

Supplementary Table 3 Statistic of Differentially Expressed Genes in CDK5-knockdown wersus wild-type mice skin

geneID	Wide_type- Expression	CDK5_knockdo wn-Expression	Wide_typ e-FPKM	CDK5_knock down-FPKM	log2 Ratio(CDK5_knoc kdown/Wide_type)	Up-Down-Regulation(C DK5_knockdown/Wide _type)	P-value	FDR
94245	0	2	0.001	11.15	13.44475609	Up	0.224708	0.665170853
15201	0	2	0.001	4.73	12.20762447	Up	0.224708	0.649009118
19014	0	4	0.001	4.48	12.12928302	Up	0.052321	0.351099227
100169	0	2	0.001	3.18	11.63481105	Up	0.224708	0.679678396
13798	0	1	0.001	2.82	11.46147945	Up	0.46568	0.79599903
18975	2	11	2.91	17.14	2.558276051	Up	0.00895402	0.135960585
12807	1	5	1.85	9.93	2.424268447	Up	0.1036324	0.508146848
240888	2	10	1.96	10.48	2.418713157	Up	0.0160922	0.18753949
14451	3	7	6.39	15.98	1.322379572	Up	0.1846234	0.617216276
50518	1	2	10.11	21.66	1.099250246	Up	0.573542	0.728061477
16413	17	26	61.33	100.55	0.713248226	Up	0.1115342	0.487691055
13626	2	3	6.55	10.54	0.686308055	Up	0.623204	0.763161219
67427	2	3	3.89	6.25	0.684086035	Up	0.623204	0.756591842
11776	4	5	5.65	7.57	0.422042433	Up	0.669584	0.800173555
13607	5	6	6.79	8.74	0.364221705	Up	0.681698	0.791683051
13518	66	77	49.98	62.53	0.323197616	Up	0.1813946	0.616830595
83603	1	1	2.18	2.34	0.102180395	Up	0.947628	0.968580345
20529	6	6	10.67	11.44	0.100526876	Up	0.897816	0.971359633
23937	8	8	19.89	21.32	0.100164162	Up	0.883768	0.963805181
22178	0	5	13.17	0.001	-13.68496773	Down	0.0252468	0.252195225
232946	3.46	0	12.65	0.001	-13.62684976	Down	0.1434012	0.577840865

19659	5	0	12.79	0.001	-13.64272864	Down	0.0383984	0.301997246
19668	4	0	10.96	0.001	-13.41996018	Down	0.074205	0.430285578
20665	4	0	9.91	0.001	-13.27466934	Down	0.074205	0.415238605
110312	1	0	9.32	0.001	-13.18611424	Down	0.53554	0.747062588
18505	0	4	5.81	0.001	-13.05494342	Down	0.052321	0.353379092
79456	4	0	6.82	0.001	-12.73555602	Down	0.074205	0.444855767
14712	3	0	6.75	0.001	-12.72067179	Down	0.1434012	0.580935436
17237	3	0	6.11	0.001	-12.57695666	Down	0.1434012	0.589255005
26395	2	0	5.64	0.001	-12.46147945	Down	0.277122	0.670914216
16678	2	0	5.47	0.001	-12.41732512	Down	0.277122	0.616065232
72433	1	0	4.3	0.001	-12.07012094	Down	0.53554	0.69748448
103199	2	0	4.09	0.001	-11.99788513	Down	0.277122	0.65959158
12686	1	0	3.6	0.001	-11.81378119	Down	0.53554	0.810370675
14682	3	0	3.55	0.001	-11.79360331	Down	0.1434012	0.578401059
116905	1	0	3.21	0.001	-11.64835758	Down	0.53554	0.801768323
13190	0	1	3.17	0.001	-11.63026713	Down	0.46568	0.842924359
14634	4	0	3.16	0.001	-11.62570884	Down	0.074205	0.414124618
23908	2	0	2.78	0.001	-11.44086917	Down	0.277122	0.628490641
13649	2	0	2.51	0.001	-11.29347165	Down	0.277122	0.632628851
213827	1	0	1.93	0.001	-10.91438513	Down	0.53554	0.775131038
21384	1	0	1.87	0.001	-10.86882255	Down	0.53554	0.708575026
13608	1	0	1.81	0.001	-10.82177398	Down	0.53554	0.723296273
56453	1	0	1.58	0.001	-10.62570884	Down	0.53554	0.774188384
19645	1	0	1.44	0.001	-10.4918531	Down	0.53554	0.757604274
21859	1	0	1.43	0.001	-10.48179943	Down	0.53554	0.733052861
11789	0	2	0.001	1.14	-10.15481811	Down	0.224708	0.690470926

