

**Appendix 3:** List all royalty-free mendelian traits to be reported within the SNP chip that is a subject of offer

**Bovine Versa SNP50K**

***Royalty Free Traits***

<b>Trait_Type</b>	<b>Full_Trait_Name</b>	<b>Trait_Abbreviation</b>
Milk	ABCG2	ABCG2
Milk	AcylCoA:Diacylglycerol Acyltransferase	DGAT1
Lethal	Alpha Mannosidosis_662	AM_662
Unwanted	Alpha Mannosidosis_961	AM_961
<b>Lethal</b>	<b>*Arachnomelia Syndrome_MOCS1</b>	<b>ARAS_MOCS1</b>
<b>Lethal</b>	<b>*Arachnomelia Syndrome_SUOX</b>	<b>ARAC_SUOX</b>
<b>Lethal</b>	<b>*Arthrogyposis with Cleft Palate</b>	<b>ACP</b>
Unwanted	Axonopathy	AX
Lethal	Beta Mannosidosis	BM
Unwanted	Bovine Hereditary Zinc Deficiency	BHZD
Unwanted	Bovine Leukocyte Adhesion Deficiency	BLAD
<b>Unwanted</b>	<b>*Bovine Progressive Degenerative Myeloencephalopathy</b>	<b>Weaver</b>
<b>Disease</b>	<b>*Bovine Spinal Dysmyelination</b>	<b>SDM</b>
Lethal-Embryo	Bulldog Dwarfism 1	BD1
<b>Meat</b>	<b>*Calpain1 316</b>	<b>CAPN1_316</b>
<b>Meat</b>	<b>*Calpain1 4751</b>	<b>CAPN1_4751</b>
<b>Meat</b>	<b>*Calpain1 530</b>	<b>CAPN1_530</b>
<b>Meat</b>	<b>*Calpastatin 282</b>	<b>CAST_282</b>
<b>Meat</b>	<b>*Calpastatin 2870</b>	<b>CAST_2870</b>
<b>Meat</b>	<b>*Calpastatin 2959</b>	<b>CAST_2959</b>
Lethal	Cardiomyopathy and Woolly Hair Syndrome	CWH
Unwanted	Chediak_Higashi syndrome	CHS
Lethal	Citrullinaemia	CT
Colour	Coat colour Black gene E, extension	MC1R_ED
Colour	Coat colour Red factor e	MC1R_e
Lethal	Congenital Muscular Dystonia 1	CMD1
Lethal	Congenital Muscular Dystonia 2	CMD2
Unwanted	Congenital Myoclonus	CM
Unwanted	Crooked Tail Syndrome delAG	CTS_delAG
Lethal-Embryo	Deficiency of Uridine Monophosphate Synthase	DUMPS
Colour	Dominant_red	HDR
Colour	Dun Dexter	DUN
Unwanted	Dwarfism, Belgian Blue	RNF11
Unwanted	Dystrophic Epidermolysis Bullosa	DEB
Unwanted	Ehlers Danlos Syndrome-Holstein Variant	EDS_Hol
Unwanted	Factor XI deficiency Wagyu	FXI_WA
Lethal-Embryo	Fleckvieh Haplotype 4 (embryonic loss),	FH4
Milk	Growth Hormone Receptor F279Y	GHR_F279Y
Milk	Growth Hormone_2141	GH_2141



