

Supplementary Table 1A. Proportions of trophectoderm (TE) and inner cell mass (ICM) contributed by clones derived from a 2-cell stage blastomere injected with *Cdx2* mRNA (Cdx2; red) and one not injected (wt; green).

Nr				ICM			TE		
	Total	wt	Cdx2	Total	wt	Cdx2	Total	wt	Cdx2
1	32	0.50	0.50	11	0.45	0.55	21	0.52	0.48
2	32	0.50	0.50	14	0.57	0.43	18	0.44	0.56
3	32	0.47	0.53	11	0.64	0.36	21	0.38	0.62
4	30	0.53	0.47	12	0.50	0.50	18	0.56	0.44
5	31	0.52	0.48	12	0.67	0.33	19	0.42	0.58
6	31	0.48	0.52	9	0.67	0.33	22	0.41	0.59
7	32	0.50	0.50	11	0.64	0.36	21	0.43	0.57
8	30	0.47	0.53	11	0.55	0.45	19	0.42	0.58
9	30	0.53	0.47	12	0.67	0.33	18	0.44	0.56
10	31	0.48	0.52	13	0.62	0.38	18	0.39	0.61
11	32	0.50	0.50	12	0.67	0.33	20	0.40	0.60
12	32	0.50	0.50	15	0.60	0.40	17	0.41	0.59
13	32	0.50	0.50	12	0.67	0.33	20	0.40	0.60
14	32	0.50	0.50	13	0.77	0.23	19	0.32	0.68
15	32	0.50	0.50	15	0.67	0.33	17	0.35	0.65
16	32	0.50	0.50	12	0.50	0.50	20	0.50	0.50
17	30	0.50	0.50	11	0.64	0.36	19	0.42	0.58
18	31	0.52	0.48	10	0.60	0.40	21	0.48	0.52
19	30	0.50	0.50	13	0.54	0.46	17	0.47	0.53
20	31	0.48	0.52	10	0.70	0.30	21	0.38	0.62
Total (Av)	625	(50%)	(50%)	239	(62%)	(38%)	386	(43%)	(57%)

Supplementary Table 1B. Proportions of trophectoderm (TE) and inner cell mass (ICM) contributed by clones derived from a 2-cell stage blastomere injected with *DsRed mRNA* (DsRed; red) and one not injected (wt; green).

Nr				ICM			TE		
	Total	wt	DsRed	Total	wt	DsRed	Total	wt	DsRed
1	31	0.52	0.48	12	0.67	0.33	19	0.42	0.58
2	32	0.50	0.50	12	0.50	0.50	20	0.50	0.50
3	32	0.50	0.50	12	0.50	0.50	20	0.50	0.50
4	31	0.48	0.52	13	0.54	0.46	18	0.44	0.56
5	32	0.50	0.50	12	0.42	0.58	20	0.55	0.45
6	32	0.53	0.47	13	0.46	0.54	19	0.58	0.42
7	32	0.50	0.50	14	0.36	0.64	18	0.61	0.39
8	32	0.50	0.50	14	0.57	0.43	18	0.44	0.56
9	32	0.50	0.50	12	0.58	0.42	20	0.45	0.55
10	32	0.50	0.50	12	0.50	0.50	20	0.50	0.50
11	32	0.50	0.50	14	0.57	0.43	18	0.44	0.56
12	32	0.50	0.50	12	0.42	0.58	20	0.55	0.45
13	32	0.50	0.50	14	0.57	0.43	18	0.44	0.56
14	30	0.53	0.47	14	0.50	0.50	16	0.56	0.44
15	30	0.53	0.47	12	0.50	0.50	18	0.56	0.44
16	32	0.50	0.50	16	0.56	0.44	16	0.44	0.56
17	32	0.50	0.50	16	0.44	0.56	16	0.56	0.44
18	31	0.52	0.48	9	0.67	0.33	22	0.45	0.55
19	32	0.50	0.50	15	0.53	0.47	17	0.47	0.53
Total (Av)	601	(51%)	(49%)	248	(52%)	(48%)	353	(50%)	(50%)

Supplementary Table 2A. Proportions of symmetric or asymmetric divisions at the 4th and the 5th cleavages that are contributed by progeny of one 2-cell blastomere that received *Cdx2* mRNA (*Cdx2*; red) versus progeny of one that was not injected (wt; green).

