Online Resource 2 Cleavage characteristics (A) and time-points for finishing cleavage events (B) in the 3 PN and 2 PN embryos (only IVF embryos cultured at reduced oxygen; 21 3 PN IVF embryos cultured at high oxygen were excluded).

A*	3PN $N_{cases}/N_{analyzed}$ (%)	2PN $N_{cases}/N_{analyzed}$ (%)	p-value
Aberrant 1st cytokinesis	23/36 (64)	28/184 (15)	<0.001
1st cytokinesis, >30 min (Prolonged 1st cytokinesis)	12/36 (33)	29/186 (16)	0.02
Cleavage 1 to 3 cells <1 hour (Early cleavage to 3 cells)	26/34 (76)	16/183 (9)	<0.001
Cleavage 3 to 5 cells <1 hour (Early cleavage to 5 cells)	19/30 (63)	18/181 (10)	<0.001
Multi-nucleation at the 2-cell stage[a].	1/10 (10)	17/208 (10)	0.59

B**	3PN		2PN		
	N	Time-point / hours[b]	N	Time-point/ hours[b]	p-value[c]
2-cell stage (1st division/1st cleavage cycle)	35	29.0 (26.9;32.6)	189	28.2 (25.9;31.3)	0.07
3-cell stage (2nd division)	34	32.1 (27.2;40.4)	199	38.6 (35.6;42.2)	0.001
4-cell stage (3rd division/2nd cleavage cycle)/hours.	33	39.5 (37.2;43.9)	192	39.8 (36.9;44.3)	0.98
5-cell stage (4th division)	30	42.5 (39.0;48.3)	192	52.1 (47.8;56.9)	<0.001
6-cell stage (5th division)	28	49.2 (39.4;57.8)	181	53.4 (50.0;58.3)	0.002
7/8-cell stage (6th/7th division/3rd cleavage cycle)	22	55.1 (50.0;63.0)	165	58.1 (53.5;65.6)	0.14

T0 was defined as time of adding sperm to the dish. N_{cases} refers to number of embryos where the event was observed. $N_{analyzed}$ refers to the number of embryos that was evaluated. $N_{analyzed}$ became smaller with time as some embryos arrested development in almost each cell cycle.

A*. The hypotheses of no difference between the fractions for 3 PN and 2 PN embryos were tested with Fishers exact test. a: Embryos with early cleavage from 1 to 3 cells (n=42) were not included in this evaluation.

B**. b: Time-points are reported as medians with quartiles. c: The hypotheses of no difference between the median time-points for 3PN and 2 PN embryos were tested with Wilcoxon rank sum test. The time points for completion of 6th and 7th divisions were grouped together, as these divisions were often difficult to distinguish.