

**Table S8. Selected list of significantly differentially expressed gene in *Rsl*-KO retina after AAV8-*RS1* gene transfer.**

Gene symbol	Description	Mouse Genome Informatics <sup>a</sup>	Log 2-Fold Change <sup>b</sup>	P Value	Adj P Value <sup>c</sup>
	<b>Collagens</b>				
Col5a1	collagen, type V, alpha 1	<a href="#">MGI:88457</a>	-0.66	4.10E-07	3.11E-05
Col6a1	collagen, type VI, alpha 1 MGI:88459	<a href="#">MGI:88459</a>	-1.01	1.77E-23	7.49E-20
Col6a4	collagen, type VI, alpha 4	<a href="#">MGI:1915803</a>	-1.05	3.95E-15	3.86E-12
Col7a1	collagen, type VII, alpha 1	<a href="#">MGI:88462</a>	-1.41	3.46E-19	6.27E-16
Col11a1	collagen, type XI, alpha 1	<a href="#">MGI:88446</a>	-0.71	5.86E-06	2.84E-04
Col11a2	collagen, type XI, alpha 2	<a href="#">MGI:88447</a>	-0.93	4.14E-06	2.08E-04
Col17a1	collagen, type XVII, alpha 1	<a href="#">MGI:88450</a>	-0.66	6.73E-05	2.02E-03
Col20a1	collagen, type XX, alpha 1	<a href="#">MGI:1920618</a>	-0.62	2.04E-11	7.83E-09
Col27a1	collagen, type XXVII, alpha 1	<a href="#">MGI:2672118</a>	-0.75	1.02E-11	4.47E-09
	<b>Vascular Collagens</b>				
Col8a1	collagen, type VIII, alpha 1	<a href="#">MGI:88463</a>	1.12	3.52E-06	1.80E-04
Col8a2	collagen, type VIII, alpha 2	<a href="#">MGI:88464</a>	0.93	1.8E-03	2.67E-02
	<b>Basement Membrane Components</b>				
Col4a3	collagen, type IV, alpha 3	<a href="#">MGI:104688</a>	1.55	1.60E-05	3.37E-04
Col4a4	collagen, type IV, alpha 4	<a href="#">MGI:104687</a>	1.25	4.69E-06	1.38E-03
Col4a5	collagen, type IV, alpha 5	<a href="#">MGI:88456</a>	0.89	1.45E-04	1.54E-03
Col4a6	collagen, type IV, alpha 6	<a href="#">MGI:2152695</a>	1.16	5.41E-04	3.56E-03
Col6a1	collagen, type VI, alpha 1	<a href="#">MGI:88459</a>	-0.63	1.20E-08	1.38E-05
Hspg2	perlecan (heparan sulfate proteoglycan 2)	<a href="#">MGI:96257</a>	1.86	5.35E-04	3.55E-03
Lama2	laminin, alpha 2	<a href="#">MGI:99912</a>	1.22	7.84E-05	1.02E-03
Lama3	laminin alpha3	<a href="#">MGI:99909</a>	0.92	2.90E-05	2.42E-03
	<b>ECM</b>				
Bmp2	bone morphogenetic protein 2	<a href="#">MGI:88177</a>	1.00	1.18E-04	1.32E-03
Fgfr2	fibroblast growth factor receptor 2	<a href="#">MGI:95523</a>	1.31	1.88E-05	3.64E-02
Itga6	integrin alpha 6	<a href="#">MGI:96605</a>	0.89	5.08E-05	7.75E-03
Lox2	lysyl oxidase-like 2	<a href="#">MGI:2137913</a>	0.79	5.07E-04	3.41E-03
Ror1	receptor tyrosine kinase-like orphan receptor1	<a href="#">MGI:1347520</a>	0.98	1.62E-05	3.33E-03
Serpinh1	serine (or cysteine) peptidase inhibitor, clade H, member 1	<a href="#">MGI:88283</a>	0.62	6.97E-04	4.14E-02
	<b>Retinoid Cycle</b>				
Lrat	lecithin-retinol acyltransferase(	<a href="#">MGI:1891259</a>	1.01	1.53E-03	2.33E-03
Rbp1	retinol binding protein 1, cellular	<a href="#">MGI:97876</a>	0.61	4.44E-03	0.13
Rdh5	retinol dehydrogenase 5	<a href="#">MGI:1201412</a>	0.97	8.69E-04	4.94E-03
Rpe65	retinal pigment epithelium 65	<a href="#">MGI:98001</a>	1.05	1.85E-03	2.71E-03
Stra6	stimulated by retinoic acid gene 6	<a href="#">MGI:107742</a>	0.97	8.69E-04	4.94E-03
	<b>Melanogenesis</b>				
Dct	dopachrome tautomerase	<a href="#">MGI:102563</a>	0.84	1.22E-05	5.15E-04
Oc2	oculocutaneous albinism II	<a href="#">MGI:97454</a>	0.96	1.11E-04	3.03E-03
Tyr	tyrosinase	<a href="#">MGI:98880</a>	1.02	7.61E-07	5.14E-05
Tyrp1	tyrosinase-related protein 1	<a href="#">MGI:98881</a>	0.87	1.22E-05	5.15E-04
	<b>Apoptosis</b>				
Aifm3	apoptosis-inducing factor, mitochondrion-3	<a href="#">MGI:1919418</a>	-1.02	3.16 E-11	1.03E-08
	<b>Camera type eye development</b>				
Aqp5	aquaporin 5	<a href="#">MGI:106215</a>	1.55	3.04E-06	9.86E-04
Aldh1a1	aldehyde dehydrogenase family 1, A1	<a href="#">MGI:1353450</a>	0.83	1.58E-07	1.03E-04

