



FIGURE 9.14. The progressive nature of cell differentiation can be illustrated with the events that lead to the formation of different types of neurons in the chick embryo. The dorsalmost ectodermal cells pull together to start the process of neural tube formation (A; seen in cross section in B). The cells of this tube will form the brain and spinal cord, whereas the rest of the ectoderm will form the skin. Depending on cues received within the neural tube, an individual neural tube cell (C) may become either a neural precursor cell or a glial precursor cell (glia are support cells within the nervous system and include oligodendrocytes and astrocytes). Spatial cues within the neural tube act on the neural precursor cell to cause it to differentiate into any of a number of distinct neurons, such as interneurons that send signals with the spinal cord or motor neurons that innervate the muscles of the body.

9.14A,B,C, adapted from Web source, no longer available; 9.14D, modified from www.northland.cc.mn.us/biology/AP2Online/Fall2001/Nervous/images/motor_sensory_neuron.gif