

**Table S3. Closed versus open neural tube phenotype among embryos from crosses between parents with various combinations of *Fz1*, *Fz2* and *Vangl2* alleles**

		Neural tube		Total
		Closed	Open	
Parents:	<i>Fz1</i> <sup>-/-</sup> × <i>Vangl2</i> <sup>Lp/+</sup>			
Progeny:	<i>Fz1</i> <sup>+/-</sup>	34	0	34
	<i>Fz1</i> <sup>+/-</sup> ; <i>Vangl2</i> <sup>Lp/+</sup>	5	12	17
Parents:	<i>Fz2</i> <sup>+/-</sup> × <i>Vangl2</i> <sup>Lp/+</sup>			
Progeny:	WT	27	0	27
	<i>Fz2</i> <sup>+/-</sup>	19	0	19
	<i>Vangl2</i> <sup>Lp/+</sup>	12	0	12
	<i>Fz2</i> <sup>+/-</sup> ; <i>Vangl2</i> <sup>Lp/+</sup>	3	6	9
Parents:	<i>Fz1</i> <sup>+/-</sup> ; <i>Fz2</i> <sup>+/-</sup> × <i>Vangl2</i> <sup>Lp/+</sup>			
Progeny:	<i>Vangl2</i> <sup>Lp/+</sup>	9	0	9
	<i>Fz1</i> <sup>+/-</sup> ; <i>Vangl2</i> <sup>Lp/+</sup>	5	3	8
	<i>Fz2</i> <sup>+/-</sup> ; <i>Vangl2</i> <sup>Lp/+</sup>	6	4	10
	<i>Fz1</i> <sup>+/-</sup> ; <i>Fz2</i> <sup>+/-</sup> ; <i>Vangl2</i> <sup>Lp/+</sup>	4	2	6
	All <i>Vangl2</i> <sup>+/+</sup> genotypes	52	0	52
Parents:	<i>Fz2</i> <sup>+/-</sup> × <i>Fz2</i> <sup>+/-</sup> ; <i>Vangl2</i> <sup>Lp/+</sup>			
Progeny:	<i>Vangl2</i> <sup>Lp/+</sup>	3	0	3
	<i>Fz2</i> <sup>+/-</sup> ; <i>Vangl2</i> <sup>Lp/+</sup>	6	3	9
	<i>Fz2</i> <sup>-/-</sup> ; <i>Vangl2</i> <sup>Lp/+</sup>	0	5	5
	All <i>Vangl2</i> <sup>+/+</sup> genotypes	56	0	56

Note that the number of embryos recovered with some *Fz1*, *Fz2* and *Vangl2* mutant combinations is reduced relative to control littermates.