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Milk	Growth Hormone_2291	GH_2291
Lethal-Embryo	Holstein Haplotype 1	HH1
Lethal-Embryo	Holstein Haplotype 3	HH3
Lethal-Embryo	Holstein Haplotype 4	HH4
Unwanted	Hypotrichosis Streaked_ERCC6L	HY_ERCC6L
Unwanted	Hypotrichosis Streaked_TSR2	HY_TSR2
Unwanted	Hypotrichosis_HEPHL1	HY_HEPHL1
Unwanted	Idiopathic Male subfertility	IDMS
Lethal-Embryo	Jersey Haplotype 1	JH1
Lethal	Maple Syrup Urine Disease_Hereford	MSU_HER
Lethal	Maple Syrup Urine Disease_Shorthorn	MSU_SH
Lethal-Embryo	Montbeliarde Haplotype 2	MH2
<b>Unwanted</b>	<b>*Mulefoot G1199S</b>	<b>MF_G1199S</b>
<b>Unwanted</b>	<b>*Mulefoot G907R</b>	<b>MF_G907R</b>
<b>Unwanted</b>	<b>*Mulefoot NG1621KC</b>	<b>MF_NG1621KC</b>
<b>Meat</b>	<b>*Myostatin C313Y</b>	<b>MYO_C313Y</b>
<b>Meat</b>	<b>*Myostatin D182N</b>	<b>MYO_D182N</b>
<b>Meat</b>	<b>*Myostatin E226X</b>	<b>MYO_E226X</b>
<b>Meat</b>	<b>*Myostatin E291X</b>	<b>MYO_E291X</b>
<b>Meat</b>	<b>*Myostatin F94L</b>	<b>MYO_F94L</b>
<b>Meat</b>	<b>*Myostatin L64P</b>	<b>MYO_L64P</b>
<b>Meat</b>	<b>*Myostatin nt267</b>	<b>MYO_nt267</b>
<b>Meat</b>	<b>*Myostatin nt324</b>	<b>MYO_nt324</b>
<b>Meat</b>	<b>*Myostatin nt414</b>	<b>MYO_nt414</b>
<b>Meat</b>	<b>*Myostatin nt419</b>	<b>MYO_nt419</b>
<b>Meat</b>	<b>*Myostatin nt748_78</b>	<b>MYO_nt748_78</b>
<b>Meat</b>	<b>*Myostatin nt821DEL11</b>	<b>MYO_nt821</b>
<b>Meat</b>	<b>*Myostatin Q204X</b>	<b>MYO_Q204X</b>
<b>Meat</b>	<b>*Myostatin S105C</b>	<b>MYO_S105C</b>
Lethal	Neuronal ceroid lipofuscinosis	NCL
Lethal-Embryo	Osteopetrosis	OS
Lethal	Paunch Calf Syndrome	PCS
Lethal	Perinatal weak calf syndrome	PWCS
Colour	PMEL17_1835C_A	PMEL17_1835C_A
Colour	PMEL17_delITTC	PMEL17_delITTC
<b>Beneficial</b>	<b>*Polled Celtic</b>	<b>POLL_C</b>
<b>Beneficial</b>	<b>*Polled Friesian_1909396D2</b>	<b>POLL_F</b>
<b>Beneficial</b>	<b>*Polled Friesian_51D</b>	<b>POLL_F_51D</b>
<b>Beneficial</b>	<b>*Polled Friesian_C1655463T</b>	<b>POLL_F_C1655463T</b>
<b>Beneficial</b>	<b>*Polled Friesian_G1654405A</b>	<b>POLL_F_G1654405A</b>
<b>Unwanted</b>	<b>*Protoporphyrin</b>	<b>PROTO</b>
Unwanted	Pseudomyotonia_c491G>A	PMT_164
Unwanted	Pseudomyotonia_c632G>T	PMT_211
Unwanted	Pseudomyotonia_c857G>T	PMT_284
Lethal	Ptosis, intellectual disability, retarded growth and mortality	PIRM
Lethal	RNASEH2B_del	RNASEH2B_del
Colour	Silver Char Dilutor_1	PMEL17_64G_A
Unwanted	Spherocytosis	SP
<b>Unwanted</b>	<b>*Spinal Muscular Atrophy</b>	<b>SMA</b>
Unwanted	STAT1	STAT1
Unwanted	STAT3_19069	STAT3_19069
Unwanted	STAT3_25402	STAT3_25402
Unwanted	STAT5_13244	STAT5_13244



