Supporting Information

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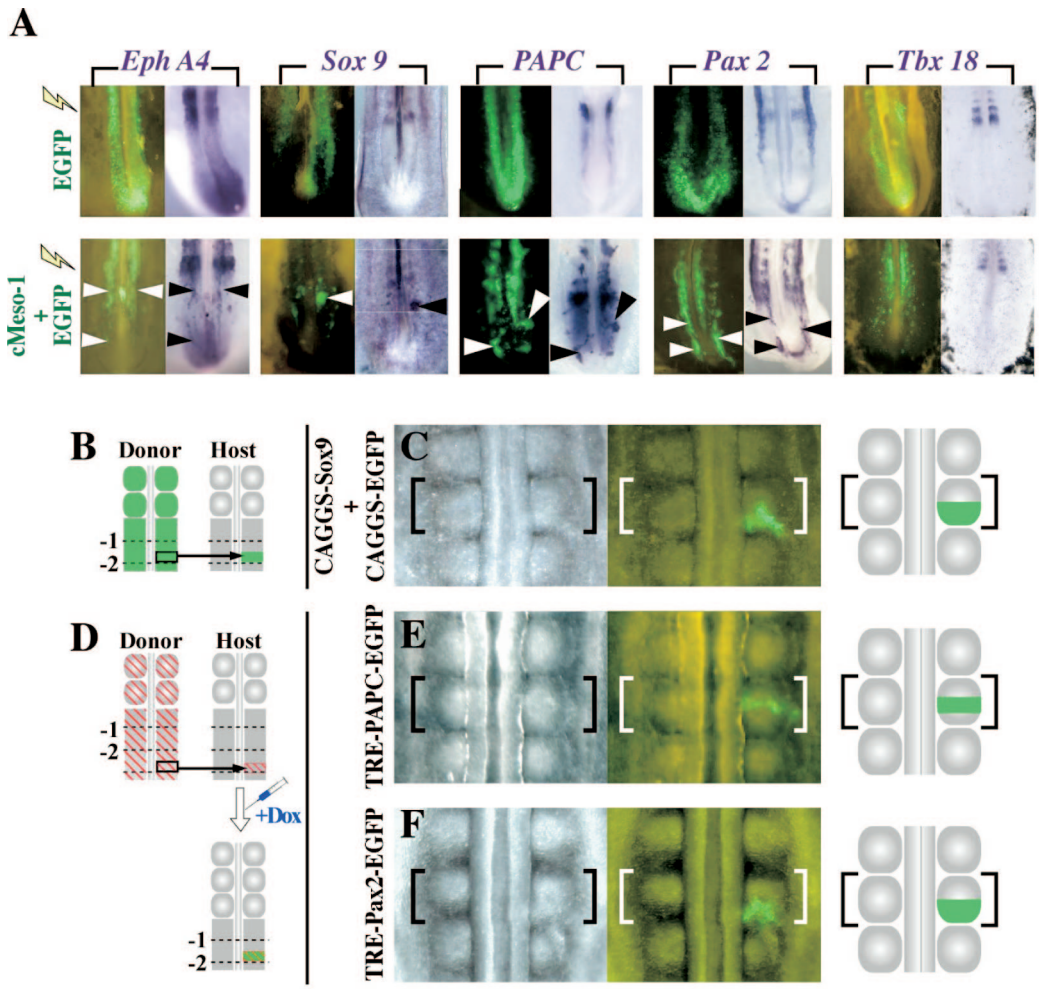

Fig. S1. Downstream effectors of cMeso1 during intersomitic gap formation. Whereas expression of Sox9, PAPC, and Pax2 was up-regulated in PSM by cMeso1, these genes failed to induce a formation of ectopic boundary when subjected to a gap-inducing assay. (*A*) E2 embryos that had been electroporated with cMeso1 were subjected to whole mount *in situ* hybridization using the probes indicated on the top of the panel. Embryos electroporated with EGFP were used as controls. (*B-F*) Gap-inducing assay shows that Sox9 (*C*, $n = 10$), PAPC (*E*, $n = 12$), and Pax2 (*F*, $n = 9$) were incapable of inducing the gap formation. The tet-on method was used for PAPC and Pax2, as overexpression of these genes carried by the pCAGGS vector impeded ingression of PSM precursors.

