

Table S1. Genome-wide transcriptome analysis of *Cdx2* mutants versus control embryos**A Top 20 and potentially interesting genes upregulated in *Cdx2*^{-/-} relatively to control embryos at the 4/5 somite stage**

Agilent ID	Gene symbol	Gene title	Fold change	
A_51_P218335	Tbx1	T-box 1	7.56	up
A_52_P428654	Zic1	zinc finger protein of the cerebellum 1	7.00	up
A_52_P171166	BC048679	cDNA sequence BC048679	6.69	up
A_52_P385594	Tal2	T-cell acute lymphocytic leukemia 2	6.19	up
A_52_P118560	Kynu	kynureninase (L-kynurenine hydrolase)	5.97	up
A_52_P437792	A730017C20Rik	RIKEN cDNA A730017C20 gene	5.69	up
A_51_P333438	TC1651696	Filamin-interacting protein L-FILIP; partial (22%)	5.66	up
A_51_P146970	Dmrt2	doublesex and mab-3 related transcription factor 2	4.85	up
A_51_P448167	Cer1	cerberus 1 homolog	4.51	up
A_52_P671132	Dner	delta/notch-like EGF-related receptor	3.86	up
A_51_P403705	2610100L16Rik	product:hypothetical protein; full insert sequence. [AK011787]	3.81	up
A_51_P227222	Adamts2	a disintegrin-like and metallopeptidase (repolysin type)	3.72	up
A_52_P270429	2200001I15Rik	RIKEN cDNA 2200001I15 gene	3.65	up
A_51_P423709	Fam84a	family with sequence similarity 84; member A	3.62	up
A_52_P136782	Rgs5	regulator of G-protein signaling 5	3.61	up
A_52_P455428	Gla2	glycine receptor; alpha 2 subunit	3.29	up
A_51_P417720	Itga11	integrin alpha 11	3.24	up
A_52_P122649	Dmrta1	doublesex and mab-3 related transcription factor like family A1	3.21	up
A_52_P60194	C4bp	complement component 4 binding protein	3.19	up
A_52_P425667	Adcyap1	adenylate cyclase activating polypeptide 1	3.16	up
A_51_P202440	Rarb	retinoic acid receptor; beta	2.18	up
A_52_P552665	Fzd7	frizzled homolog 7	2.10	up
A_52_P58145	Aldh1a2	aldehyde dehydrogenase family 1; subfamily A2	1.96	up
A_51_P361220	Fzd4	frizzled homolog 4	1.77	up
A_51_P511015	Fzd9	frizzled homolog 9	1.70	up
A_51_P124285	Nkd1	naked cuticle 1 homolog	1.50	up

B Top 20 and potentially interesting genes downregulated in *Cdx2*^{-/-} relatively to control embryos at the 4/5 somite stage

Agilent ID	Gene symbol	Gene title	Fold change	
A_51_P337308	Saa3	serum amyloid A 3	18.72	down
A_51_P309530	Nepn	nephrocan	7.82	down
A_51_P103406	Vwf	Von Willebrand factor homolog	7.42	down
A_51_P370458	Krtap17-1	keratin associated protein 17-1	6.85	down
A_52_P685021	Cxcl12	chemokine (C-X-C motif) ligand 12	5.23	down
A_51_P509263	Hoxa7	homeo box A7	5.13	down
A_52_P556448	Krt86	keratin 86	5.13	down
A_52_P665240	Krt83	keratin 83	4.83	down
A_52_P201106	4930473A06Rik	RIKEN cDNA 4930473A06 gene	4.14	down
A_51_P181297	Serpib1a	serine (or cysteine) peptidase inhibitor; clade B; member 1a	4.14	down
A_52_P346987	Hoxc9	homeo box C9	4.12	down
A_52_P880457	Ampd1	adenosine monophosphate deaminase 1	4.04	down
A_52_P973575	Hoxb9	homeo box B9	3.93	down
A_51_P496245	Hoxc6	homeo box C6	3.79	down
A_52_P591310	Hoxd13	homeo box D13	3.63	down

A_52_P441294	Chl1	cell adhesion molecule with homology to L1CAM	3.61	down
A_52_P590168	Tg	thyroglobulin	3.55	down
A_52_P350950	Dennd2c	DENN/MADD domain containing 2C	3.11	down
A_51_P466285	Hoxa10	homeo box A10	3.03	down
A_51_P117924	Hoxa9	homeo box A9	2.96	down
A_51_P402686	Hoxb8	homeo box B8	2.75	down
A_51_P260265	Hoxd4	homeo box D4	2.29	down
A_51_P102911	Hoxa11	homeo box A11	2.26	down
A_51_P479444	Ihh	indian hedgehog	2.16	down
A_52_P85805	Wnt5b	wingless-related MMTV integration site 5B	2.07	down
A_51_P286748	Frzb	frizzled-related protein	1.97	down
A_51_P485542	Hoxd8	homeo box D8	1.93	down
A_52_P49014	Shh	sonic hedgehog	1.87	down
A_52_P382149	Cyp26a1	cytochrome P450; family 26; subfamily a; polypeptide 1	1.81	down
A_51_P372853	Rarg	retinoic acid receptor; gamma	1.61	down
A_51_P383741	Bmp4	bone morphogenetic protein 4	1.59	down
A_52_P686760	Gdf11	growth differentiation factor 11	1.50	down
A_52_P544043	Pcsk5	proprotein convertase subtilisin/kexin type 5	1.48	down