Bfsp1	beaded filament structural protein 1,in lens	<a href="#">MGI:101770</a>	3.58	4.23E-04	3.08E-02
Crygb	crystallin, gamma B	<a href="#">MGI:88522</a>	5.01	8.37E-04	4.84E-02
Fat1	FAT atypical cadherin 1	<a href="#">MGI:109168</a>	1.18	6.47E-04	4.08E-03
Gjal	gap junction protein, alpha 1	<a href="#">MGI:95713</a>	0.87	4.91E-04	3.38E-02
Maf1	avian musculoaponeurotic fibrosarcoma oncogene homolog	<a href="#">MGI:96909</a>	0.82	1.90E-05	3.64E-03
Mfrp	membrane frizzled-related protein	<a href="#">MGI:2385957</a>	1.09	4.17E-06	1.28E-02
Pdgfra	platelet derived growth factor receptor, alpha polypeptide	<a href="#">MGI:97530</a>	0.78	6.81E-08	5.97E-05
Pdgfrb	platelet derived growth factor receptor, beta polypeptide	<a href="#">MGI:97531</a>	0.67	2.19E-04	2.00E-02
Vim	vimentin	<a href="#">MGI:98932</a>	0.67	4.97E-04	3.40E-02
	<b>Adhesion</b>				
Anxa1	annexin A1	<a href="#">MGI:96819</a>	1.22	1.99E-06	6.76E-02
Ass1	argininosuccinate synthetase 1	<a href="#">MGI:88090</a>	0.60	1.24E-05	2.85E-03
Cdh3	cadherin 3	<a href="#">MGI:88356</a>	0.86	4.60E-04	3.22E-03
Cd24a	CD24a antigen	<a href="#">MGI:88323</a>	2.10	7.80E-05	1.02E-02
Dock5	dedicator of cytokinesis 5	<a href="#">MGI:2652871</a>	1.47	4.15E-04	3.08E-02
Emp2	epithelial membrane protein 2	<a href="#">MGI:1098726</a>	0.89	5.08E-05	7.76E-03
Ezr	ezrin	<a href="#">MGI:98931</a>	0.96	3.21E-05	5.21E-03
Gpnmb	glycoprotein (transmembrane) nmb	<a href="#">MGI:1934765</a>	1.08	6.95E-04	4.14E-02
Gsn	gelsolin	<a href="#">MGI:95851</a>	1.24	2.03E-06	6.76E-04
Itga6	integrin alpha 6	<a href="#">MGI:96605</a>	0.89	5.08E-05	7.76E-03
Igfbp5	insulin-like growth factor binding protein 5	<a href="#">MGI:96440</a>	0.74	2.92E-04	2.41E-03
Igfbp7	insulin-like growth factor binding protein 7	<a href="#">MGI:1352480</a>	1.79	8.32E-04	4.82E-03
Kif26b	kinesin family member 26B	<a href="#">MGI:2447076</a>	0.75	3.38E-05	5.41E-03
Pdgfra	platelet derived growth factor receptor, $\alpha$	<a href="#">MGI:97530</a>	0.78	6.81E-08	5.97E-05
Shisa6	shisa family member 6	<a href="#">MGI:2685725</a>	1.15	5.83E-12	1.85E-08
Sfrp1	secreted frizzled-related protein 1	<a href="#">MGI:892014</a>	2.03	9.28E-05	1.11E-02
Tinagl1	tubulointerstitial nephritis antigen-like 1	<a href="#">MGI:2137617</a>	1.36	7.07E-08	5.97E-05
Vit	vitrin	<a href="#">MGI:1921449</a>	1.28	7.09E-07	3.33E-03

**a**-MGI-Mouse gene ID; **b**-log2FC-fold change expressed as log2 base; **c**-adj.P.Value: p value adjusted using Benjamini Hochberg method implemented in edgeR