

Table S2. Effects of mutant and WT *bmp4* mRNA injections

RNA	Concentration (pg)	Normal (%)	Phenotype [†]					<i>n</i>
			Dorsalized (%)			Ventralized (%)		
			C1	C2-C3	C4	V3	V4	
Uninjected	0	100	0	0	0	0	0	30
<i>bmp4</i> WT	50	0	0	0	0	2	98	87
<i>bmp4</i> Y180*	50	100	0	0	0	0	0	180
<i>bmp4</i> S355*	50	96	1	3	0	0	0	97
<i>bmp4</i> C365S	50	72	13	13	2	0	0	208
<i>bmp4</i> WT	100	0	0	0	0	0	100	84
<i>bmp4</i> Y180*	100	100	0	0	0	0	0	101
<i>bmp4</i> S355*	100	86	2	8	4	0	0	183
<i>bmp4</i> C365S	100	59	16	16	9	0	0	74

To test whether mutant *bmp4* RNAs would retain activity we carried out overexpression assays. D/V patterning defects were scored in wild-type (WT) embryos injected with WT and mutant *bmp4* RNAs.

[†]Phenotypes are classified according to previously determined designations for degrees of dorsalization and ventralization (Kishimoto et al., 1997; Neave et al., 1997; Weber et al., 2008). C1, only the ventral tail fin is reduced; C2-C3, curled and progressive loss of tail; C4, head structure visible on yolk; C5, most extreme class with no posterior or ventral structures; V3, tissue at either end of the yolk; V4, most extreme class with disrupted epiboly.