C Top 20 and potentially interesting genes upregulated in *Cdx2*^{-/-} relatively to control embryos at the 7/8 somite stage

Agilent ID	Gene Symbol	Gene title	Fold change	
A_51_P194230	Zic1	zinc finger protein of the cerebellum 1	12.82	up
A_51_P423709	Fam84a	family with sequence similarity 84; member A	8.61	up
A_52_P437792	A730017C20Rik	RIKEN cDNA A730017C20 gene	8.09	up
A_51_P218335	Tbx1	T-box 1	7.38	up
A_51_P397876	En2	engrailed 2	6.52	up
A_51_P227222	Adamts2	a disintegrin-like and metalloproteinase (reprolysin type)	5.63	up
A_51_P287198	Krt23	keratin 23	5.63	up
A_52_P224348	Kctd12b	potassium channel tetramerisation domain containing 12b	4.82	up
A_51_P455166	Prl4a1	prolactin family 4; subfamily a; member 1	4.57	up
A_52_P60194	C4bp	complement component 4 binding protein	4.07	up
A_52_P661412	Adora1	adenosine A1 receptor	3.86	up
A_52_P127925	Tcfec	transcription factor EC	3.83	up
A_51_P403705	2610100L16Rik	RIKEN full-length enriched library; clone:2610100L16	3.80	up
A_52_P270429	2200001115Rik	RIKEN cDNA 2200001115 gene	3.70	up
A_51_P276305	Stra8	stimulated by retinoic acid gene 8	3.55	up
A_51_P317141	Col2a1	collagen; type II; alpha 1	3.52	up
A_52_P39083	Ccbe1	collagen and calcium binding EGF domains 1	3.50	up
A_52_P739568	AK082480	RIKEN full-length enriched library; clone:C230053P15	3.47	up
A_52_P478025	Smpd3	sphingomyelin phosphodiesterase 3	3.40	up
A_52_P63892	Itga4	integrin alpha 4	3.32	up
A_52_P58145	Aldh1a2	aldehyde dehydrogenase family 1; subfamily A2	2.30	up
A_52_P552665	Fzd7	frizzled homolog 7	1.94	up
A_51_P124285	Nkd1	naked cuticle 1 homolog	1.77	up
A_51_P202440	Rarb	retinoic acid receptor; beta	1.65	up
A_51_P511015	Fzd9	frizzled homolog 9	1.49	up
A_51_P361220	Fzd4	frizzled homolog 4	1.37	up

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A_51_P337308	Saa3	serum amyloid A 3	19.57	down
A_52_P973575	Hoxb9	homeo box B9	10.41	down
A_52_P591310	Hoxd13	homeo box D13	9.50	down
A_51_P370458	Krtap17-1	keratin associated protein 17-1	8.05	down
A_51_P487818	Fabp1	fatty acid binding protein 1	7.78	down
A_51_P172502	Cxcl12	chemokine (C-X-C motif) ligand 12	6.23	down
A_51_P103406	Vwf	Von Willebrand factor homolog	5.45	down
A_52_P665240	Krt83	keratin 83	5.12	down
A_51_P398525	Fn3k	fructosamine 3 kinase	4.85	down
A_51_P137322	Cck	cholecystokinin	4.79	down
A_52_P525317	Gja5	gap junction membrane channel protein alpha 5	4.79	down
A_51_P309530	Nepn	nephrocan	4.72	down
A_52_P556448	Krt86	keratin 86	4.59	down
A_51_P456208	Tff3	trefoil factor 3	4.50	down
A_51_P181297	Serpinb1a	serine (or cysteine) peptidase inhibitor; clade B; member 1a	4.49	down
A_52_P648524	Dio3	deiodinase; iodothyronine type III	4.31	down
A_51_P466285	Hoxa10	homeo box A10	3.97	down
A_51_P210510	Sparcl1	SPARC-like 1	3.97	down
A_51_P502437	Cacna2d3	calcium channel; voltage-dependent; alpha2/delta subunit 3	3.93	down
A_51_P113784	Prpf19	PRP19/PSO4 pre-mRNA processing factor 19 homolog	3.77	down
A_51_P102911	Hoxa11	homeo box A11	3.03	down
A_51_P260265	Hoxd4	homeo box D4	2.69	down
A_52_P346987	Hoxc9	homeo box C9	2.49	down
A_51_P402686	Hoxb8	homeo box B8	2.47	down
A_51_P509263	Hoxa7	homeo box A7	2.46	down
A_51_P117924	Hoxa9	homeo box A9	2.13	down
A_52_P973575	Hoxb9	homeo box B9	1.92	down
A_51_P496245	Hoxc6	homeo box C6	1.81	down
A_52_P382149	Cyp26a1	cytochrome P450; family 26; subfamily a; polypeptide 1	1.70	down
A_52_P49014	Shh	sonic hedgehog	1.69	down
A_51_P286748	Frzb	frizzled-related protein	1.65	down
A_52_P686760	Gdf11	growth differentiation factor 11	1.65	down
A_51_P479444	Ihh	Indian hedgehog	1.57	down
A_52_P544043	Pcsk5	proprotein convertase subtilisin/kexin type 5	1.55	down
A_51_P372853	Rarg	retinoic acid receptor; gamma	1.48	down
A_51_P485542	Hoxd8	homeo box D8	1.43	down
A_52_P258116	Wnt3	wingless-related MMTV integration site 3	1.43	down
A_51_P383741	Bmp4	bone morphogenetic protein 4	1.41	down
A_51_P137991	Wnt5b	wingless-related MMTV integration site 5B	1.39	down