

**Supplementary Table 1.** Old SC DEGs identified in other studies.

<b>Gene</b>	<b>Read Count</b>	<b>log2 FC vs young SC</b>	<b>p-value</b>	<b>Reference</b>
<i>Cybb</i>	15483.41	1.102597	0.041861139	(Verdier et al., 2012)
<i>Tnxb</i>	10621.51	-1.81268	0.027581426	(Verdier et al., 2012)
<i>Mpeg1</i>	6772.199	2.083542	0.001261864	(Verdier et al., 2012)
<i>Clec7a</i>	4275.218	1.429666	0.034235293	(Verdier et al., 2012)
<i>Ccl8</i>	4053.56	2.789377	<0.0001	(Verdier et al., 2012)
<i>Cfb</i>	3921.807	1.67177	0.000557927	(Verdier et al., 2012)
<i>Efemp2</i>	2032.541	-1.42965	0.008981677	(Verdier et al., 2012)
<i>Agpat4</i>	1687.745	-1.21694	0.004404667	(Verdier et al., 2012)
<i>Cd274</i>	1203.697	1.654163	0.011415664	(Verdier et al., 2012)
<i>Ifi47</i>	1200.834	1.569063	0.000325352	(Verdier et al., 2012)
<i>Tlr13</i>	1180.075	1.652889	0.002367042	(Verdier et al., 2012)
<i>S100a8</i>	286.6353	6.354282	0.019733296	(Verdier et al., 2012)
<i>S100a9</i>	190.2979	6.537318	0.001103747	(Verdier et al., 2012)
<i>Col3a1</i>	75630.87	-2.18346	<0.0001	(Painter et al., 2014)
<i>Col1a2</i>	27984.84	-2.02834	<0.0001	(Painter et al., 2014)
<i>Col1a1</i>	22430.61	-2.07517	<0.0001	(Painter et al., 2014)
<i>Mfap5</i>	21761.55	-2.03275	0.009187091	(Painter et al., 2014)
<i>Col6a1</i>	11932.78	-1.38679	0.028750326	(Painter et al., 2014)
<i>Col6a2</i>	6172.605	-1.27614	0.044538465	(Painter et al., 2014)
<i>Spon2</i>	1067.843	-1.65701	0.009887987	(Painter et al., 2014)
<i>Itm2a</i>	1038.862	-1.70748	0.000418984	(Painter et al., 2014)

**Supplementary Table 2.** Repair SC genes.

<b>Gene</b>	<b>SC Log<sub>2</sub> FC (Old v YA)</b>	<b>p &lt; 0.05?</b>	<b>PSC Log<sub>2</sub> FC (Old v YA)</b>	<b>p &lt; 0.05?</b>	<b>Reference</b>
<i>Artn</i>	0.68	N/A	-1.68	No	(K. R. Jessen & Mirsky, 2016)
<i>Bdnf</i>	0.35	No	-0.03	No	(K. R. Jessen & Mirsky, 2016)
<i>Ccl2</i>	-0.04	No	1.53	No	(K. R. Jessen & Mirsky, 2016; Ma et al., 2018)
<i>Ccnd1</i>	0.30	No	-0.57	No	(Atanasoski et al., 2001; Kim et al., 2001)
<i>Epop</i>	-0.76	No	1.35	No	(K. R. Jessen & Mirsky, 2016)
<i>Epor</i>	0.02	No	2.02	No	(K. R. Jessen & Mirsky, 2016)
<i>Fgf5</i>	1.22	No	1.64	No	(Barrette et al., 2010)
<i>Gdnf</i>	-0.75	No	0.77	No	(K. R. Jessen & Mirsky, 2016)
<i>Gfap</i>	0.17	No	1.81	No	(K. R. Jessen & Mirsky, 2016)
<i>Il1a</i>	0.95	No	3.39	N/A	(K. R. Jessen & Mirsky, 2016)
<i>Il1b</i>	0.28	No	3.37	N/A	(K. R. Jessen & Mirsky, 2016)
<i>L1cam</i>	0.52	No	-0.31	No	(K. R. Jessen & Mirsky, 2016)
<i>Lif</i>	0.52	No	2.08	No	(K. R. Jessen & Mirsky, 2016)
<i>Ncam1</i>	-0.03	No	-0.57	No	(K. R. Jessen & Mirsky, 2016)
<i>Ngf</i>	-1.40	Yes	0.07	No	(K. R. Jessen & Mirsky, 2016)
<i>Ngfr</i>	-0.12	No	0.76	No	(K. R. Jessen & Mirsky, 2016)
<i>Ntf3</i>	-0.83	No	-0.26	No	(K. R. Jessen & Mirsky, 2016)
<i>Pou3f1</i>	-1.30	No	-0.92	No	(K. R. Jessen & Mirsky, 2016)
<i>Ptn</i>	-1.72	Yes	-0.82	No	(K. R. Jessen & Mirsky, 2016)
<i>Tnf</i>	0.28	No	2.02	No	(K. R. Jessen & Mirsky, 2016)
<i>Vegfa</i>	-0.84	No	1.17	No	(K. R. Jessen & Mirsky, 2016)