



Supplementary Material

Identification of Differentially Expressed Genes between White and Black Skin Tissues by RNA-Seq in the Tibetan Sheep (*Ovis aries*)

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Supplementary Table I.- GO analysis of differentially expressed genes in Tibetan sheep with white skin vs. black skin samples(biological process).

GO accession	GO terms	Gene count	Percentage (%)	p-Value
GO:0006955	Immune response	19	27.94	1.07E-10
GO:0006952	Defense response	11	16.18	1.61E-04
GO:0009615	Response to virus	9	13.24	1.22E-08
GO:0042127	Regulation of cell proliferation	7	10.29	0.099
GO:0046148	Pigment biosynthetic process	6	8.82	4.78E-07
GO:0042440	Pigment metabolic process	6	8.82	9.96E-07
GO:0043473	Pigmentation	6	8.82	3.91E-06
GO:0019748	Secondary metabolic process	6	8.82	1.65E-05
GO:0042438	Melanin biosynthetic process	5	7.35	1.69E-08
GO:0006582	Melanin metabolic process	5	7.35	3.03E-08

Supplementary Table II.- GO analysis of differentially expressed genes in Tibetan sheep with white skin vs. black skin samples (cellular component).

GO accession	GO terms	Gene count	Percentage (%)	p-Value
GO:0005576	Extracellular region	12	17.65	0.074
GO:0005615	Extracellular space	6	8.82	0.085
GO:0048770	Pigment granule	5	7.35	2.41E-04
GO:0042470	Melanosome	5	7.35	2.41E-04

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Supplementary Table III.- GO analysis of differentially expressed genes in Tibetan sheep with white skin vs. black skin samples(molecular function).

GO accession	GO terms	Gene count	Percentage (%)
GO:0000166	Nucleotide binding	15	22.06
GO:0032555	Purine ribonucleotide binding	14	20.59
GO:0032553	Ribonucleotide binding	14	20.59
GO:0017076	Purine nucleotide binding	14	20.59
GO:0046983	Protein dimerization activity	7	10.29
GO:0003723	RNA binding	7	10.29
GO:0003924	GTPase activity	6	8.82
GO:0005525	GTP binding	6	8.82
GO:0019001	Guanyl nucleotide binding	6	8.82
GO:0032561	Guanyl ribonucleotide binding	6	8.82
GO:0042802	Identical protein binding	6	8.82
GO:0042803	Protein homodimerization activity	5	7.35
GO:0005507	Copper ion binding	3	4.41
GO:0004386	Helicase activity	3	4.41
GO:0016716	Oxidoreductase activity, acting on paired donors, with incorporation or reduction of molecular oxygen, another compound as one donor, and incorporation of one atom of oxygen	2	2.94
GO:0003950	NAD+ ADP-ribosyltransferase activity	2	2.94