Defective synthesis of β-globin in β-thalassemia contributes to anemia through two mechanisms: (1) inadequate HbA formation, resulting in small (microcytic), poorly hemoglobinized (hypochromic) red cells; and (2) by allowing the accumulation of unpaired α-globin chains, which form toxic precipitates that severely damage the membranes of red cells and erythroid precursors. A high fraction of erythroid precursors are so badly damaged that they die by apoptosis (Fig. 12.5), a phenomenon termed *ineffective erythropoiesis*, and the few red cells that are produced have a shortened life span. [redacted]