Candidate genes screened from the critical signal pathways and GO terms

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| GO terms or KEGG pathways | Gene name |
| GO:0043473 (pigmentation) | DCT |
| SLC45A2 |
| TYR |
| GPR143 |
| TYRP1 |
| OCA2 |
| PAX3 |
| PMEL |
| GO:0060429 (epithelium development) | FZD2 |
| TMEM231 |
| UPK1B |
| GPX1 |
| LAMA1 |
| TYRP1 |
| OCA2 |
| PAX3 |
| GO:0042470 (melanosome) | DCT |
| SLC45A2 |
| TYR |
| GPR143 |
| MLANA |
| TYRP1 |
| OCA2 |
| PMEL |
| GO:0048770 (pigment granule) | DCT |
| SLC45A2 |
| TYR |
| GPR143 |
| MLANA |
| TYRP1 |
| OCA2 |
| PMEL |
| ko00350 (Tyrosine metabolism) | DCT |
| DDC |
| TYRP1 |
| TYR |
| ko04916 (Melanogenesis) | DCT |
| FZD2 |
| MC1R |
| TYR |
| TYRP1 |

Some genes were duplicated in GO terms and KEGG pathways. We screened a total of 15 candidate genes regulating skin pigmentation in Minxian Black Fur sheep.