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## **Dorsal-ventral patterning in sea urchin and *Drosophila* embryos**

The dorsal-ventral axis in *Drosophila* is specified by gradients of bone morphogenetic proteins (BMPs). While initially secreted in a broad region, later concentrate into a narrow band, designating the dorsal-most 10% of the embryo. Modeling papers have focused on the dynamics seen in *Drosophila*, but the same mechanism specifies the sea urchin axis. Yet in urchins, the BMP secretion and expression domains are complementary. Reaction-diffusion models are considered for the patterning seen in both organisms, but are limited in their capabilities to reproduce the sharp curvature seen in the biological data. While positive feedback is likely responsible for the further concentrating the BMP gradient, we consider alternative types that could account for the patterning seen in both organisms.