Nr	4th total	Symmetric (4th)			Asymmetric (4th)			5th total	Symmetric (5th)			Asymmetric (5th)		
		Total	wt	<i>Cdx2</i>	Total	wt	<i>Cdx2</i>		Total	wt	<i>Cdx2</i>	Total	wt	<i>Cdx2</i>
1	8	5	0.60	0.40	3	0.33	0.67	13	8	0.50	0.50	5	0.60	0.40
2	8	2	0.50	0.50	6	0.50	0.50	10	8	0.38	0.63	2	1.00	0.00
3	8	2	0.00	1.00	6	0.67	0.33	10	10	0.40	0.60	0	0.00	0.00
4	8	3	0.67	0.33	5	0.40	0.60	10	7	0.57	0.43	3	0.67	0.33
5	8	4	0.25	0.75	4	0.75	0.25	11	7	0.43	0.57	4	0.50	0.50
6	8	5	0.40	0.60	3	0.67	0.33	13	9	0.33	0.67	4	0.75	0.25
7	8	4	0.25	0.75	4	0.75	0.25	12	9	0.44	0.56	3	0.33	0.67
8	8	3	0.00	1.00	5	0.80	0.20	11	8	0.50	0.50	3	0.00	1.00
9	8	4	0.50	0.50	4	0.50	0.50	11	6	0.33	0.67	5	0.80	0.20
10	8	5	0.40	0.60	3	0.67	0.33	13	5	0.20	0.80	8	0.62	0.38
11	8	3	0.00	1.00	5	0.80	0.20	11	9	0.44	0.56	2	0.00	1.00
12	8	3	0.33	0.67	5	0.60	0.40	11	6	0.33	0.67	5	0.60	0.40
13	8	3	0.33	0.67	5	0.60	0.40	11	8	0.38	0.62	3	0.67	0.33
14	8	4	0.00	1.00	4	1.00	0.00	12	7	0.29	0.71	5	0.40	0.60
15	8	3	0.33	0.67	5	0.60	0.40	11	6	0.17	0.83	5	0.80	0.20
16	8	4	0.50	0.50	4	0.50	0.50	12	8	0.50	0.50	4	0.50	0.50
17	8	3	0.33	0.67	5	0.60	0.40	9	8	0.38	0.62	1	1.00	0.00
18	8	5	0.60	0.40	3	0.33	0.67	12	8	0.38	0.62	4	1.00	0.00
19	8	3	0.33	0.67	5	0.60	0.40	10	6	0.50	0.50	4	0.25	0.75
20	8	5	0.20	0.80	3	1.00	0.00	12	8	0.38	0.62	4	0.25	0.75
Total (AV)	160	73	(33%)	(67%)	87	(63%)	(37%)	225	151	(39%)	(61%)	74	(57%)	(43%)

Supplementary Table 2B. Proportions of symmetric or asymmetric divisions at the 4th and the 5th cleavages that are contributed by progeny of one 2-cell blastomere that received *DsRed mRNA* (DsRed; red) versus progeny of one that was not injected (wt; green).

