

CHAPTER 47

ANIMAL DEVELOPMENT

Learning objectives

1. Describe the two general principles that integrate our knowledge of the genetic and cellular mechanisms underlying differentiation.
2. Describe the process of fate mapping and the significance of fate maps.
3. Describe the two important conclusions that have resulted from the experimental manipulation of parts of embryos and the use of fate maps.
4. Explain how the three body axes are established in early amphibian and chick development.
5. Explain the significance of Spemann's organizer in amphibian development.
6. Explain what is known about the molecular basis of induction.
7. Explain pattern formation in a developing chick limb, including the roles of the apical ectodermal ridge and the zone of polarizing activity.
8. Explain how a limb bud is directed to develop into either a forelimb or hind limb.