - Intermediate inhibition of Calpain
	Myostatin E226X	Clear	Milk status	Beta Casein - 245	A2/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/A
	Myostatin Q204X	Clear		Kappa Casein - 470	B/B
	Myostatin D182N	Clear		Kappa Casein - 506	A/A
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
POMPE Status	Myostatin S105C	Clear	Milk quality		
	E13 mutation	Clear		Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E18 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance	E7 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	SLICK	No added resistance		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Pinkeye resistance	Reduced risk 16-26%		Trimethylaminuria excess in milk	Clear
	Osteopetrosis	Clear		Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Horned

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Unistel Medical Laboratories
Genetic Report
BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0324

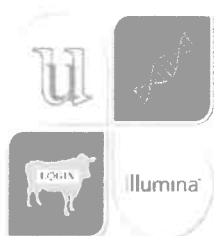
17286U030

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat Tenderness	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+		Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear	Milk status	Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear		Beta Casein - 245	A1/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/A
	Myostatin Q204X	Clear		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
	Myostatin S105C	Clear			
	Myostatin S105C	Clear			
POMPE Status	E13 mutation	Clear	Milk quality	Growth Hormone F279Y	Intermediate milk, casein & lactose yield, slightly reduced protein & fat yield
	E18 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
	E7 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance	Hornedness	ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Increased milk & protein yield. Decreased fat yield, fat % & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Horned

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Unistel Medical Laboratories
Genetic Report
BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras
Bonsmara
Animal Tested: **EHE22-0330**
17286U031

Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Increased milk fat yield, fat & protein %
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Normal fat, protein & milk yield. Normal fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0358

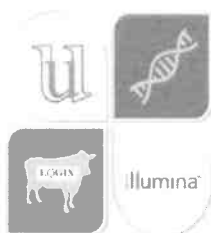
17286U032

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/C - Faster breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A1
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Carrier		Kappa Casein - 467	A/G1
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
				Growth Hormone 2291	Normal milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%		AcylCoA - milk fat percentage	Normal fat, protein & milk yield. Normal fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Homozygous Polled

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
 EHE22-0383
 17286U033

Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	Insufficient data	Meat	Calpain 1 - 316	G/C - Intermediate breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	A/G - Intermediate breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear	Milk status	Beta Casein - 245	A2/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/A
	Myostatin Q204X	Clear		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
	Myostatin S105C	Clear	Milk quality	Growth Hormone F279Y	Intermediate milk, casein & lactose yield, slightly reduced protein & fat yield
POMPE Status	E13 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
	E18 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
	E7 mutation	Clear	Hornedness	ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Heat Tolerance	SLICK	No added resistance		AcylCoA - milk fat percentage	Increased milk & protein yield. Decreased fat yield, fat % & protein %.
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		Trimethylaminuria excess in milk	Clear
Bone Disorder	Osteopetrosis	Clear		Yellow milk fat	Normal yellow fat

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0418

17286U034

Sample type:

Hair

			Sample type:			Hair
Description	Mutations	Status	Description	Mutations Tested	Status	
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/C - Intermediate breakdown	
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown	
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	A/G - Intermediate breakdown	
	Silver Dilution type 1	+/+		Calpastatin - 282	G/C - Intermediate inhibition of Calpain	
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/G - Intermediate inhibition of Calpain	
Myostatin Status	Myostatin C313Y	Clear	Milk status	Calpastatin - 2959	A/A - Does not inhibit Calpain	
	Myostatin E226X	Clear				
	Myostatin E291X	Clear				
	Myostatin nt419	Clear		Beta Casein - 245	A1/A2	
	Myostatin nt821	Clear		Beta Casein - 411	B/B	
	Myostatin Q204X	Clear		Kappa Casein - 352	A/A	
	Myostatin D182N	Clear		Kappa Casein - 467	A/G1	
	Myostatin F94L	Clear		Kappa Casein - 470	A/B	
	Myostatin S105C	Clear		Kappa Casein - 506	A/B	
				Kappa Casein - 526	A/A	
	POMPE Status	E13 mutation		Clear	Milk quality	
E18 mutation		Clear	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield		
E7 mutation		Clear	Growth Hormone 2141	Normal milk protein & fat yield		
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Normal milk fat yield, fat & protein %	
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %	
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Normal fat, protein & milk yield. Normal fat & protein %.	
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear	
				Yellow milk fat	Normal yellow fat	
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled	

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Unistel Medical Laboratories
Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0421

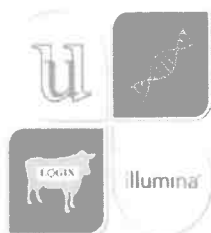
17286U035

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	A/G - Intermediate breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear	Milk status	Beta Casein - 245	A1/A1
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/A
	Myostatin Q204X	Clear		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
POMPE Status	Myostatin S105C	Clear			
	E13 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E18 mutation	Clear		Growth Hormone 2141	Normal milk protein & fat yield
Heat Tolerance	E7 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Slightly increased milk yield. Slightly decreased fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories Genetic Report

BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns

Gelibar Bonsmaras

Bonsmara

EHE22-0428

17286U036

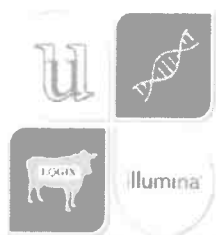
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	C/T - Intermediate breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	A/G - Intermediate breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin E291X	Clear		Beta Casein - 411	B/B
	Myostatin nt419	Clear		Kappa Casein - 352	A/A
	Myostatin nt821	Clear		Kappa Casein - 467	A/A
	Myostatin Q204X	Clear		Kappa Casein - 470	A/A
	Myostatin D182N	Clear		Kappa Casein - 506	B/B
	Myostatin F94L	Clear		Kappa Casein - 526	A/A
	Myostatin S105C	Clear			
POMPE Status	E13 mutation	Clear	Milk quality	Growth Hormone F279Y	Intermediate milk, casein & lactose yield, slightly reduced protein & fat yield
	E18 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
	E7 mutation	Clear		Growth Hormone 2291	Normal milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%		AcylCoA - milk fat percentage	Normal fat, protein & milk yield. Normal fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras
 Bonsmara
EHE22-0436
17286U037

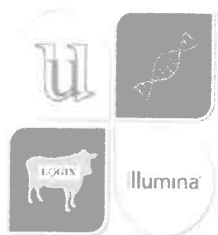
Animal Tested:

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	T/T - Normal breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	A/G - Intermediate breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	C/C - Does not inhibit Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	G/G - Does not inhibit Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/A - Does not inhibit Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Clear		Kappa Casein - 467	A/G1
	Myostatin D182N	Clear		Kappa Casein - 470	A/B
	Myostatin F94L	Clear		Kappa Casein - 506	A/B
POMPE Status	Myostatin S105C	Clear		Kappa Casein - 526	A/A
	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
				Growth Hormone 2291	Normal milk fat yield, fat & protein %
Heat Tolerance	SLICK	No added resistance		ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 16-26%		AcylCoA - milk fat percentage	Normal fat, protein & milk yield. Normal fat & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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Unistel Medical Laboratories
Genetic Report
 BOVINESNP50-24 v3 BeadChip

JG Viljoen and seuns
 Gelibar Bonsmaras

Bonsmara

Animal Tested:

EHE22-0446

17286U038

Sample type:

Hair

Description	Mutations	Status	Description	Mutations Tested	Status
Coat colouration	MC1R - e	E+/E+	Meat	Calpain 1 - 316	G/G - Normal breakdown
	MC1R - ED	E+/E+	Tenderness	Calpain 1 - 4751	T/T - Normal breakdown
	Dun Dexter Dilution (TYPR1)	+/+		Calpain 1 - 530	G/G - Normal breakdown
	Silver Dilution type 1	+/+		Calpastatin - 282	G/G - Inhibits effect of Calpain
	Silver Dilution type 2	+/+		Calpastatin - 2870	A/A - Inhibits effect of Calpain
Myostatin Status	Myostatin C313Y	Clear		Calpastatin - 2959	A/G - Intermediate inhibition of Calpain
	Myostatin E226X	Clear			
	Myostatin E291X	Clear	Milk status	Beta Casein - 245	A1/A2
	Myostatin nt419	Clear		Beta Casein - 411	B/B
	Myostatin nt821	Clear		Kappa Casein - 352	A/A
	Myostatin Q204X	Carrier		Kappa Casein - 467	A/A
	Myostatin D182N	Clear		Kappa Casein - 470	A/A
	Myostatin F94L	Clear		Kappa Casein - 506	B/B
	Myostatin S105C	Clear		Kappa Casein - 526	A/A
POMPE Status	E13 mutation	Clear			
	E18 mutation	Clear	Milk quality	Growth Hormone F279Y	Increased milk, casein & lactose yield; decreased protein & fat yield
	E7 mutation	Clear		Growth Hormone 2141	Decreased milk protein & fat yield
Heat Tolerance	SLICK	No added resistance		Growth Hormone 2291	Increased milk fat yield, fat & protein %
				ABCG2 - protein yield milk	Normal fat, protein & milk yield; normal fat & protein %
Eye Disorders	Pinkeye resistance	Reduced risk 8-13%		AcylCoA - milk fat percentage	Increased milk & protein yield. Decreased fat yield, fat % & protein %.
Bone Disorder	Osteopetrosis	Clear		Trimethylaminuria excess in milk	Clear
				Yellow milk fat	Normal yellow fat
			Hornedness	Polled (Celtic and Friesian)	Heterozygous Polled

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