Nr	4th total	Symmetric (4th)			Asymmetric (4th)			5th total	Symmetric (5th)			Asymmetric (5th)		
		Total	wt	DsRed	Total	wt	DsRed		Total	wt	DsRed	Total	wt	DsRed
1	8	3	0.00	1.00	5	0.80	0.20	10	8	0.50	0.50	2	0.00	1.00
2	8	3	0.67	0.33	5	0.40	0.60	11	9	0.44	0.56	2	1.00	0.00
3	8	4	0.50	0.50	4	0.50	0.50	12	8	0.50	0.50	4	0.50	0.50
4	8	2	0.50	0.50	6	0.50	0.50	10	8	0.38	0.62	2	1.00	0.00
5	8	4	0.50	0.50	4	0.50	0.50	12	8	0.62	0.38	4	0.25	0.75
6	8	4	0.50	0.50	4	0.50	0.50	12	6	0.67	0.33	6	0.33	0.67
7	8	4	0.75	0.25	4	0.25	0.75	12	6	0.67	0.33	6	0.50	0.50
8	8	2	0.00	1.00	6	0.67	0.33	10	8	0.50	0.50	2	0.00	1.00
9	8	4	0.25	0.75	4	0.75	0.25	12	8	0.50	0.50	4	0.25	0.75
10	8	4	0.50	0.50	4	0.50	0.50	12	8	0.50	0.50	4	0.50	0.50
11	8	3	0.33	0.67	5	0.60	0.40	11	7	0.43	0.57	4	0.50	0.50
12	8	4	0.50	0.50	4	0.50	0.50	12	8	0.62	0.38	4	0.25	0.75
13	8	4	0.50	0.50	4	0.50	0.50	12	6	0.33	0.67	6	0.67	0.33
14	8	2	1.00	0.00	6	0.33	0.67	9	6	0.50	0.50	3	1.00	0.00
15	8	4	0.75	0.25	4	0.25	0.75	12	6	0.50	0.50	6	0.67	0.33
16	8	1	0.00	1.00	7	0.57	0.43	9	7	0.43	0.57	2	0.50	0.50
17	8	3	0.33	0.67	5	0.60	0.40	11	5	0.80	0.20	6	0.17	0.83
18	8	6	0.50	0.50	2	0.50	0.50	14	8	0.38	0.62	6	0.67	0.33
19	8	4	0.50	0.50	4	0.50	0.50	12	5	0.40	0.60	7	0.57	0.43
Total (Av)	152	65	(45%)	(55%)	87	(51%)	(49%)	215	135	(51%)	(49%)	80	(49%)	(51%)

Supplementary Table 3A. Proportions of symmetric or asymmetric divisions at the 4th and the 5th cleavages that are contributed by progeny of one 2-cell blastomere that received *Cdx2* dsRNA (RNAi; red) versus progeny of one that was not injected (wt; green).

Nr	4th total	Symmetric (4th)			Asymmetric (4th)			5th total	Symmetric (5th)			Asymmetric (5th)		
		Total	wt	RNAi	Total	wt	RNAi		Total	wt	RNAi	Total	wt	RNAi
1	8	3	1.00	0.00	5	0.20	0.80	11	9	0.56	0.44	2	1.00	0.00
2	8	5	0.60	0.40	3	0.33	0.67	14	5	0.60	0.40	9	0.44	0.56
3	8	3	0.67	0.33	5	0.40	0.60	11	8	0.62	0.38	3	0.33	0.67
4	8	4	0.50	0.50	4	0.50	0.50	10	7	0.71	0.29	3	0.33	0.67
5	8	6	0.33	0.67	2	1.00	0.00	14	6	0.67	0.33	8	0.25	0.75
6	8	2	0.50	0.50	6	0.50	0.50	14	9	0.56	0.44	5	1.00	0.00
7	8	5	0.60	0.40	3	0.33	0.67	13	8	0.50	0.50	5	0.60	0.40
8	8	5	0.60	0.40	3	0.33	0.67	11	4	0.50	0.50	7	0.71	0.29
9	8	5	0.40	0.60	3	0.67	0.33	12	6	0.83	0.17	6	0.17	0.83
10	8	3	0.67	0.33	5	0.40	0.60	9	8	0.75	0.25	1	0.00	1.00
11	8	4	0.50	0.50	4	0.50	0.50	10	5	1.00	0.00	5	0.00	1.00
12	8	5	0.60	0.40	3	0.33	0.67	11	8	0.38	0.62	3	0.67	0.33
13	8	3	1.00	0.00	5	0.20	0.80	9	6	0.50	0.50	3	1.00	0.00
14	8	5	0.60	0.40	3	0.33	0.67	13	8	0.50	0.50	5	0.60	0.40
15	8	6	0.50	0.50	2	0.50	0.50	14	6	0.50	0.50	8	0.50	0.50
16	8	5	0.60	0.40	3	0.33	0.67	12	8	0.62	0.38	4	0.25	0.75
17	8	5	0.60	0.40	3	0.33	0.67	12	7	0.71	0.29	5	0.40	0.60
18	8	4	0.50	0.50	4	0.50	0.50	12	5	0.40	0.60	7	0.57	0.43
19	8	7	0.57	0.43	1	0.00	1.00	15	5	0.80	0.20	10	0.40	0.60
Total (Av)	152	87	(60%)	(40%)	65	(41%)	(59%)	227	128	(62%)	(38%)	99	(49%)	(51%)

