

**Table S1** Overview of lncRNAs sequencing results

Groups	LncRNAs classification	Total	Differential expression	Up-regulated	Down-regulated
SCI-1 vs. NC	Annotated	74	16	11	5
	Non-annotated	3,958	452	271	181
SCI-2 vs. NC	Annotated	66	11	5	6
	Non-annotated	2,943	106	33	73
SCI-3 vs. NC	Annotated	74	13	7	6
	Non-annotated	3,958	395	194	201
SCI-2 vs. SCI-1	Annotated	74	12	4	8
	Non-annotated	3,960	199	49	150
SCI-3 vs. SCI-1	Annotated	77	12	6	6
	Non-annotated	4,046	209	83	126
SCI-3 vs. SCI-2	Annotated	69	9	5	4
	Non-annotated	3,405	105	76	29

SCI, spinal cord injury; NC, normal control.

**Table S2** Differentially expressed annotated lncRNAs common to SCI 1–3 compared with NC

LncRNAs	Ref. ID	Log <sub>2</sub> (FC)			Regulation	P value
		SCI-1 vs. NC	SCI-2 vs. NC	SCI-3 vs. NC		
LOC100910558	NR_110680.1	-1.546415992	-1.366787363	-1.287343456	Down	<0.05
LOC100910945	NR_131086.1	-1.055060514	-0.547077347	-0.720552987	Down	<0.05
Miat	NR_111959.1	-0.36042155	-0.842292570	-3.707241104	Down	<0.05
LOC100911717	NR_132640.1	-0.317800792	-0.704729328	-0.113700253	Down	<0.05
LOC100910973	NR_102351.1	1.082645959	1.484233505	3.464149930	Up	<0.05
Mir155hg	NR_132107.1	2.463915289	2.030949228	2.822043830	Up	<0.05
LOC102554317	NR_133666.1	2.801305823	3.400502277	5.458524688	Up	<0.05
H19	NR_027324.1	4.830080779	1.327515764	2.425336332	Up	<0.05

SCI, spinal cord injury; NC, normal control; FC, fold change.

**Table S3** Target gene prediction of differentially expressed lncRNAs

LncRNAs	Ref. ID	Cis-regulation	Trans-regulation	Cis-target gene	Trans-target gene
LOC100910558	NR_110680.1	+	-	<i>Nfib</i>	
LOC100910945	NR_131086.1	+	+	<i>Tet1</i>	<i>Kcnj14, Pcgf2, Exosc6, Exog, Cpt1c, Aarsd1, LOC499240, H2afv, Agl, Txlng, Ptgr2, Rpl27a, Tcp11l1, Cnr2, LOC102547626, RGD1563285, Ccl28, Rlim_ID:108348168, Tssk4, LOC102552055, Ybey, Bcl9, Arhgap9, Fmc1, Med12l, Tonsl, Dcun1d1, LOC102556148, Mdp1, Tcf25, Mip, LOC102552805, Rangap1, Rlim_ID:317241, N5, Rnf43</i>
Miat	NR_111959.1	-	-		
LOC100911717	NR_132640.1	+	-	<i>Ptgs2</i>	
LOC100910973	NR_102351.1	-	-		
Mir155hg	NR_132107.1	+	+	<i>Mrpl39</i>	<i>Pi4ka, Ccdc71, Dzip1l, Daglb, Cnpy2, Anxa9, Lmtk2, Atp7a, LOC100910258, Suox, Mmgt1</i>
LOC102554317	NR_133666.1	-	+		<i>Nanog, Tmem44</i>
H19	NR_027324.1	+	-	LOC102547221	