18607	1	0	0.94	0.001	-9.876516947	Down	0.53554	0.765149097
18129	1	0	0.63	0.001	-9.299208018	Down	0.53554	0.758248824
17101	0	1	0.6	0.001	-9.22881869	Down	0.46568	0.801929487
20431	2	12	40.73	6.33	-2.68581441	Down	0.00493554	0.095286841
17918	9	2	5.12	1.22	-2.069262662	Down	0.0512964	0.365442932
11774	4	1	6.66	1.78	-1.903644936	Down	0.253238	0.668101902
93762	4	1	5.74	1.54	-1.898120386	Down	0.253238	0.679520606
74355	8	2	7.56	2.03	-1.896906507	Down	0.0841744	0.445840345
67299	3	1	2.84	1.01	-1.491535637	Down	0.420186	0.801919199
22642	3	1	5.89	2.1	-1.487878306	Down	0.420186	0.796257733
54635	3	1	5.72	2.04	-1.487445995	Down	0.420186	0.803393315
17869	6	2	16.86	6.02	-1.485769144	Down	0.216528	0.680668488
109052	3	1	6.15	2.2	-1.483082887	Down	0.420186	0.804317393
16667	3	1	12.88	4.61	-1.482293938	Down	0.420186	0.794990383
230857	2	1	2.75	1.47	-0.903615464	Down	0.678286	0.794037395
171211	4	2	3.29	1.76	-0.902512155	Down	0.512406	0.824865608
14462	2	1	4.12	2.21	-0.898597968	Down	0.678286	0.793702406
11990	2	1	1.52	0.82	-0.890375509	Down	0.678286	0.798531099
56187	4.98	2.63	13.16	7.45	-0.820847158	Down	0.512406	0.824706059
18742	13	7	64.2	37.05	-0.793099755	Down	0.24932	0.676423776
22173	825	455.81	933.45	553	-0.755293266	Down	4.71E-20	1.78E-17
26570	7162	4127	5164.43	3191.15	-0.694532703	Down	1.62E-138	6.72E-135
14183	5	3	6.84	4.4	-0.636492801	Down	0.578922	0.718343269
14672	5	3	10.27	6.61	-0.635714005	Down	0.578922	0.718236165
13871	74	48	139.72	97.17	-0.523955674	Down	0.0494148	0.364845209
18591	3	2	6.81	4.87	-0.483733026	Down	0.754082	0.854284047

11491	9	7	13.51	11.27	-0.261540159	Down	0.736064	0.838552648
20085	10	8	111.82	95.8	-0.223080689	Down	0.761922	0.85640321
107817	5	4	20.07	17.21	-0.221793519	Down	0.841222	0.929095867
18508	32	33	68	61.5	-0.144948336	Down	0.683368	0.791633736
17199	1	1.02	2	1.82	-0.13606155	Down	0.947628	0.97264248
18128	7	6	4.9	4.51	-0.119654316	Down	0.894494	0.97079491
171531	2	2	3.2	2.98	-0.102759574	Down	0.93456	0.97694394

Supplementary Table 4. Differentially expressed known hair color genes in CDK5-knockdown vs wild-type mice skin

Symbol	Gene Name	Differential expression log2 Ratio(CDK5-knockdown/ Wild-type)	Function
<b>(a) Melanocyte Development</b>			
Adam17	a disintegrin and metallopeptidase domain 17	Down-regulated	Protease, processing various surface proteins
Apc	adenomatosis polyposis coli	Down-regulated	Wnt pathway mediator; transcription factor
Arcn1	archain 1	Down-regulated	coatamer protein delta-COP, conserved across diverse eukaryotes
Dph1	diphthamide biosynthesis 1	Down-regulated	Delayed embryonic eye pigmentation
Dock7	dedicator of cytokinesis 7	Down-regulated	generalized hypopigmentation and localized white-spotting in mice, with a lack of pigment on the belly, tail tip, and paws; but