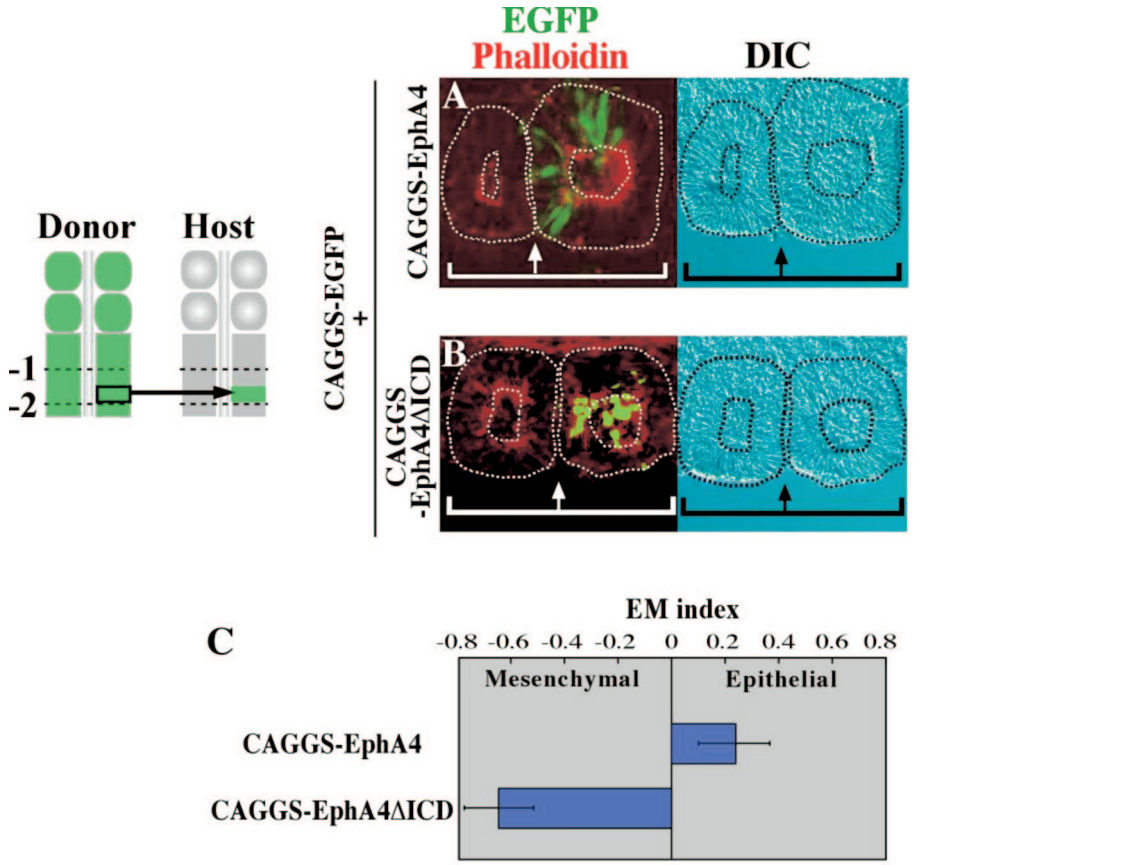

Fig. S2. Eph-forward signals appear to be important for the MET of posterior border cells, although these signals are dispensable for the gap induction. (*A, B*) Embryos were whole-mount stained with phalloidin, and confocal images of horizontal view over a 10-μm thickness were obtained (dark field). The embryo was subsequently subjected to paraffin-sectioning to obtain the same view for Nomarski microscopy. The anterior to the left and the midline to the bottom (neural tube discarded). An arrow indicates a gap ectopically formed. (*A*) Most of EphA4-electroporated cells exhibited an epithelial character in a formed somite. (*B*) EphA4_ICD-electroproated cells, although capable of inducing a gap, failed to epithelialize correctly. (*C*) EM-index for the somitic cells electroporated with EphA4 (n = 13 somites) or EphA4_ICD (n = 9 somites). See also Fig. 3*O*.

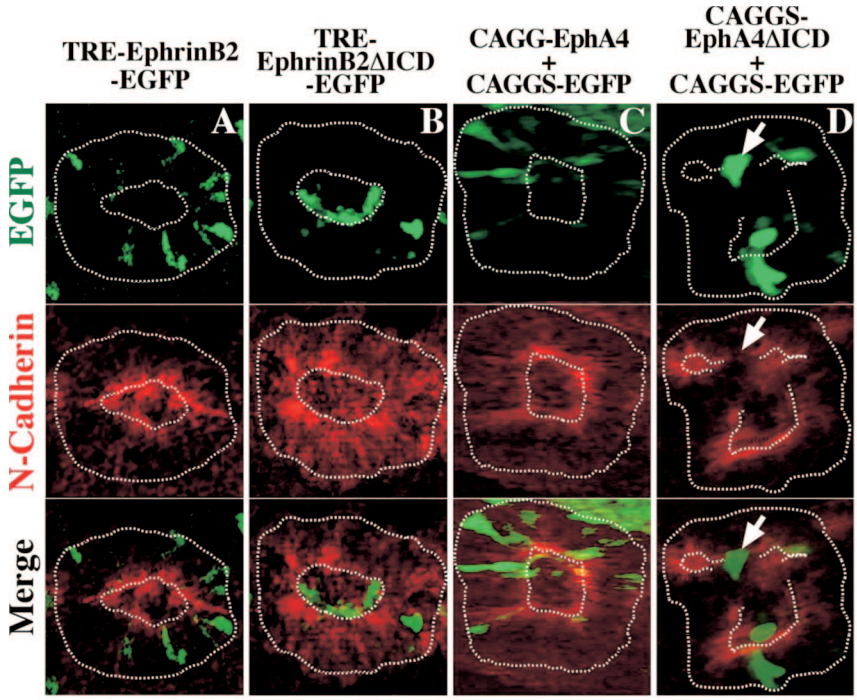

Fig. S3. Bidirectional activation of EphrinB2-reverse and EphA4-forward signals is important for the MET to occur during somitogenesis. Somites electroporated with the constructs shown on the top were stained for N-cadherin, an apical marker for somitic epithelium. Sagittal views with the dorsal to the top and the anterior to the left.