Many kinds of embryos (like the two embryos of the frog *Xenopus* shown here from the ventral side) establish their midline very early in development. By injecting left blastomeres and right blastomeres with mRNA encoding red or green fluorescent protein, we reveal the lineage of these cells and a sharp midline demarcation between the animal’s left and right sides. The gut (shown in blue) also coils in a stereotypical chiral pattern which points in a consistent direction in normal animals. A variety of perturbations, both early and late, can reverse this normal pattern resulting in mirror-image (or randomized) animals. (Credit: Laura Vandenberg, Levin lab (current affiliation: University of Massachusetts), and Michael Levin.)
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