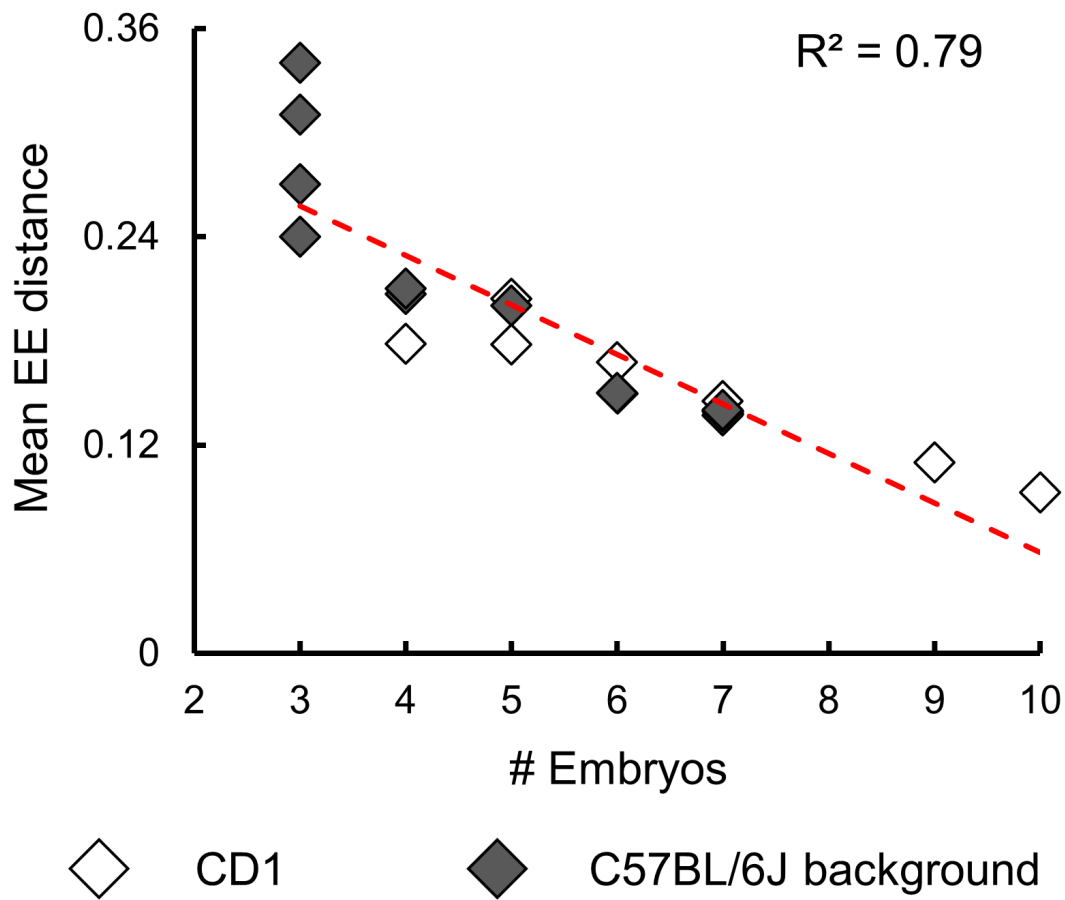
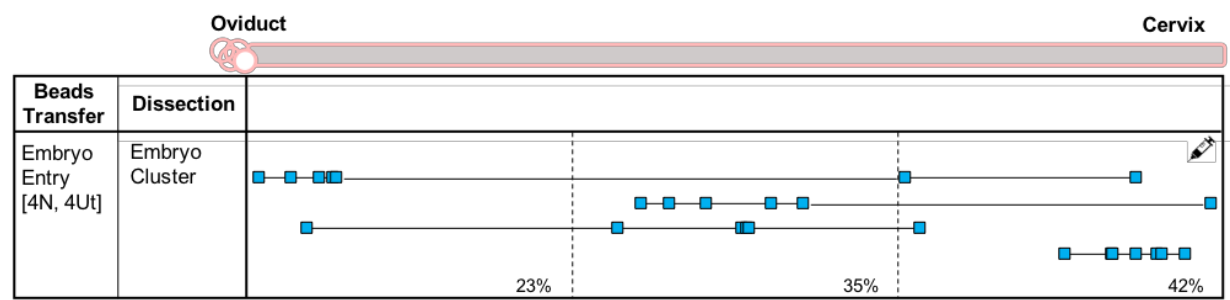


**Figure S1: OE and EE distances plotted for each time point analyzed for the time course.**  
**(A)** Mean OE and **(B)** Mean EE distances plotted over the time course of embryo movement.  
*Error bars represent S.E.M.*



**Figure S2: Implantation sites are not random or pre-determined in different strains of mice. (A)** An inverse correlation was observed between the number of embryos and EE distance for post-implantation time points (GD4 at 0000h and 1800h) in different strains, CD1 (White diamond) and C57BL/6J background (Gray diamond).



**Figure S3: Inert bead movement during the unidirectional phase.** Beads injected near the cervical region of the uterus at the time of embryo entry appear to move unidirectionally and scatter along the uterine horn 12 h post-injection. Dashed lines divide the uterine horns into three equal segments, and percentages for each time point signify the percentage of beads in each segment. Syringe needle indicates location of bead injection site.



**Movie 1.** Movie displaying a 3D extended view of 2D optical planes of a GD3 0000h uterus followed by a zoom into the oviductal-uterine junction and individual slice view visualization. E-CAD staining marks oviductal and uterine epithelium, and Hoechst stains all cell types in the full-length uterine horn with the ovary on the left and the cervical end on the right. Embryos, as stained with Hoechst, are present in the oviductal end.



**Movie 2.** Movie displaying staining of a GD3 0300h uterus near the oviductal-uterine junction. E-CAD staining marks oviductal and uterine epithelium. Embryos, as stained with Hoechst, are present in the uterine opening of the junction.