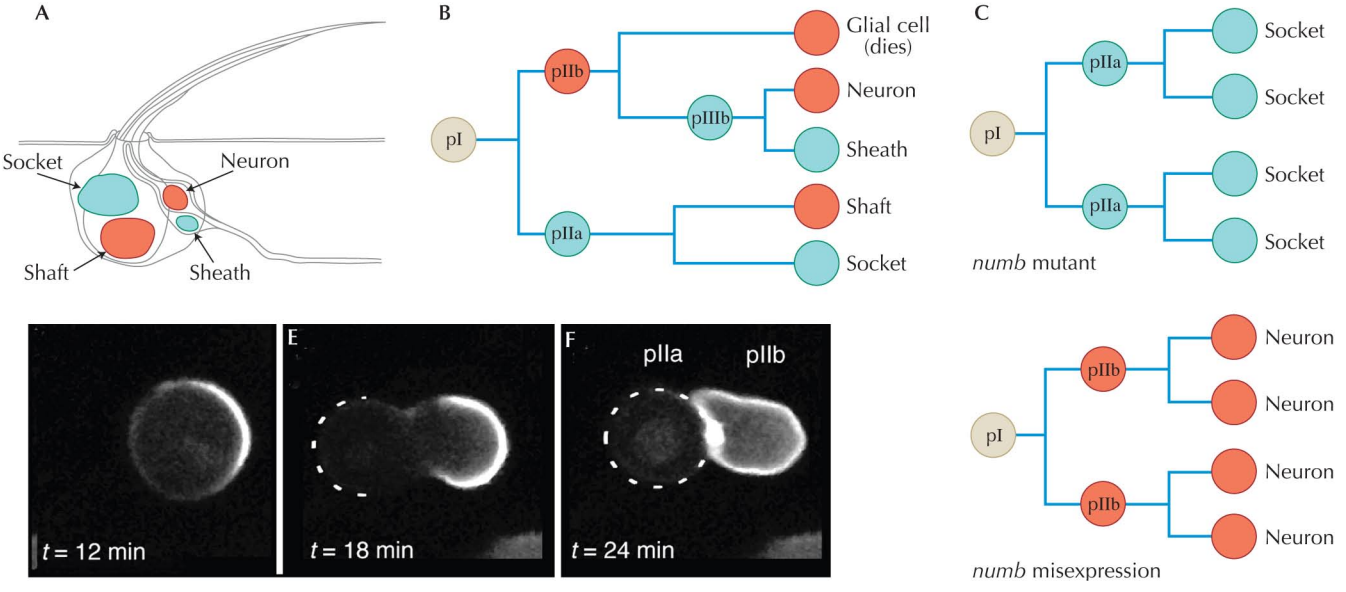

FIGURE 9.26. (A) The sensory hair structures (known as bristles) in *Drosophila* are made up of four cells: the socket, shaft, neuron, and sheath cells. (*B*) These cells are all derived from a single precursor cell called pI through a particular division pattern. In *numb* mutants (upper half of *C*), the cell differentiation program is altered so that all the progeny become socket cells. When *numb* is overexpressed (lower half of *C*), all the progeny become neurons. (*D*) Analysis of numb protein distribution reveals that numb is localized to one side of the pI cell. (*E,F*) As the cell begins to divide, the asymmetry in numb protein distribution results in all the numb protein going to the pIIb daughter (the *dotted line* in *E* and *F* helps to outline the edge of the pIIa cell) and numb protein is also asymmetrically distributed in subsequent divisions as well. The normal pattern of numb distribution is reflected by the coloring of the cells in *B* (numb-containing cells are *red*; those without numb protein are *blue*). This asymmetric distribution can be used to explain the phenotypes seen in *numb* mutants and when *numb* is misexpressed. When *numb* is absent, all the progeny behave like the cells that would normally lack numb protein (pIIa and then the socket cell). When *numb* is misexpressed, all the progeny behave like the cells that have the numb protein (pIIb and then the neuron).

9.26A–C, modified from Lai E.C. et al., *Dev. Biol.* **269:** 1–17, © 2004 Elsevier; **9.26D–F,** reprinted from Roegiers F. et al., *Nat. Cell. Biol.* **3:** 58–67, © 2001 Macmillan, www.nature.com