

Supplementary table 1

GO biological process complete Genes			raw P- value	FDR
eye pigment biosynthetic process (GO:0006726)			5.42E-06	6.13E-03
pigment metabolic process involved in pigmentation (GO:0043474)			5.42E-06	5.72E-03
pigment metabolic process involved in developmental pigmentation (GO:0043324)			5.42E-06	5.36E-03
eye pigment metabolic process (GO:0042441)			5.42E-06	5.05E-03
melanin biosynthetic process (GO:0042438)			8.65E-12	1.37E-07
eye pigmentation (GO:0048069)			1.29E-05	9.73E-03
melanin metabolic process (GO:0006582)			1.29E-11	1.02E-07
secondary metabolite biosynthetic process (GO:0044550)			7.14E-11	2.82E-07
phenol-containing compound biosynthetic process (GO:0046189)			6.13E-11	3.23E-07
developmental pigmentation (GO:0048066)			1.33E-10	4.21E-07
melanocyte differentiation (GO:0030318)			8.16E-06	7.17E-03
pigment biosynthetic process (GO:0046148)			8.02E-10	1.81E-06
pigment cell differentiation (GO:0050931)			3.03E-05	1.91E-02
secondary metabolic process (GO:0019748)			4.05E-08	6.41E-05
pigment metabolic process (GO:0042440)			5.43E-09	1.07E-05
pigmentation (GO:0043473)			1.60E-10	4.23E-07
phenol-containing compound metabolic process (GO:0018958)			3.24E-08	5.69E-05
organic hydroxy compound biosynthetic process (GO:1901617)			1.17E-05	9.23E-03
visual perception (GO:0007601)			2.61E-05	1.79E-02
sensory perception of light stimulus (GO:0050953)			2.88E-05	1.90E-02
nervous system process (GO:0050877)			5.57E-05	3.39E-02
nervous system development (GO:0007399)			6.71E-05	3.79E-02
cellular developmental process (GO:0048869)			1.94E-06	2.56E-03
cell differentiation (GO:0030154)			9.95E-06	8.28E-03
developmental process (GO:0032502)			4.35E-07	6.25E-04
anatomical structure development (GO:0048856)			1.30E-05	9.35E-03
multicellular organism development (GO:0007275)			5.85E-05	3.43E-02
multicellular organismal process (GO:0032501)			3.50E-06	4.26E-03