

Table S1. Detailed statistical analysis of results reported in this study.

Figure	Category	n cell	n embryo	n experiment	Statistical Test	Parameters	Result	p-value
1C	Pre-Rosette	N/A	n=7	n>3	One Way ANOVA	F (2,31) = 6.917	**	0.0033
	Rosette	N/A	n=7					
	Lumen	N/A	n=20					
1D	Pre-Rosette	n=8	n=1	N/A	One Way ANOVA	F (2,21) = 13.62	N/A	N/A
	Rosette	n=8	n=1				***	0.0006
	Lumen	n=8	n=1				***	0.0003
1E	N/A	N/A	n=29	n>3	N/A	N/A	N/A	N/A
2F	Rab8 Pre-rosette	n=8	n=3	N/A	N/A	N/A	N/A	N/A
	Rab8 rosette							
	Rab8 lumen							
	Rab11 Pre-rosette	n=12	n=3	N/A	N/A			
	Rab11 rosette							
	Rab11 lumen							
	Rab35 Pre-rosette	n=4	n=1	N/A	N/A			
	Rab35 rosette							
	Rab35 lumen							
	Actin Pre-rosette	n=12	n=3	N/A	N/A			
Actin rosette								
Actin lumen								
2G	KV cells with luminal cilia across lumen area	N/A	n=29	n>3	N/A	N/A	N/A	N/A
3C	CRY2	N/A	n=3	n=3	N/A	N/A	N/A	N/A
	Rab8 clustering	N/A	n=3		N/A	N/A	N/A	N/A
	Rab11 clustering	N/A	n=3		N/A	N/A	N/A	N/A
	Rab35 clustering	N/A	n=3		N/A	N/A	N/A	N/A
3D	CRY2	N/A	n=29	n>3	N/A	N/A	N/A	N/A
	Rab8 clustering	N/A	n=27		N/A	N/A	N/A	N/A
	Rab11 clustering	N/A	n=40		N/A	N/A	N/A	N/A
	Rab35 clustering	N/A	n=32		N/A	N/A	N/A	N/A
S3B	CRY2	N/A	n=50	n=11	One Way ANOVA	F (3, 94) = 18.43	N/A	N/A
	Rab8 clustering	N/A	n=9	n=3			****	<0.0001
	Rab11 clustering	N/A	n=16	n=4			n.s.	0.9962
	Rab35 clustering	N/A	n=23	n=2			****	<0.0001
S3E	Control MO	N/A	n=12	n=3	One Way ANOVA	F (3, 58) = 51.52	N/A	N/A
	Rab8 MO	N/A	n=13	n=2			n.s.	0.0839
	Rab11 MO	N/A	n=21	n=2			****	<0.0001
	Rab35 MO	N/A	n=16	n=4			****	<0.0001

4C	Rab8 Clustering	N/A	n=8	n=3	One Way ANOVA	F (2, 27) = 43.87	N/A	N/A
	Rab11 Clustering	N/A	n=9				****	<0.0001
	Rab35 Clustering	N/A	n=13				**	0.0015
4D	Rab8 Clustering	N/A	n=9	n=3	One Way ANOVA	F (2, 24) = 946.4	N/A	N/A
	Rab11 Clustering	N/A	n=9				****	<0.0001
	Rab35 Clustering	N/A	n=9				n.s.	0.5421
4F	Rab11 Clustering-Rab8	N/A	n=13	n>2	One Way ANOVA	F (2, 30) = 63.95	N/A	N/A
	Rab11 Clustering-Rab35	N/A	n=9				****	<0.0001
	Rab35 Clustering-Rab11	N/A	n=13				****	<0.0001
S4C	Control MO	n=52	n=3	n>2	One Way ANOVA	F (3, 319) = 74.45	N/A	N/A
	Rab8 MO	n=105	n=7				****	<0.0001
	Rab11 MO	n=55	n=3				****	<0.0001
	Rab35 MO	n=111	n=5				****	<0.0001
5D	CRY2	N/A	n=16	n>2	One Way ANOVA	F (3, 31) = 12.27	N/A	N/A
	Rab8 clustering	N/A	n=16				n.s.	0.2732
	Rab11 clustering	N/A	n=5				****	<0.0001
	Rab35 clustering	N/A	n=15				**	0.0009
5E	CRY2	n=433	n=17	n>3	One Way ANOVA	F (3, 874) = 189.2	N/A	N/A
	Rab8 clustering	n=145	n=4				****	<0.0001
	Rab11 clustering	n=61	n=5				****	<0.0001
	Rab35 clustering	n=239	n=8				****	<0.0001
5F	CRY2	N/A	n=16	n>2	One Way ANOVA	F (3, 31) = 13.27	N/A	N/A
	Rab8 clustering	N/A	n=5				n.s.	0.8825
	Rab11 clustering	N/A	n=6				**	0.0070
	Rab35 clustering	N/A	n=5				****	<0.0001
5G	CRY2	n=91	n=6	n=3	One Way ANOVA	F (3, 299) = 46.89	N/A	N/A
	Rab8 clustering	n=69	n=6				n.s.	0.9545
	Rab11 clustering	n=49	n=4				****	<0.0001
	Rab35 clustering	n=94	n=9				****	<0.0001
6C	No tail-CRY2	N/A	n=85	n=3	One Way ANOVA	F (3, 8) = 4.645	N/A	N/A
	No tail- Rab8 clustering		n=135				n.s.	0.1235

	No tail-Rab11 clustering		n=120				n.s.	0.0860
	No tail-Rab35 clustering		n=88				*	0.0167
	Curved Tail-CR2	N/A	n=85	n=3	One Way ANOVA	F (3, 8) = 8.210	N/A	N/A
	Curved Tail-Rab8 clustering		n=135				**	0.0034
	Curved Tail-Rab11 clustering		n=120				*	0.0363
	Curved Tail-Rab35 clustering		n=88				*	0.0254
	Single Eye-CRY2		n=85				N/A	N/A
	Single Eye-Rab8 clustering	N/A	n=135	n=3	One Way ANOVA	F (3, 8) = 3.707	n.s.	0.1292
	Single Eye-Rab11 clustering		n=120				n.s.	0.0800
	Single Eye-Rab35 clustering		n=88				*	0.0367
	CRY2		n=161				n=3	One Way ANOVA
6E	Rab8 Clustering	n=264	n=4	****	<0.0001			
	Rab11 Clustering	n=269	n=4	****	<0.0001			
	Rab35 Clustering	n=88	n=3	***	0.0001			