absence of *neurogenin1*-positive nascent DRG cells at 30 h postfertilization (hpf) and by absence of HuC/D-positive DRG neurons at 4 days postfertilization. However, markers that label migrating neural crest cells revealed no obvious defects in the pattern of neural crest migration in *erbB3* mutants at 24 hpf. To learn whether other aspects of neural crest migration are affected in these mutants, we followed neural crest migration in live transgenic embryos in which GFP expression is driven by the zebrafish *sox10* promoter. Treating embryos with the ErbB receptor inhibitor, AG1478, did not appear to affect overall neural crest motility, but did appear to affect the ability of migrating neural crest cells to stop near the position where the DRG normally forms. Although a few neural crest cells are present near where the DRG forms, they do not appear to become DRG neurons. These results suggest that *erbB3* may be involved in the ability of DRG progenitors to recognize their target position during migration and to respond to DRG instructive signals.

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Program/Abstract # 216
Diverse roles of Notch signaling in cardiac cell differentiation, migration and ventricular morphogenesis

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Heart development serves as an excellent model system for studying developmental processes such as tissue patterning, morphogenesis and cell differentiation. We found that a conserved signaling pathway, Notch, plays important and diverse roles in cardiac development, including cell differentiation, migration and ventricular morphogenesis. Expression of a constitutively active form of Notch (NIC) inhibits cardiac muscle differentiation, and promotes the differentiation of conduction cell, a specialized cell typeresponsible for setting and coordinating rhythmic heart beating. Conversely, by using a dominant-negative suppressor-of-hairless construct, we found that reducing Notch signaling resulted in an increasing cardiac muscle marker expression and a decrease of conduction marker expression. In addition, activation of Notch by expression of NIC or addition of soluble Delta1 ligand promoted cardiomyocyte migration ina 3-D migration assay and caused an increase in trabeculae formation in the ventricles in vivo. Interestingly, the effect of Notch on promotion of cardiomyocyte migration can be separated from its effect on cell differentiation, thus representing a novel function of notch during development.

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Program/Abstract # 217
Lipid phosphate phosphatases are necessary for the trans-epithelial migration of germ cells

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Drosophila germ cells form spatially and temporally separate from the somatic cells of the gonad and therefore migrate through the embryo to associate with them. Extracellular lipid phosphates are implicated in this migration because the lipid phosphate phosphatases, wunen and wunen2 are expressed redundantly in somatic tissues to repel germ cells during their migration and also in germ cells to promote their survival. We recently identified a role for Wunens in the process of trans-epithelial migration. In wild-type embryos the germ cells, which initially are tightly clumped, individualize and migrate across the midgut epithelium in order to reach the somatic cells of the gonad. In embryos lacking Wunens in germ cells and somatic cells, the germ cells remain tightly clumped and fail to migrate across the midgut epithelium. We visualized germ cell behavior in this background by live imaging. We see that germ cells inside the midgut are motile. We hypothesize that during trans-epithelial migration Wunens are required either to provide directionality to germ cells or to regulate cell–cell adhesion. We are currently distinguishing between these possibilities by testing for suppression of this phenotype with mutations in cell adhesion molecules.

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Program/Abstract # 218
Identification of genes affecting Drosophila larval somatic muscle patterning

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Cell migration is required for biological processes as diverse as organ formation during embryonic development and metastasis of diseased tissues. During development of the musculature, migrating muscle cells are guided towards specific attachment sites. The *Drosophila* larval muscles provide a simplified system for studying cell migration and guidance during muscle development. *Drosophila* larval somatic muscle fibers are organized into an intricate, repeating pattern during embryonic development. This pattern depends on individual myotubes extending filopodia as they migrate and attach to specialized epidermal cells called tendon cells. These tendon cells release guidance cues to direct muscle fibers to their correct positions. Few molecules have been shown to function in this guidance process. Identification of genes involved in muscle guidance will provide a better understanding of what mechanisms may play a role in this process. We have isolated several *Drosophila* EMS mutations affecting the ability of somatic muscles to correctly select their proper epidermal attachment sites. The phenotypes of