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Unwanted	STAT5_13319	STAT5_13319
Unwanted	STAT5_13516	STAT5_13516
Unwanted	Thrombopathia	THR
Colour	White Heifer Disease/Roan_coat_colour	WFD_Roan
Milk	Yellow milk fat	YMF
Lethal	Holstein Cholesterol Deficiency	HCD
Lethal-Embryo	Holstein Haplotype 5	HH5
<b>Lethal-Embryo</b>	<b>*Braunvieh Haplotype 2</b>	<b>BH2</b>
Lethal-Embryo	Holstein Haplotype 6	HH6
Lethal-Embryo	Holstein Haplotype 7	HH7
Unwanted	Cardiomyopathy Dilated	CYD
Unwanted	Pompes GSD E13	E13
Unwanted	Pompes GSD E18	E18
Unwanted	Pompes GSD E7	E7
	Glycogen Storage Disease V -	
Unwanted	Myophosphorylase	GSD_V
Unwanted	Retinitis Pigmentosa	RETPIG
Unwanted	Xanthinuria Tyrolean Grey	Xan_Tyrolean
	Kappa Casein Sub Variant	
Milk	AY380228_12951	CSN3_AY380228_12951
	Kappa Casein Sub Variant	
Milk	AY380228_12971	CSN3_AY380228_12971
	Kappa Casein Sub Variant	
Milk	AY380228_13065	CSN3_AY380228_13065
	Kappa Casein Sub Variant	
Milk	AY380228_13068	CSN3_AY380228_13068
	<b>*Kappa Casein Sub Variant</b>	
<b>Milk</b>	<b>AY380228_13104 Allele A/B</b>	<b>CSN3_AY380228_13104</b>
	Kappa Casein Sub Variant	
Milk	AY380228_13111	CSN3_AY380228_13111
	<b>*Kappa Casein Sub Variant</b>	
<b>Milk</b>	<b>AY380228_13124 Allele E</b>	<b>CSN3_AY380228_13124</b>
	Kappa Casein Sub Variant	
Milk	AY380228_13165	CSN3_AY380228_13165
	Beta Lactoglobulin Sub Variant	
Milk	X14710_5263	LGB_X14710_5263
	Renal	
Unwanted	Dysplasia_CLDN16_Type_1_77509397_i	CLDN16
Coat Colour	Telstar	Telstar

***\*Mendelian traits requested in the Call for offers: Bovine genotyping service by the Project Consortium led by the Biotechnical Faculty, University of Ljubljana.***

**Appendix 4:** List all other offered mendelian traits that require an additional royalty fee

**Bovine Versa SNP50K**

***Royalty Traits***

***Additional Fee applies***

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<b>Trait_Type</b>	<b>Full_Trait_Name</b>	<b>Trait_Abbreviation</b>
Beneficial	SLICK 39136558	SLICK_39136558
Beneficial	SLICK 39263696	SLICK_39263696
Beneficial	SLICK 39339348	SLICK_39339348
Lethal	Idiopathic Epilepsy	IE
Lethal	Tibial Hemimelia_Improver	TH_Imp
<b>Lethal-Embryo</b>	<b>*Complex Vertebral Malformation</b>	<b>CVM</b>
Lethal-Embryo	Neuropathic hydrocephalus	NH
<b>Milk</b>	<b>*A2 Corporation A1/A2 Test</b>	<b>CSN2_A2_CORP</b>
<b>Milk</b>	<b>Beta Casein Sub Variant X14711_8101</b>	<b>CSN2_X14711_8101</b>
<b>Milk</b>	<b>Beta Casein Sub Variant X14711_8219</b>	<b>CSN2_X14711_8219</b>
<b>Milk</b>	<b>Beta Casein Sub Variant X14711_8178</b>	<b>CSN2_X14711_8178</b>
<b>Milk</b>	<b>Beta Casein Sub Variant X14711_8267</b>	<b>CSN2_X14711_8267</b>
<b>Milk</b>	<b>Beta Casein Sub Variant X14711_8356</b>	<b>CSN2_X14711_8356</b>
<b>Milk</b>	<b>Beta Casein Sub Variant X14711_6690</b>	<b>CSN2_X14711_6690</b>
Unwanted	Developmental_Duplication	DD
Unwanted	Hypotrichosis_KRT71	HY_KRT71
Unwanted	Pulmonary Hypoplasia with Anasarca 1	PHA1
Unwanted/Milk	Trimethylaminuria	FMO3

***\*Mendelian traits requested in the Call for offers: Bovine genotyping service by the Project Consortium led by the Biotechnical Faculty, University of Ljubljana.***