Neurons are polarized cells - with compartments specialized for the receipt, interpretation, and trans-
mission of information. Neuronal synapses, the sites of communication, can be positioned tens to
hundreds of microns from the cell body. I will discuss cell biological mechanisms that endow syn-
apses to function in relative autonomy from the cell body and neighbors. In addition, I will discuss a
potential mechanism whereby cell adhesion molecules might serve as activity sensors at synapses
and other cellular junctions.