Enhanced maturation and proliferation of β-thalassemia/Hb E erythroid precursor cells in culture

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Abstract
Upon erythroid cell maturation in vivo, β-thalassemic erythroid cells accumulate unmatched unstable α-globin chains that are believed to be a causal factor in such cell destruction. This study showed that β-thalassemia/Hb E erythroid precursor cells from peripheral blood had accelerated maturation, and could mature to the terminal erythroid stage. During the early period of cell culture, erythroid precursor cells derived from subjects with the more severe form of β-thalassemia/Hb E had higher rate of erythroid maturation. In addition, peripheral blood mononuclear cells from β-thalassemia/Hb E subjects had higher erythroid proliferative potential than cells derived from normal controls. Erythroid proportion in the more severe β-thalassemia/Hb E cases was less than that of the milder cases. Premature apoptosis was not observed during the 15 days of erythroid cell culture from both β-thalassemia/Hb E and normal subjects.