

Table S1. Quantitative image analysis of ENS networks following 3-6 ablation and grafting of one somite length of vagal, sacral or trunk neural tube (see Fig. 5)

	Duodenum	Small intestine	Umbilicus	Cecal buds	Hindgut
A (3-6 ablated + Q3)	62.4	59.4	47.4	56.0	55.0
B (3-6 ablated + Q Sacral)	65.5	56.3	38.7	50.9	43.4
C (3-6 ablated + Q Trunk)	54.5	62.7	51.2	56.8	37.4

To determine whether the densities of the ENS networks were significantly different between the three experimental groups (3-6 ablated + Q3, 3-6 ablated + Q sacral, 3-6 ablated + Q trunk), computerised image analysis was performed. Images were saved as Jpegs (Adobe Photoshop) and analysed using ImageJ software (www.nih.gov). The percentage area covered by TuJ1 immunohistochemical staining was measured for each region of the gut (duodenum, small intestine, umbilicus, cecal buds and hindgut) after isolating the green channel (threshold=26). Paired Student's *t*-tests were performed. Differences between the densities of ENS networks within the gut regions of each group were not statistically significant (A versus B, $P=0.114$; A versus C, $P=0.434$; B versus C, $P=0.739$).