Supplementary Table 3A. Proportions of symmetric or asymmetric divisions at the 4th and the 5th cleavages that are contributed by progeny of one 2-cell blastomere that received *Cdx2* dsRNA (RNAi; red) versus progeny of one that was not injected (wt; green).

Nr	4th total	Symmetric (4th)			Asymmetric (4th)			5th total	Symmetric (5th)			Asymmetric (5th)		
		Total	wt	RNAi	Total	wt	RNAi		Total	wt	RNAi	Total	wt	RNAi
1	8	3	1.00	0.00	5	0.20	0.80	11	9	0.56	0.44	2	1.00	0.00
2	8	5	0.60	0.40	3	0.33	0.67	14	5	0.60	0.40	9	0.44	0.56
3	8	3	0.67	0.33	5	0.40	0.60	11	8	0.62	0.38	3	0.33	0.67
4	8	4	0.50	0.50	4	0.50	0.50	10	7	0.71	0.29	3	0.33	0.67
5	8	6	0.33	0.67	2	1.00	0.00	14	6	0.67	0.33	8	0.25	0.75
6	8	2	0.50	0.50	6	0.50	0.50	14	9	0.56	0.44	5	1.00	0.00
7	8	5	0.60	0.40	3	0.33	0.67	13	8	0.50	0.50	5	0.60	0.40
8	8	5	0.60	0.40	3	0.33	0.67	11	4	0.50	0.50	7	0.71	0.29
9	8	5	0.40	0.60	3	0.67	0.33	12	6	0.83	0.17	6	0.17	0.83
10	8	3	0.67	0.33	5	0.40	0.60	9	8	0.75	0.25	1	0.00	1.00
11	8	4	0.50	0.50	4	0.50	0.50	10	5	1.00	0.00	5	0.00	1.00
12	8	5	0.60	0.40	3	0.33	0.67	11	8	0.38	0.62	3	0.67	0.33
13	8	3	1.00	0.00	5	0.20	0.80	9	6	0.50	0.50	3	1.00	0.00
14	8	5	0.60	0.40	3	0.33	0.67	13	8	0.50	0.50	5	0.60	0.40
15	8	6	0.50	0.50	2	0.50	0.50	14	6	0.50	0.50	8	0.50	0.50
16	8	5	0.60	0.40	3	0.33	0.67	12	8	0.62	0.38	4	0.25	0.75
17	8	5	0.60	0.40	3	0.33	0.67	12	7	0.71	0.29	5	0.40	0.60
18	8	4	0.50	0.50	4	0.50	0.50	12	5	0.40	0.60	7	0.57	0.43
19	8	7	0.57	0.43	1	0.00	1.00	15	5	0.80	0.20	10	0.40	0.60
Total (Av)	152	87	(60%)	(40%)	65	(41%)	(59%)	227	128	(62%)	(38%)	99	(49%)	(51%)